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1 Introduction

This guide will walk you through the basic functionality of VST CoffeeTools for Android. This product brings all of the functionality of the VST CoffeeTools family to Android devices for the first time. Users can rapidly and intuitively design coffee or espresso beverages, or cupping parameters in just a few short steps. By using the companion VST Refractometers, users can measure and input observed data to refine, record or communicate their recipes and parameters. VST CoffeeTools seamlessly converts between immersion and drip type brews, between metric and English units of measurement, between volume and mass based units, thereby eliminating common mistakes. The end result is enabling coffee professionals to focus on beverage quality, quickly and effectively.

2 Compatibility and OS Requirements

2.1 Screen Sizes

VST CoffeeTools™ for Android supports most screen sizes from 320 dip to 600 dip, which is roughly 4 to 7 diagonal. More screen sizes may be supported in future releases.

2.2 Android OS Platform Versions

VST CoffeeTools™ for Android supports most models running Versions 4.1.1 - 4.4 (Jelly Bean - KitKat). More Platform Versions may be supported in future releases. App and Updates are available directly from the GooglePlay Apps Store.
3 Navigating Around

3.1 The Main Screen

The VST CoffeeTools Screen is broken into several sections. At the top, the **Main Taskbar** contains the following functional elements:

- the Modes drop down menu to allow users to switch between coffee, espresso and cupping modes.
- the Pad lock to switch from Calculator to Design/Measurement modes.
- the Design/Measurement Input toggle.
- Command Tool: to Save and Email recipes.

![Main Taskbar](image1.png)

**Figure 1: the main Taskbar**

Below the taskbar the **Results Display** contains data results, allowing users to view all computed design parameters as well as measured computations and relevant preference values. Preference values can be edited from this pane by selecting the Edit button in the lower right corner. The Universal Brewing Control Chart can also be accessed from within the Results Display.

![Results Display](image2.png)

**Figure 2: the Results Display**

The lower half of the main screen incorporates all of the data input functionality. The leftmost column is context-dependent and contains the values for brew water, dose and beverage, and TDS. The remainder of the lower section is made up of the unit selector pane, the numeric keypad, and the drip/immersion toggle switch.

![Data Input](image3.png)

**Figure 3: Data Input**
3.2 The Presets Screen

The presets screen presents mode-dependent options for beverage design from common or custom configured parameters.

![Presets Screen Diagram](image)

Figure 4: The Presets screen (in Coffee Mode). A - The brew method selector, B - brew temperature selector, C - green highlight indicates the independent variable (or starting value).
3.3 The Recipes Screen

The Recipes Screen displays all of the recipes previously saved for a given mode of operation (for example, in Coffee Mode, only Coffee recipes are shown). The recipe names are listed as well as the recipe date of creation. Users can sort the saved recipes on the Recipes Screen using the bottom taskbar, either alphabetically by name, by date of creation or by taste score. Tap once for ascending, again for descending order.

Figure 5: the Recipes Screen (in Coffee Mode)
4 Design & Measurement

The normal work flow for 95% of typical brewing conditions is for users to follow a design and measurement protocol. The first step is to define and load your target beverage using design presets which can be adjusted (fine-tuned) after loading. This quickly sets up users to proceed to step 2, which is to prepare the beverage according to the protocol loaded. In step 3 users take measurements of the resulting beverage, enter the measurements, and plot the results. This can form the basis of an iterative cycle for improvement, monitoring and quality control. The following sections demonstrate typical application of this process in coffee, espresso and cupping modes.

4.1 Coffee Mode

Coffee mode is designed to be used with brewed coffee beverages, both drip and immersion methods. There are several unique features of this mode, including:

- Strength presets have default values in the range 1.15 to 1.50 (custom presets can also be defined).
- The starting value used can be dry coffee dose, beverage size, or brew water size, at either ambient or normal brewing temperature.
- Design parameters include preferred strength and extraction yield, beverage yield, brew water and ground coffee amounts, with preferences for ground coffee moisture and CO2 content, liquid retained ration, drip or immersion method, and brew water temperature (when using volume measurements).
- The Brew Chart range defaults to approximately a 1.00 to 1.65 % strength region, and optionally displays the SCAE, SCAA and NCA preferred regions of interest as well as the taste defect labels. The region of interest may be customized in general preferences.
- From the main screen in coffee mode users may switch between drip and immersion types, edit preferences, email and save recipes.

Figure 6: Design & Measurement in Coffee Mode. A - select target strength, B - select independent variable (brew water) and desired value (1kg), C - Load Design, D - prepare beverage to designed protocol, E - press the Design/Measure toggle in the main taskbar to enter measurement mode, F - measure and enter actual observed values for beverage amount and %TDS. The results are plotted in the universal brewing control chart (below).
Figure 7: Universal Brewing Control Chart in coffee mode, showing SCAA (blue), SCAE (green), NCA (grey), and custom user (pink) regions of interest. The designed (target) beverage is designated by the red circle, the actual (measured) beverage is designated by the blue circle.
4.2 Espresso Mode

Espresso mode is designed to be used with espresso coffee beverages. There are several unique features of this mode, including:

- Dry coffee amount presets (size) default to 7, 14, and 21g doses. These can also be user defined to custom preset amounts.
- The concentration % TDS values default to traditional values. These can also be user defined to custom preferences.
- Design parameters include extraction yield, moisture content, CO2 content.
- The Brew Chart range defaults to approximately a 3.00 to 20.00 % strength region, and optionally displays the regions of interest for lungo, normale and ristretto concentrations. The region of interest may be customized in general preferences.

