

# Drug Test Cup Reader User Manual

Version 4.1.4

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## General information

The **UCP Drug Test Cup Reader** provides intuitive user interface and powerful processing capability to read Drug of abuse (DOA) screen cup and digitally document test results. It automatically recognizes DOA cup type/number of strips and completes cup scanning within 1 minute. It provides non-subjective reading and is highly sensitive to faint color lines on immunochromatographic strips. It can export data USB thumb drive with encryption option or directly save data to PC. It is currently compatible **with all UCP brand cups** with future upgrade options.

## Safety Instruction

All statement regarding safety of operation and technical data in this instruction manual will only apply when the unit is operated correctly as it was designed for.

Before connecting the power supply to the electric outlet, make sure that the line voltage range marked on the power supply agrees with your local supply.

- 1) Shut down when not in use for long period of time.
- 2) Do not place the Reader in liquid, nor place it where it could fall into liquid. If the Reader becomes wet, take necessary precaution to unplug the equipment before touching it.
- 3) Place Reader on a leveled, flat surface during operation.
- 4) Do not place Reader under direct lights.

## Parts list

Inspect the shipment container for damage.

If the shipping container seems to be damaged, keep it until you have inspected the contents mechanically and electrically.

Verify that you have received the following items within the package.

1. Reader station
2. Power supply (5V, 3A), 100-125V line voltage. (100-240V for international models)
3. Wired mini-keyboard
4. USB-Ethernet adapter
5. USB thumb drive, containing USB-Ethernet adapter driver program and PC-link program.
6. Ethernet cable
7. User manual
8. Scanner
9. Portable thermal printer

## Procedure

1. Reader startup and shutdown
  - 1.1. Insert the keyboard to one of the USB ports.
  - 1.2. Insert the power plug to the power jack.
  - 1.3. Insert the scanner USB into one of the USB ports.
  - 1.4. Insert the power plug into the power jack of the portable printer.

- 1.5. Connect the portable printer to one of the USB ports.
- 1.6. Turn on power switch and wait until home screen shows up.
- 1.7. Turn on the portable printer. The power light will be on.
- 1.8. To shut down, touch the “shut down” button on home screen and confirm. When a white blank screen shows up, the operator can safely turn off the station by pressing the power switch.

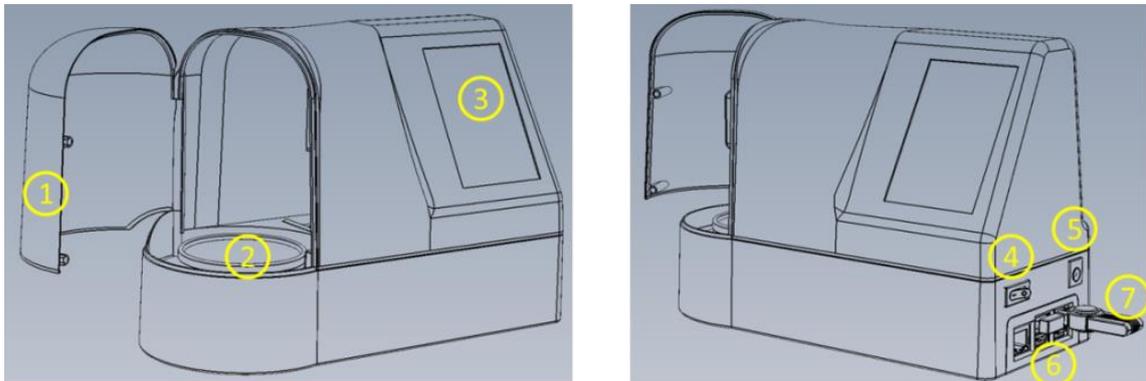


Fig 1: Reader operating elements: (1) Swing door; (2) turn table; (3) touch screen; (4) power switch; (5) 5V DC power jack; (6) Ethernet port; (7) USB thumb drive

