



Weighing Scales

Installing and using weighing scales
with BarTender's data entry forms

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Overview

A *weighing scale* is a hardware measuring device used to determine the weight of objects. Scales are commonly used in production and/or industrial environments, as many retail products are sold based on the net weight of the object.

You can connect your weighing scale to BarTender and print the weight of objects on a BarTender document. You don't have to physically see the scale to capture and print weight; the actual weighing of objects can be done by someone else. Instead, you can add an interactive visual representation of the scale, called a *scale display control*, to a data entry form in your BarTender document. The scale display control shows the weight currently applied to the scale. The control is connected to an object on your template where the weight will eventually print.

At print-time, the scale display control captures the measured weight and inserts it into the control's linked template object. You can tailor the capture-and-print process to your company's needs. If you have a high-volume business that weighs many products per day from a remote warehouse, you can configure BarTender to capture and print the weight automatically, each time a stable weight is detected. If you run a small business and you weigh each item by hand, you can capture the weight manually and print with a mouse click when you are satisfied with it.

Scale support is offered in the Automation and Enterprise Automation editions of BarTender.

Setting Up Your Weighing Scale

To use a scale, you first have to install and connect it with BarTender®. This allows BarTender to "see" the scale. Depending on the type of scale you are using, you may need to further configure the scale to work with BarTender.

BarTender contains a number of pre-defined configurations for specific scale manufacturers and models, and you can easily select one of these natively supported models using the **Add Scale Wizard**. Some scales, however, need more configuration. For example, the following situations need additional configuration:

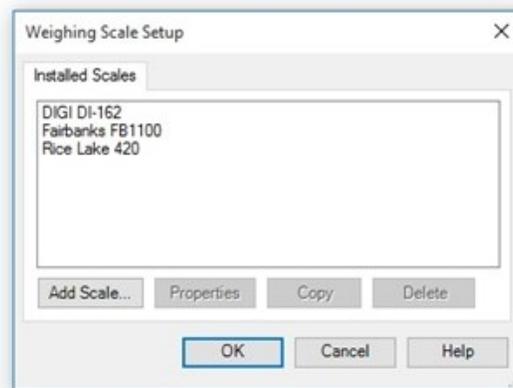
- Your scale's manufacturer is natively supported but your model is not.
- Your manufacturer is not natively supported.

The **Add Scale Wizard** provides additional support to help you configure your scale to work with BarTender in either of these situations.

The Weighing Scale Setup Dialog

Using the **Weighing Scale Setup** dialog, you can select and configure as many scales as you need.

If you have not installed any scales, the first time you attempt to open the **Weighing Scale Setup** dialog, the **Add Scale Wizard** opens instead. After you have used the Wizard to install at least one scale, the **Weighing Scale Setup** dialog will display an **Installed Scales** tab populated with the names of any scales that you have installed and configured.



Until you have properly installed your scale and it appears in this list, it cannot source data to a data entry form.

For more information, refer to the [Weighing Scale Setup Dialog](#) topic in the BarTender help system.

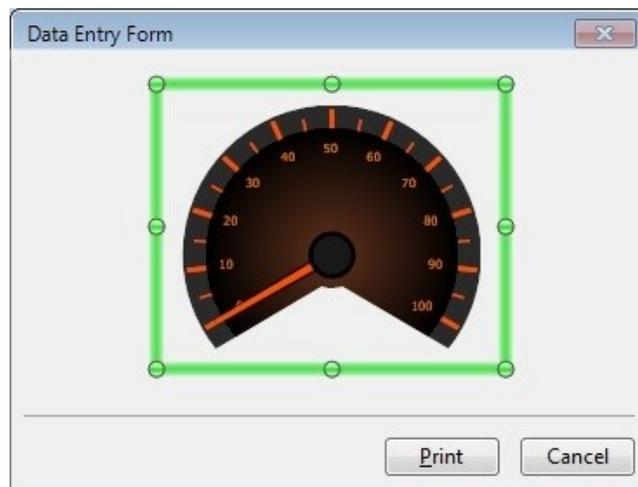
NOTE: Many scale manufacturers and models are supported by BarTender. Refer to [Appendix A](#) for a list of natively supported manufacturers and instructions to find out if your scale model is supported. If your scale is not supported, refer to [Appendix C: Working With Unsupported Scales](#).

