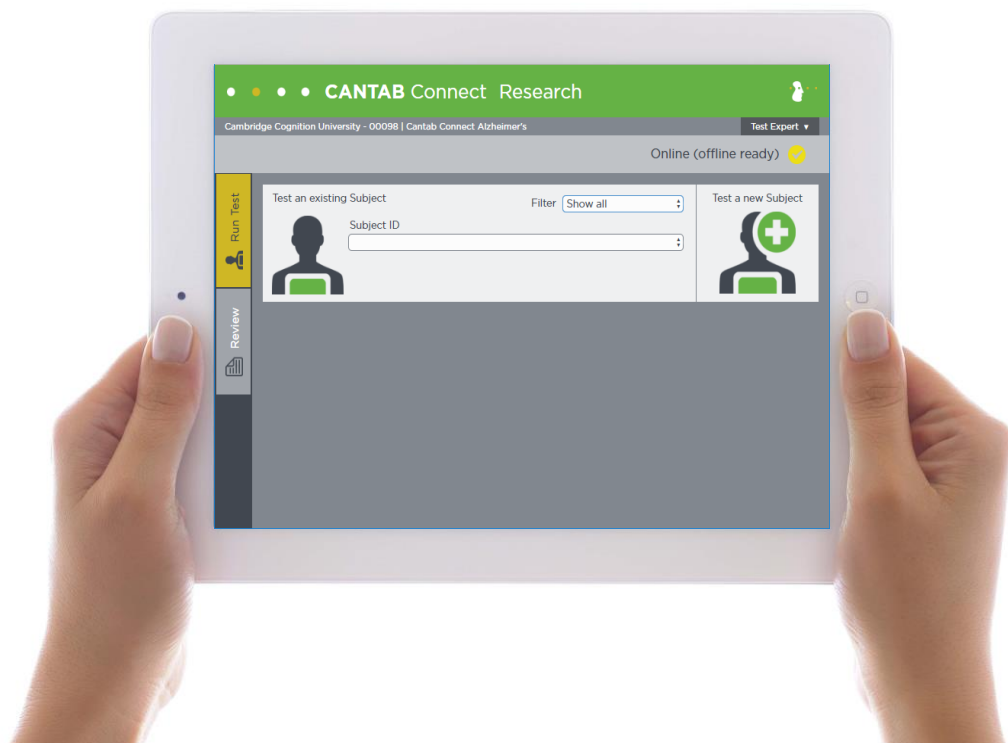


CANTAB Connect Research: Test Administration User Guide

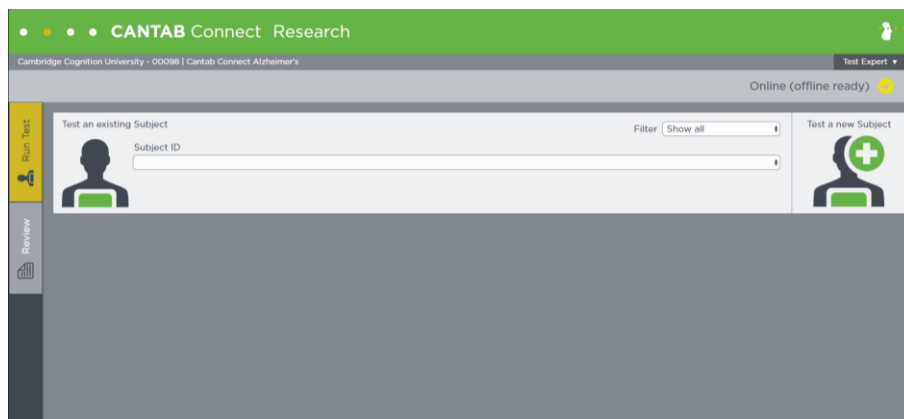


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About this guide

This guide explains how to use CANTAB Connect Research to conduct testing sessions using both the Rater Application and the Subject Application.



For information on creating studies, managing user accounts and generating data reports, see the *CANTAB Connect Research: Admin Application User Guide*.