## 2. PC link set-up

- 2.1. On a PC (Windows based), install the USB-Ethernet adapter driver provided in the thumb drive. (📁 **For newer Windows operation systems such as Windows 10, the driver might not be needed. Therefore you can skip this installation step.**)
  - 2.1.1. Insert thumb drive.
  - 2.1.2. Go to the “USB-Ethernet Adaptor Driver” folder and run “autorun.exe”.
  - 2.1.3. Click “Install Driver” in the pop up window.
  - 2.1.4. Follow the direction on the screen to complete the installation.
- 2.2. Insert the USB- Ethernet adapter into one of the USB ports on PC, the adapter will be automatically recognized and installed by PC.
- 2.3. Insert the provided Ethernet cable to Ethernet port on the USB-Ethernet adapter and the Ethernet port on the Reader.
- 2.4. Copy the “clientMain.exe” file to a dedicated folder on PC. You may want to create a shortcut onto your desktop for convenience. This is the PC-link client program to receive data from Reader.

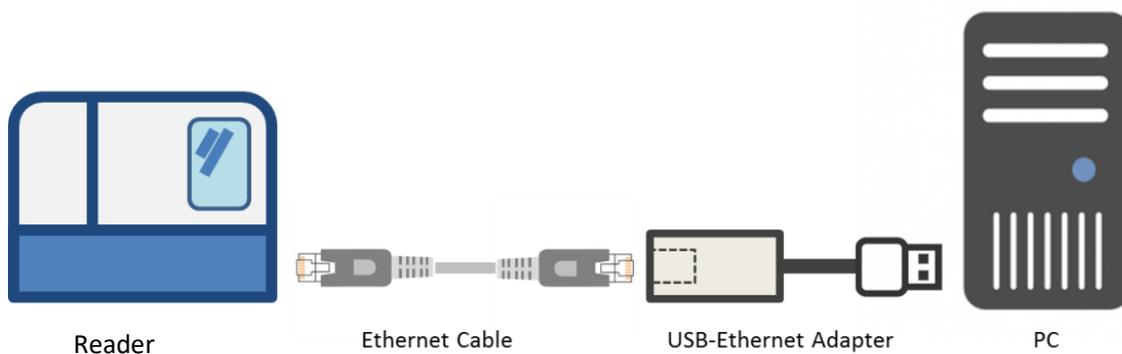


Fig 2: PC link Connection

## 3. Urine test preparation

- 3.1. Refer to drug test cup operation manual to start a urine test.

3.2. Have patient information sheet ready.

#### 4. Cup scanning Interface



**Note: Operate the Reader under diffused, indirect office/lab light. DO NOT operate the Reader under direct sunlight or direct in-door light, as it could cause reading errors.**

4.1. By default, the Reader will work in “local” mode. Test results will be saved in internal memory. If the portable thermal printer is connected and automatic printing is selected on the Settings page, the results will be printed automatically after the test is completed.

4.2. On home screen, press the “New test” button to start a new test.

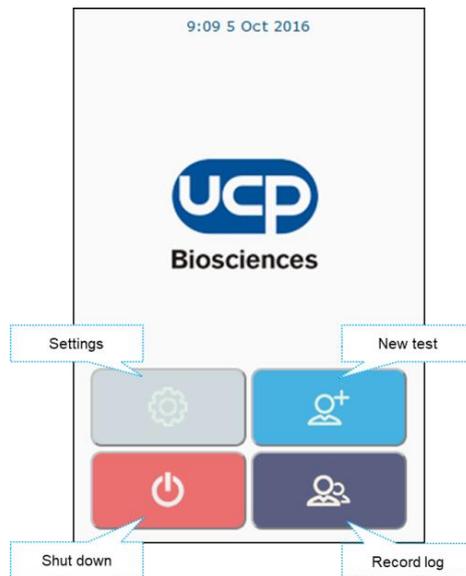


Fig3: Home screen

#### 4.3. “New test”screen

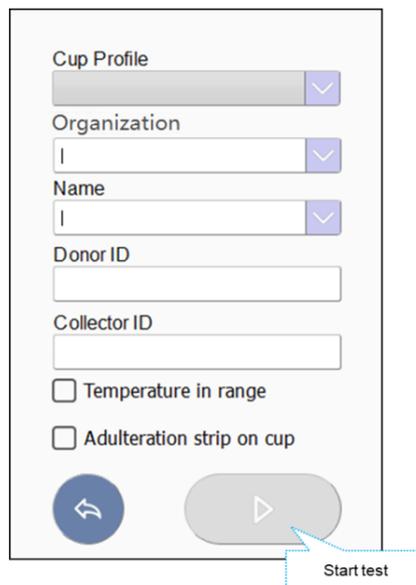


Fig 4: New test screen

4.3.1. Select the cup profile based on the type of test cup. Select the Organization. See chapter 5. Settings for how to setup cup profiles. note: the last used or edited cup profile and Organization will be selected as default.