Reading In Weights from a Scale

Weighing scale data is read into BarTender from the physical scale, and that data is displayed on a *scale display control* that you add to a data entry form.

Adding a Scale Display Control to the Form

After you've connected your scale to BarTender and configured it for proper communications, you can add a visual representation of the scale to a data entry form in your BarTender document. This visual representation, called a *scale display control*, is an interactive scale that displays the weight currently applied to the scale installed on your computer. You can link that data with text and barcode objects on your printed items. When BarTender executes a print job, the recorded weight will be printed.



Setting the Weight Units

Although your scale will have its own native units, you can use whatever units you like in your data entry forms. BarTender will automatically convert your scale's data to the units desired for your scale display and any subsequent data source value. Select the option you want from the **Weight Units** dropdown list on the **Scale** property page of the **Scale Display Properties** dialog.

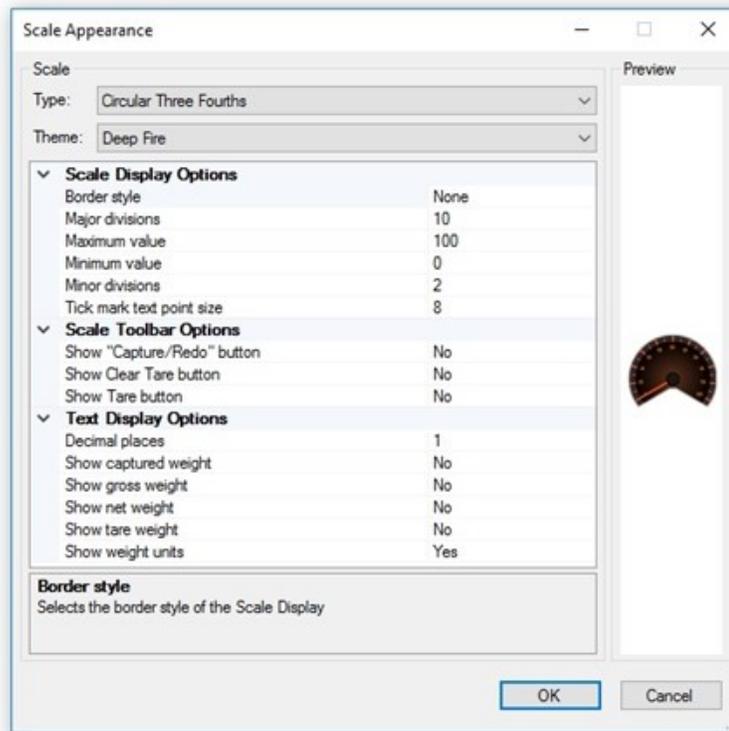
For more information about setting the **Weight Units** option, refer to the [Scale Property Page](#) topic in the BarTender help system.

Enabling Automatic Weight Capture and Printing

You can configure the scale display control to automatically capture and print the weight from the **Scale Display Properties** dialog. Just enable both **Capture stable weight automatically** and **Print after capture**. For more information, refer to the [Capturing and Printing a Weight](#) section of this white paper.

Scale Display Control Appearance

You can configure how the scale display looks and behaves onscreen using the **Scale Appearance** dialog .



You can choose between an analog-style or digital scale image, or change the color theme of your control.



The **Display Options** section defines advanced appearance settings:

- **Scale Display options** include border style, divisions, minimum and maximum values, and tick mark settings.
- **Scale Toolbar options** allow you to show buttons that will appear on your scale display at print-time. See "Showing Control Buttons", below.
- **Text Display options** include decimal place settings, and whether to show different types of weight readings.

Showing Control Buttons

Use the **Scale Appearance** dialog to display **Capture/Redo** and **Tare/Clear Tare** buttons for use at print-time.

- The **Capture/Redo** buttons give you the option to manually capture the weight before printing, and to recapture the weight if you are not satisfied with the reading. For more information, refer to the [Manually Capturing the Weight](#) section of this white paper.
- The **Tare** and **Clear Tare** buttons give you the option to manually capture and clear tare weight (the weight of the empty packaging) before printing. For more information, refer to the [Setting Tare Options](#) section of this white paper.