Glossary

Assessment: A visit (see below) that has been completed once is equivalent to a single assessment. If the same subject completes a visit twice, this will use two assessments. You can determine the number of assessments you require by multiplying the number of subjects by the number of visits in your study design.

Group: Groups relate to the assignment of subjects across multiple research conditions. In some cases, all subjects will belong to one group and complete the same study protocol. In other cases, subjects will be assigned to one group and complete the testing protocol allocated to that group.

Study: A study relates to your investigation of a research aim. It is within your study that you define your full study parameters, including the subject group, subject ID, subject data items, visit schedule and the cognitive tests you will be administering. There is no limit to the number of studies you can create on a CANTAB Connect Research license.

Subject: A subject is any one person being tested using the CANTAB tests. In some cases, a subject may also be known as a participant or patient.

Test: 'Tests' are the CANTAB cognitive tasks that subjects complete during a visit. Each of the tests is designed to assess a specific cognitive domain. Tests may not be duplicated within a single visit. Further information on all available tests is available within the *CANTAB Connect Research: Admin Application User Guide*.

User: A user is any one person who will be using the CANTAB Connect Research software to configure studies, manager user accounts, administer the CANTAB tests or to generate data reports. Users can be created, and permissions managed, within the Admin application. Further information is available within the *CANTAB Connect Research: Admin Application User Guide*.

Visit: A subject completing a cognitive test or set of cognitive tests at a single time-point is defined as a visit. A study can contain one or more visits and there is no limit to the number of visits that can be added to a study. The same cognitive test may not be completed more than once by a subject in a single visit. The tests that will be administered at each visit are defined in the Admin application.

The Rater Application

This section explains how to:

- Conduct testing sessions in person using the Rater application on your iPad
- Manage your user account and review data on your iPad.

Logging in

Important: The first time you log into CANTAB Connect Research on your iPad, you must be connected to Wi-Fi, so that your studies can be cached. Following this, you *can* work offline, but we recommend you always work online, so that data can be continuously uploaded to the server. If you do subsequently work offline, data will only be uploaded the next time you log in while connected to Wi-Fi.

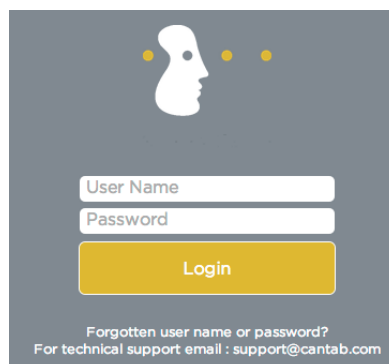
You then have the following options:

- Online testing: You can run a testing session straight away or navigate around the interface; the status will be 'Online (offline ready)'.
- Offline testing: You can close the application, turn Wi-Fi off, log back into the iPad while offline and test as usual. In this case the status will appear as 'Offline'. If you test a subject offline, you will then need to connect to Wi-Fi and log back in to upload the data to the server.

Running your first visit online

To log into CANTAB Connect Research on your iPad for the **first time**:

1. **Important!:** Ensure your iPad is connected to Wi-Fi.
2. Start CANTAB Connect Research.
3. At the login screen, enter your User Name and Password and click **Login**.