4.3.2. Enter “Name”, “Donor ID” and “Collector ID” fields using keyboard or Bar code scanner. Press “tab” or touch the next field to move to the next field. Note: Most recent 50 tested Names will be remembered by the

Reader. In the “Name” field, start typing the first name or last name, all matching names will be displayed in a drop down list for the operator to select. Note the matching works for any string sequence in the name list, not just the start of names. When all “Name”, “Donor ID” and “Collector ID” fields are filled, the start button will be activated.

4.3.3. Examine the temperature strip on cup, if valid then check the checkbox of “Temperature in range” field, else leave it unchecked.

4.3.4. Examine the adulteration strip(s) on cup. If adulteration strip is present then check the checkbox of “Adulteration strip on cup” field, else leave it unchecked. Upon checking this field, a dialog box will pop up for the operator to enter the status (Valid, Invalid and Not present) of each adulteration strip (namely OX, S.G, pH, NIT, GLUT and CRE. They are selectively populated based on selected cup profile). If all strips are selected as “Not present”, the “Adulteration strip on cup” field will remain unchecked when return.

4.3.5. Place cup onto the center of turn table. For REVEAL MINI cup, the inner ring of turn table helps to center the

cup.  **Note: Align cup’s first drug test strip (non-adulterant) to the white mark on the Reader base for a faster scanning.**

4.3.6. Close the door, and press “start test” button to start the test.



Fig5: Reader station. The mark is a white dot on the blue base.

#### 4.4. Test in progress screen

4.4.1. A progress bar is displayed to show the scan progress. To abort, press the “Cancel” button to exit.  **Note: after cancelation, to reinitiate a test, operator needs to re-align the *first drug test strip* to the exterior mark.**



Fig6: Progress bar

#### 4.5. Result review and save

4.5.1. When the scan is finished, a result overview screen is displayed to list all strip results. Operator can either choose to “Save” or “Discard” the results, or enter “Detailed review”.

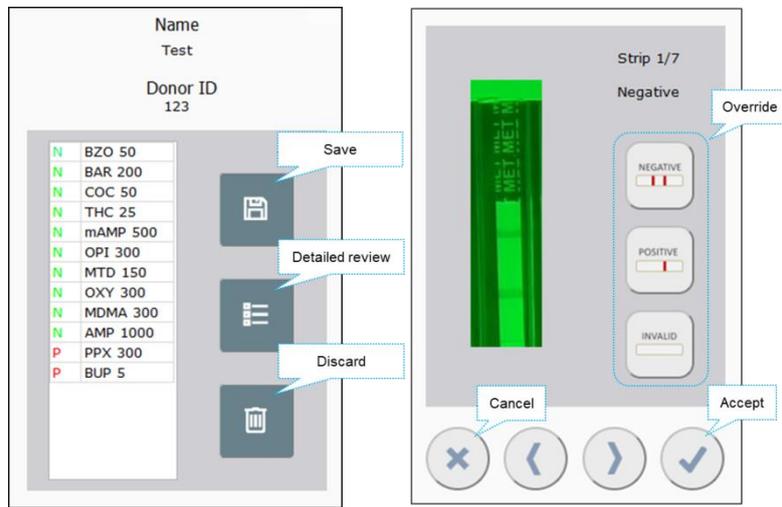


Fig7: (left) Result overview; (right) Detailed review screen.

4.5.2. Detailed review screen: To navigate, touch forward or backward buttons to review results strip by strip. To correct scanning result, touch the intended override button, and choose accept or cancel to finish the detailed review and return to result overview screen.