For more information about configuring the appearance of your scale display control, refer to the [Scale Appearance Dialog](#) topic in the BarTender help system.

Connecting to a Data Source

To print scale data on your items, you must link the scale display control to an object or data source on your template. You have the option to link any or all of the following to objects on your template:

- **Net Weight** (The weight of only the product, minus any packaging materials)
- **Gross Weight** (The weight of a product, complete with packaging materials and/or the container)
- **Tare Weight** (The weight of an empty container)

For more information, refer to the [Importing Data from a Scale](#) topic in the BarTender help system.

Testing the Connection

To test the scale's connection to BarTender, and to verify that your scale display control is set up correctly, click the **Start Test** button on the **Scale** property page of the **Scale Display Properties** dialog. If BarTender is successfully able to contact the scale, it displays the received weight value in the scale preview area. Otherwise, the scale preview area will display a text message notifying you of the failed attempt to communicate with the scale.

Setting Tare Options

The “tare” weight is the weight that you subtract from the gross weight to account for containers and packaging, so you can accurately calculate the net weight. “Tare” is also used to describe the process of setting the zero point of the scale. There are three ways to control tare functions and they can be used in combination:

Taring the Scale Using its Front Panel

If you need to tare the scale, you can use the scale’s built-in tare controls. This is often done by placing an empty shipping container on the scale and pushing a button on the scale’s front panel. In the event that an object will be weighed without packing, you would tare the scale without anything on it.

Using the Tare Button and/or Clear Tare Button on the Scale Display’s Toolbar

If you enable the **Tare** and/or **Clear Tare** buttons in the **Scale Appearance** dialog, then those buttons will be available underneath the scale display on your data entry form. You can use the scale display **Tare** button instead of the button on your scale's front panel.



For more information, refer to the [Scale Appearance Dialog](#) topic in the BarTender help system.

To use the **Tare** button, set the empty packaging for the item to be weighed on the scale, and click  **Tare**. The tare weight is captured, and will continue to display until you click  **Clear Tare**, or until you click **Tare** again to capture a new tare weight.



Data Sourcing the Tare Weight

If your physical scale does not display tare weight but you know the tare weight of a product in advance, you can enter it into the **Input Tare Weight** option on the **Linked Data Source** property page of the **Scale Display Properties** dialog.

For more information, refer to the [Linked Data Source Property Page](#) topic in the BarTender help system.

Capturing and Printing a Weight

With most data entry controls, you type (or scan) in the data you want to include on your printed items. With scale controls, the scale enters the data for you.

You can choose to review the scale data on the screen and print manually, or you can have BarTender print automatically when a stable weight is captured. Either option depends upon first capturing a stable weight. For more information, refer to the [Capturing and Printing the Weight](#) topic in the BarTender help system.

NOTE: Before you can print, you have to link the scale display control on the form to a data source defined in the BarTender document template.

There are two ways to capture the weight: either by manually clicking the **Capture** button, or by having BarTender automatically detect a stable weight.

Manually Capturing the Weight

This method gives you the option of capturing the weight on the scale before printing. If the captured weight is not accurate, you can redo a capture using the button on the data entry form.

In order to use this method, you must enable the **Capture/Redo** button from the **Scale Appearance** dialog.

The **Capture/Redo** button appears at the bottom of the scale display. When you're satisfied with the reading on the scale display, click the **Capture** button. The weight will then be copied to the linked data source, and the **Capture** button will change into a **Redo** button.

If you want to recapture the weight once you have already clicked the **Capture** button, simply click the **Redo** button. The **Redo** button will change back into a **Capture** button, allowing you to capture the weight again.



Even though clicking the **Capture** button places a static weight value into a linked data source, the scale display will continue to show a live reading from the scale. This means that the displayed weight value and the value placed into the linked data source

may not be identical. You can eliminate this potential confusion by enabling the **Show Captured Weight** option in the **Text Display Options** of the **Scale Appearance** dialog.



This causes a string of text to appear under the Scale Display **Captured Weight: 0.0 g**, which shows the same captured weight value as is placed into the linked data source when you click the **Capture** button.