Figure 8: Design & Measurement in Espresso Mode. A - select beverage/dose size (Double), B - select desired concentration (normale), C - Load Design, D - prepare beverage to designed protocol, E - press the Design/Measure toggle in the main taskbar to enter measurement mode, F - measure and enter actual observed values for beverage amount and %TDS. The results are plotted in the universal brewing control chart (below).
Figure 9: Universal Brewing Control Chart in espresso mode, showing traditional Lungo, Normale and Ristretto, as well as custom user (pink) regions of interest. The designed (target) beverage is designated by the red circle, the actual (measured) beverage is designated by the blue circle.
4.3 Cupping Mode

Cupping mode is designed to be used with cupping preparations. There are several unique features of this mode, including:

- Strength presets have default values in the range 1.15 to 1.50. Custom presets can also be defined.
- Brew Water or Dose amount show traditional cupping values. Custom presets can also be defined.
- Design parameters include extraction yield, moisture content, CO2 content, liquid retained ratio.
- The Brew Chart range defaults to approximately a 1.00 to 1.60 % strength region, and optionally displays the SCAE, SCAA and NCA preferred regions of interest as well as the taste defect labels. The region of interest may be customized in general preferences.

Figure 10: Design & Measurement in Cupping Mode. A - select target strength, B - select independent variable (dose) and desired value (12.0g), C - Load Design, D - prepare cupping to designed protocol, E - press the Design/Measure toggle in the main taskbar to enter measurement mode, F - measure and enter actual observed value of %TDS. The results are plotted in the universal brewing control chart (below).
Figure 11: Universal Brewing Control Chart in cupping mode, showing SCAA (blue), SCAE (green), NCA (grey), and custom user (pink) regions of interest. The designed cupping is designated by the red circle, the measured (actual) is designated by the blue circle.
5 Calculator Mode

Calculator (unlocked) mode is intended for situations where a user needs to evaluate pre-existing conditions. For example, establishing the current protocol at an unfamiliar location. In this mode users will make an observation of current brew water amount, current coffee portion amount, and take a measurement of current %TDS of the beverage in order to determine the pre-existing brewing conditions. On the brewing control chart there is no blue (measurement) circle as we do not have a design / measurement comparison to perform.

Figure 12: Calculate Mode. Note the measurement field in the results display are greyed out, and there is a single circle plotted on the Universal Brewing Control Chart showing the pre-existing brewing conditions.
6 About Presets

Users can quickly set the parameters for a beverage using the presets screen. For the majority of typical usage scenarios a simple and quick 2-step process will enable loading of users desired parameters.

![Presets Screen](image)

**Figure 13**: Example Coffee Design By Preset: A - select concentration, B - Select Size: BEV, or BW or DOSE (for either Drip or Immersion method), C - Load (done)
Figure 14: Example Espresso Design By Preset: A - Select Size (Triple), B - select concentration (Ristretto), C - Load (done)
Figure 15: Example Cupping Design By Preset: A - select concentration, B - Select Size (BW or Dose), C - Load (done)
### 6.1 Custom Presets

Users can customise preset values in all modes by a simple process.

![Custom Presets Diagram](image)

Figure 16: Customize Design Presets: A - select Edit, B - Select Preset to be modified and input desired value, C - select Done when complete to save.

Presets can also be reset globally from the presets screen, or individually from the preset edit screen.
7 Communicating

7.1 Saving Recipes

Once you have completed your measurements and input your values for actual TDS and actual measured Beverage you can choose to record these values with additional details as a recipe for future replication, comparison or communication. By selecting Save Recipe from the Command Menu on the Main Screen a blank recipe form with the currently displayed and charted values is presented, allowing users to enter detail values. The available values are Mode-dependent (for example some espresso specific variable are only presented in espresso mode). Recipe name is the only required field. Once users have completed their inputs, pressing Save will complete the task.

7.2 Importing Recipes

Recipes Exported from iOS (both are required)
- Can only be imported using the built-in Email app (not the Gmail app because it strips the link to CoffeeTools)
Note: If your built-in Email app does not work, VST recommends using the Boomerang Email Client. - Can only be imported from a Gmail account (the link will fail under non-Gmail accounts)

Recipes Exported from Android
- Can be imported from any account under any email client by tapping the second link (Import to Android) - Can be imported by iOS email client by tapping the first link (Import to iOS)

7.3 eMailing Recipes

Recipes can be emailed in two formats. By pressing the command button in the top taskbar on the main screen, an email containing the current displayed results in an abbreviated format will be generated. This can be emailed in the normal manner. The recipient can load the receipt on any of the VST CoffeeTools family of products.

More detailed data can be shared by first loading a saved recipe from the recipes screen, then selecting the email recipe command from the top taskbar. Examples of saved recipes for each of the three main modes are shown in the figure below.

Figure 17: From left to right sample recipes for Espresso, Cupping and Coffee Modes. Note hyperlinks for import to iOS/Mac or Android CoffeeTools applications.
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