4.6. Record log screen: On Home screen, touch "Record log" button to view all records on Reader's internal memory. User can sort the records by pressing the header of each field. When a record is selected, detailed results will be displayed in the window below, grouped by the result category (namely positive, negative and invalid). Click Print to print the selected single test result.

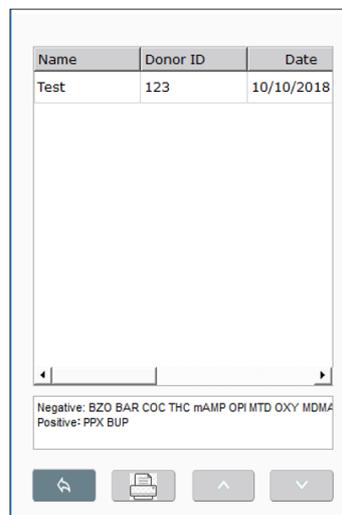


Fig8: Record log screen

## 5. Settings

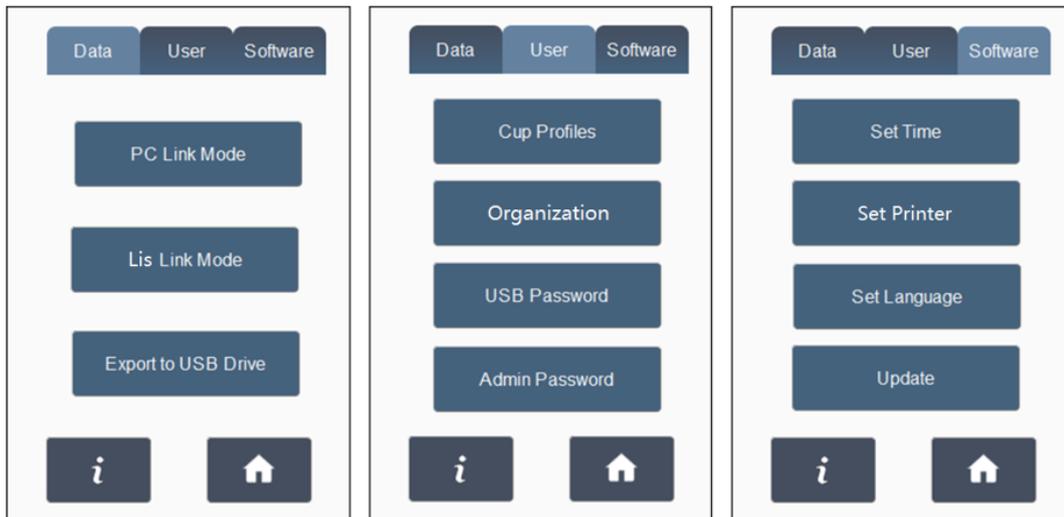


Fig 9. (left) Data I/O settings; (middle) User related settings; (right) software related settings.

5.1. (Data Setting Group) PC-link mode: The Reader offers PC-link mode to directly save the test results to PC, as opposed to Reader's internal memory.

5.1.1. Make sure the USB-Ethernet adaptor's driver is installed correctly on a PC and the Ethernet cable is connected according to Fig.2.

5.1.2. Press "Save to PC" button on Settings screen. The Reader will show a "Connecting..." dialog and display an IP address.

5.1.3. Start the client program "clientMain.exe" on PC. First select a folder into which you will save the data. Then enter the IP address shown on the Reader and press "Connect". If you see a "connected" message on the right, the PC-link is established and the Reader will display a "linked" logo  on upper-right corner.