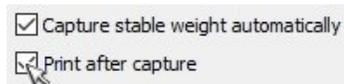
For more information, refer to the [Scale Appearance Dialog](#) topic in the BarTender help system.

Automatically Capturing and Printing a Stable Weight

The factors that determine whether or not a weight is “stable” depend on the capabilities of your scale, and the setting of the **Stable Weight Control Method** option on the **Advanced** tab of the **Scale Properties** dialog.

For more information, refer to the [Scale Properties Dialog](#) topic in the BarTender help system.

Note that you can also enable the **Capture/Redo** buttons (see "Manually Capturing the Weight", above) so you can manually retake the measurement if necessary. As always, if the weight has not yet been captured when you click the **Print** button, it will automatically be captured at that time.



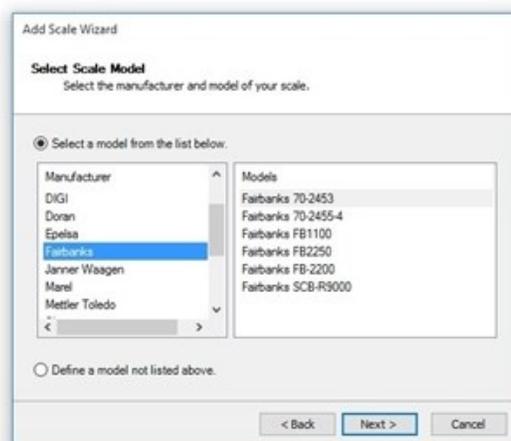
Appendix A: Scales Natively Supported by BarTender

Out of the box, BarTender can connect to scale models from the following scale manufacturers:

- A&D
- Adam Equipment
- Dbal
- DIGI
- Epelsa
- Fairbanks
- Janner Waagen
- Marel
- Mettler Toledo
- Ohaus
- RADWAG
- Rice Lake
- Scanvaegt
- Soehnle

To find out if your model is supported, follow the steps below.

1. From the **Administer** menu, select **Weighing Scale Setup** to open the corresponding dialog.
2. Click the **Add Scale** button to open the **Add Scale Wizard**.
3. Click **Next**.
4. In the **Manufacturer** list, select your scale's manufacturer. Supported models appear in the **Models** list to the right.



For more information on configuring your scale, see the [Weighing Scale Configuration](#) topic in the BarTender help system.

Appendix B: Manufacturer-Specific Setup Guidance

BarTender offers specific guidelines for certain scale manufacturers.

Manufacturer	Guidelines
Fairbanks	<p>BarTender uses the "Fairbanks UPS Output" protocol to communicate with the Fairbanks scales. With this protocol, the scale returns the data in the predefined format upon receiving the "<CR>" command. To configure the scale to use this protocol, the "Pr.F" (Print Function) menu item should be set to Poll.</p> <p>The serial port settings should be configured to match the serial port settings on the PC. Some models, the 2455 Series for example, have fixed serial settings (9600 Baud, 7 Bits, Odd Parity, 2 Stop Bits). The serial port settings on the PC should be configured accordingly.</p>
Mettler Toledo (IND560 and similar models)	<p>BarTender uses the "MT-SICS (Level 1)" protocol to communicate with the Mettler Toledo scales. To configure the scale to use this protocol, the Setup > Communications > Connections > COM option must be set to SICS.</p>
Mettler Toledo (PS60 and similar models)	<p>Some older Toledo scales do not support the "MT-SICS (Level 1)" protocol. The PS60 falls into this category. BarTender uses the "Toledo Scale Protocol" for these models, which simply uses the "L" command to retrieve the weight value from the scale.</p>
Ohaus (Adventurer Pro and similar models)	<p>BarTender uses the "Ohaus Adventurer Pro" protocol for these models, which uses the IP and/or SP commands to retrieve the weight data. For this protocol to work, the scale should be configured in the "Command/Response" mode.</p>
Ohaus (3000 Series and similar models)	<p>BarTender uses the "Ohaus 3000 Series" protocol on these models. In order to configure the scale to use this protocol, the PRINT > A.PRINT menu item should be set to OFF. The menu structure for different Ohaus scales may differ. The key is that the scale should be configured so that it does not continuously send unsolicited data to BarTender.</p>
Ohaus (All supported models)	<p>The data output format on Ohaus scales is highly configurable. On most models, the format is configured in the CONTENT menu. The returned weight format should be just the numeric weight value followed by the units (e.g., 54.6 lb). The header information, if available on the model, should be disabled.</p> <p>BarTender does not support the built-in Tare feature on the Ohaus scales due to uncertainty in the response format. BarTender's emulated tare feature should be used instead. The scale should be configured to return the gross weight in the CONTENT menu.</p>
Rice Lake (520 and similar models)	<p>BarTender uses the EDP Commands to communicate with most Rice Lake scales. For this protocol to work, STREAM CONTINUOUS PORT should be set to OFF. On the Rice Lake 520 and similar models, this setting can be found in the CONFIGURATION > SERIAL COMMUNICATIONS > EDP COMM PORT menu.</p>
Rice Lake (TP Series and similar models)	<p>The Rice Lake TP series and similar scales support a different protocol. BarTender requests weight data using the "C1 C2 <CR> <LF>" command format as specified in the scale's manual. There are no special setup requirements on these scales other than making sure the serial port settings match those on the PC.</p>