5.1.4. To disconnect, simply close the PC-link client program or press the "disconnect" button on Reader.

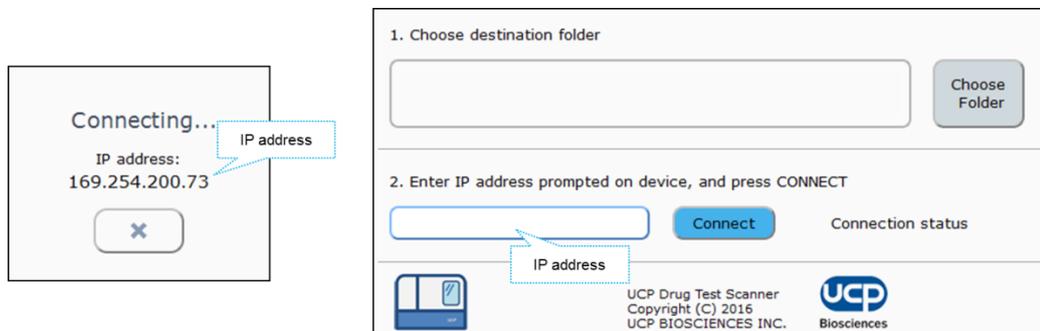


Fig 10. (left) PC link dialog on Reader; (right) PC link client on PC

5.2. (Data Setting Group) Lis Link Mode: The reader provides the LIS link mode. Users can select the required data according to communication protocols.

5.2.1. The Ethernet is connected as shown in Figure 2.

5.2.2. Press the Lis button on the settings screen. The reader displays the Connecting... dialog box and an IP address.

5.2.3. Enable the Lis link mode on the client on the PC (note: The port No. is a fixed parameter (8998))

5.2.4. After a successful connection, Disconnect is displayed (see the attached communication protocols for details).

5.2.5. To disconnect, turn off the Lis communication or click **Disconnect** on the device.

5.3. (Data Setting Group) Export to USB Drive: User can export all the data from the internal memory to a USB thumb drive. The data will be exported as a zip file with optional password.

5.3.1. Insert the provided USB thumb drive to Reader.

- 5.3.2. On Settings screen, press “Export to USB” button. When an “Exported” dialog shows up, all internal records are exported.
- 5.3.3. Insert the USB drive into a PC and unzip the record using software such as “7-Zip”(free to download). Enter the password if a USB password is set on Reader.
- 5.4. (User Setting Group) Cup Profiles: User can establish cup profiles for the DOA strip sequence tailored to their applications. The cup profile is used to generate a friendlier test report.
- 5.4.1. On Settings screen, press “Cup Profile” button to show cup profile overview page. User can browse all the existing cup profiles from the drop down list. User can choose to create a new profile, edit an existing profile or delete an existing profile, by pressing the “New”, “Edit” and “Delete” buttons.
- 5.4.2. If user chooses to create or edit a profile, a profile editing page will show up. The user needs to enter “Profile name”, choose a cup type, confirm adulteration strips existence, and configure the DOA strip sequence.  when selecting the cup type, pay attention to the color of the sleeve that house the test strips (see pictures below), if it’s clear, pick the type with “(Clear)”; if it’s white and opaque, pick types with “(White)”.

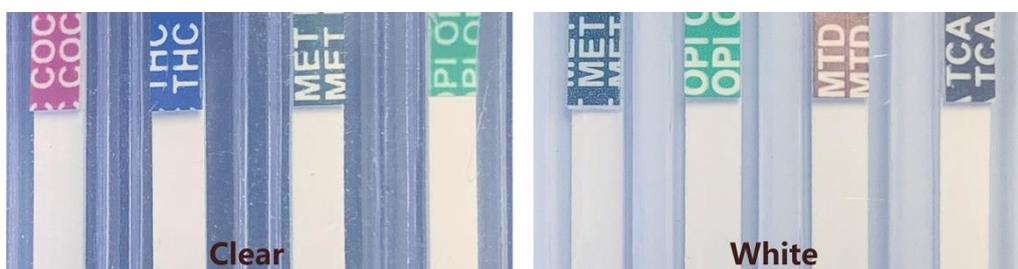


Fig. 11. Pictures of Clear sleeve cup (Left), and white sleeve cup (right).

- 5.4.3. All available DOA strip choices are listed on the left panel alphabetically, in the format of “Drug name (abbreviated) + cutoff level (ng/mL)”. Navigate the list to find the DOA strips in left-to-right sequence on your cup, and press “>” button to place it in the right panel (i.e. left-most strip on cup is the top-most strip in panel).  User might find it easier to use a pointy pen or “Up/down” keyboard to navigate the left list panel.
- 5.4.4. Choose “Save” to create or finish the editing of an existing profile. Or “Cancel” to discard the changes.

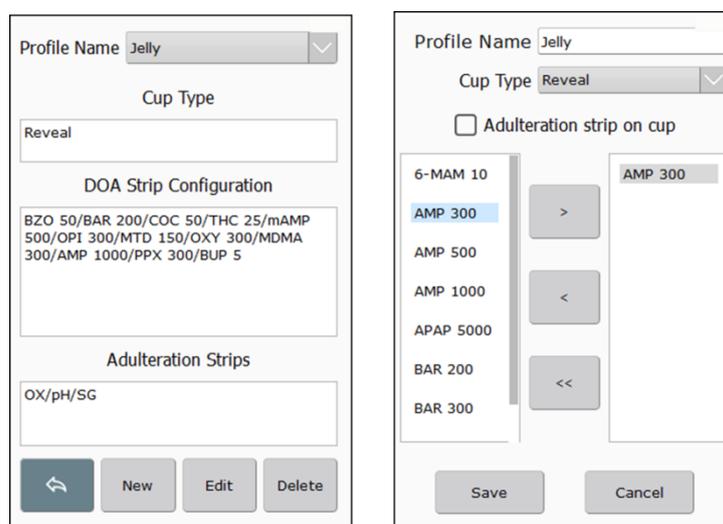


Fig. 12. (Left) cup profile overview page (right) cup profile editing page.

- 5.5. (User Setting Group Organization: User can establish Organization. The Organization is used to generate test report.
- 5.5.1. On Settings screen, press “Organization” button to show Organization overview page. User can browse all the existing Organization from the drop down list. User can choose to create a new Organization, edit an existing Organization or delete an existing Organization, by pressing the “New”, “Edit” and “Delete” buttons.
- 5.6. (User Setting Group) Set Password
- 5.6.1. In factory setting, both ADMIN and USB passwords are empty. Simply press enter to pass the password challenge.
- 5.6.2. To set ADMIN password, on Advanced Settings screen, press “Set Admin password” button. First enter the current ADMIN password, then enter/repeat the new ADMIN password and accept.
- 5.6.3. To set USB password, on Advanced Settings screen, press “Set USB password” button. First enter the current ADMIN password, then enter/repeat the new USB password and accept.

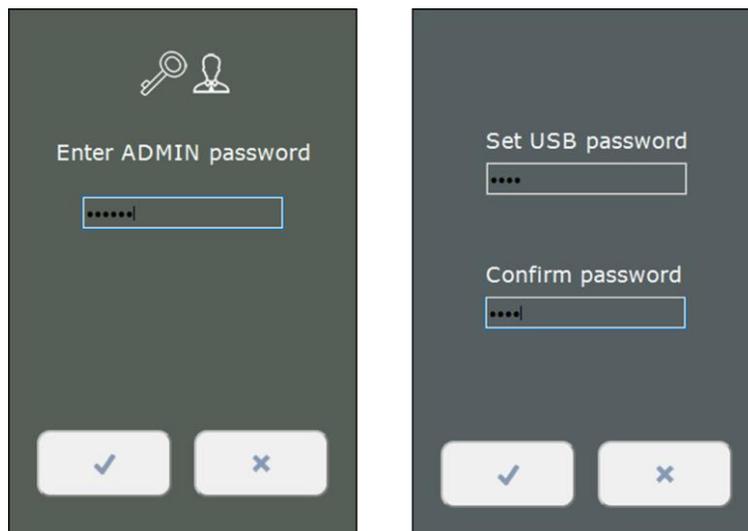


Fig 13. Set (left) Admin password (right) USB password

- 5.7. (Software Setting Group) Set Time Zone and Date/Time
- 5.7.1. Please check the time zone you are at. On Advanced Settings screen, press “set Time” to enter time and time zone setting page. Choose the corresponding time zone from the drop down list. The Date/Time will automatically adjust based on the chosen Time Zone.
- 5.7.2. To change the Date/time, touch the field and type by keyboard, or use the up-down buttons on screen or keyboard.
- 5.8. (Software Setting Group) Set Printer
- 5.8.1. On Advanced Settings screen, press “set Printer e” to enter Printer setting page. Choose auto print or not auto print from the drop down box and accept. The program will then switch to home screen using new setting.
- 5.9. (Software Setting Group) Set language
- 5.9.1. On Advanced Settings screen, press “set language” to enter language setting page. Choose the corresponding language from the drop down box and accept. The program will then switch to home screen using new language.