Appendix C: Working with Unsupported Scales

Multiple different scale models from the same manufacturer often use compatible communication protocols. (Communication protocols are rules that allow two or more entities to exchange information; in this case, your scale and BarTender.) Therefore, if you have a scale model that is not listed in the **Add Scale Wizard**, but BarTender supports other models from the same manufacturer, there is a good chance that BarTender already supports your scale's protocol. Check your scale's manual or speak to a representative of the scale manufacturer to determine if your scale is compatible with any of the models in the list.

BarTender may still be able to work with your scale even if the scale's manufacturer is not natively supported. To do so, you will need to define a custom protocol that tells BarTender how to communicate with the scale. Custom-defining a scale protocol requires advanced, detailed knowledge of the communication syntax for your scale and a detailed understanding of regular expressions.

For more information on defining protocols, refer to the following topics in the BarTender help system:

- [Understanding Scale Protocols](#)
- [User-Defined Model Properties Dialog](#)
- [User-Defined Protocol Properties Dialog](#)

Using Regular Expressions in Custom Protocols

BarTender only supports the "Command/Response" methodology to communicate with the scale. BarTender polls the scale at a regular interval to request weight data. The scale is expected to respond with the requested weight data within a reasonable amount of time.

Many scales can be configured to continuously send data to the PC. BarTender *does not* support this unsolicited data-streaming mode. When multiple data modes are supported, the scale must be configured at the front panel to the "Command/Response" mode prior to use with BarTender. (For more information, refer to the [Configuring Your Scale Hardware](#) topic in the BarTender help system.) Some scales can be configured to suppress the weight units in the returned weight data. For BarTender to work correctly, the weight units must *NOT* be suppressed.

The five basic commands BarTender uses are:

- **Request Immediate Weight**
- **Request Stable Weight**
- **Tare**
- **Get Tare Weight**
- **Clear Tare Weight**

At a minimum, BarTender requires the scale to support either the "Request Immediate Weight" or the "Request Stable Weight" command. The other commands are optional. BarTender can emulate stable weight and tare features in software if configured properly.

In order for BarTender to support the scale's built-in tare feature, the scale must support the "Tare" and "Get Tare Weight" commands. In addition, the scale must have a response format so that BarTender can distinguish the tare weight from the net weight. We have found some scales inadequate in the response format, so the built-in tare cannot be supported.

The response pattern must use regular expression syntax. A regular expression (also called RegEx or RegExp) is a sequence of characters that forms a search pattern. For more information, refer to the following topics in the BarTender help system:

- [Regular Expression Examples](#)
- [Field Names Used in Regular Expressions](#)

Related Documentation

White Papers and Manuals

- What's New in BarTender 2016
- Administration Console
- BarTender System Security

For downloadable versions, visit:

<http://www.seagullscientific.com/support/white-papers>

BarTender Help System

- [Using Scales for Data Entry](#)
- [Importing Data from a Scale](#)
- [Capturing and Printing the Weight](#)
- [Configuring Your Scale Hardware](#)
- [Understanding Scale Protocols](#)