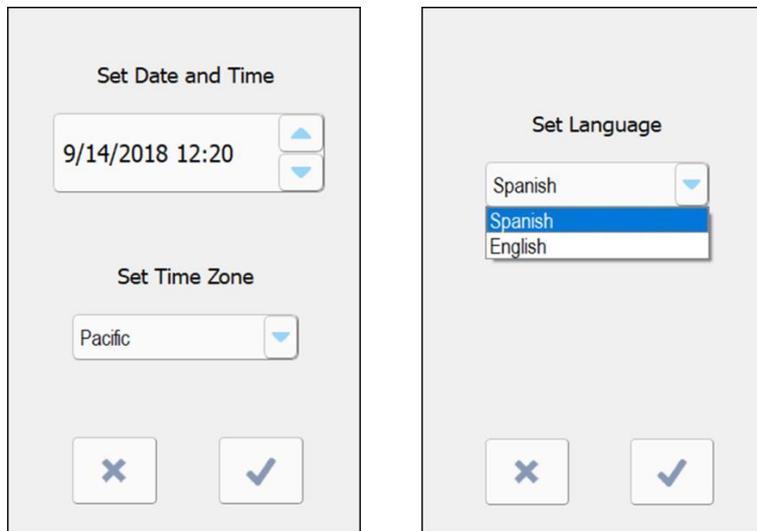


Fig 14. (left) Set Time Zone, Date/Time(right) Set language

- 5.10.** (Software Setting Group) Software update: Save manufacturer-provided software update package (in xxx.xxx.doa format) in an USB drive. Insert the USB drive into the Reader’s USB port. Click Update button to perform software update. After the update is complete, return to the home screen, and click Shutdown. Restart the device to complete the update. Software update: Save manufacturer-provided software update package (in xxx.xxx.doa format) in an USB drive. Insert the USB drive into the Reader’s USB port. Click “update” button to perform software update.

**Result**

 Note: the format of results and results folder is subject to change.

**Please dedicate the same USB drive for the Reader, Do NOT use the USB drive for any other purposes.**

1. It is recommended to periodically export test results to USB drive and save into a data-safe computer.
2. For each exported zip file, under the root directory, there is a csv file that summarizes all current records with header. Each test is saved in a dedicated folder, folder name is“YYYYMMDD.HHMMSS. DONOR-ID“.

There are two files saved in each folder, namely report pdf file and data csv file.

- a. CSV file name “DOA Test Report\_DONORID.csv”. Example is shown below.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	11/2/2018	22:06:43	11/2/2018 22:06	TEST	123	321	Valid	pH:VAL	SG:VAL	OX:VAL				BZO 50:Negative	BAR 200:Negative	COC 50:Negative	THC 25:Negative	mAMP 500:Negative	OPI 300:Negative

- b. PDF file: name “DONORID\_report.pdf”. Example is shown below.

**Preliminary On-Site Drug Test Results Form**

Date: 2019/06/26  
 Time: 14:23:51  
 Donor Name: 1  
 Donor ID: 1  
 Collector ID: 1  
 Temperature Strip: Invalid  
 Adulteration Strip(s):

**Results:**

Drug Name + Cut Off Level	Result	Picture
AMP 1000	Positive	
AMP 1000	Negative	
AMP 1000	Invalid	
AMP 1000	Positive	
AMP 1000	Negative	
AMP 1000	Invalid	
AMP 1000	Positive	
AMP 1000	Negative	
AMP 1000	Invalid	
AMP 1000	Positive	
AMP 1000	Negative	
AMP 1000	Invalid	
AMP 1000	Positive	
AMP 1000	Negative	

**Cup Record:**



*Cleaning Instruction*

*Spray 70% IPA onto a paper towel and wipe down the Reader (swing door, turn table), avoid the touch screen. Do not spray alcohol directly onto the Reader. To clean the touch screen, use a dry microfiber cloth, gently wipe across the screen. Use a microfiber cloth wetted with water if necessary. Avoid excessive liquid on the station when cleaning.*