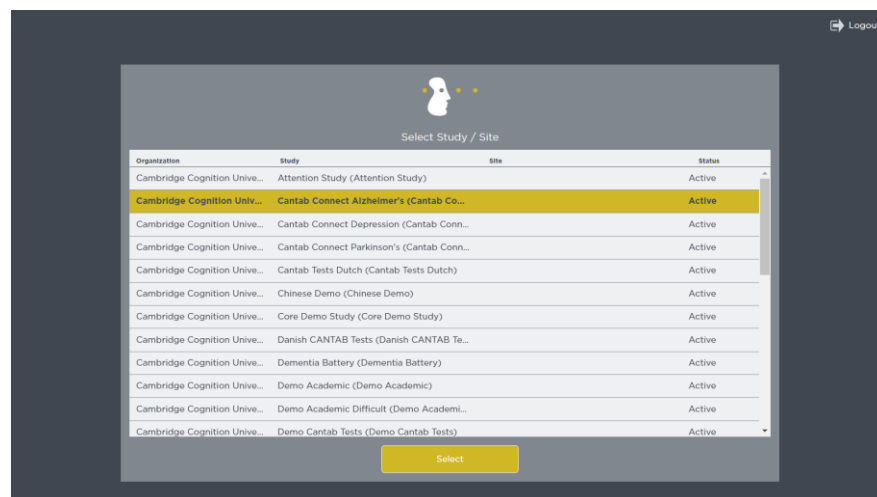


Login screen

If you have access to multiple studies, the Select Study / Site screen will be displayed. This screen lists all the studies you have access to in your role, even if these are from different organizations (the organization name is displayed in the left column). Your default study will be displayed at the top of the list.

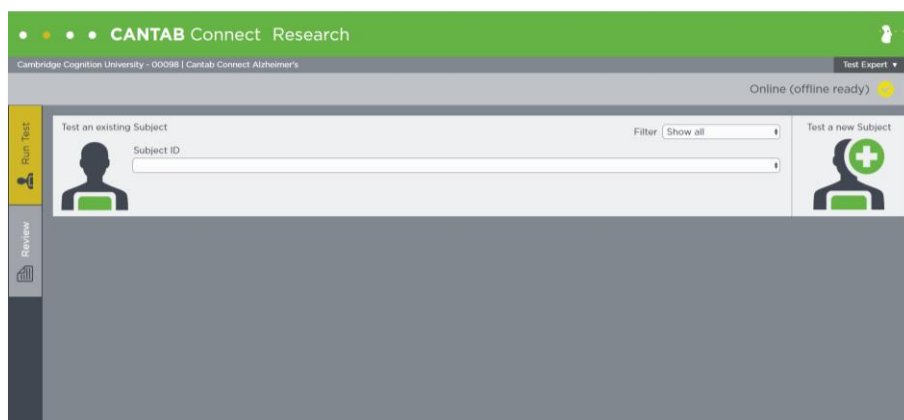
Note: You will not see this screen if you only have access to one study – see the next step.

4. To access a study, select it from the list and tap the **Select** button at the bottom of the screen.



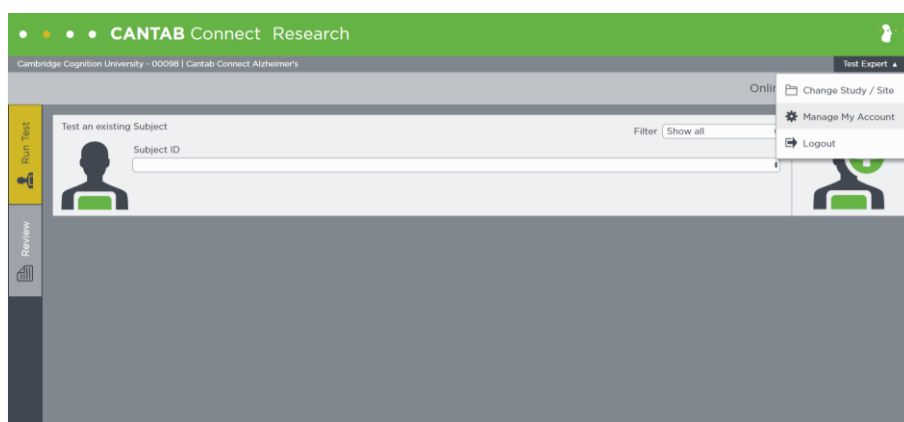
Study selection page

The Run Test or Review screen will be displayed, depending on your Default Home Page user preferences. As an example, here's the **Run Test** page:



Run Test page

Note: You can change your Default Home Page, Default Organization and Default Study in the **Manage My Account** area, accessed from the drop-down menu in the top right of the screen. See [Managing your account](#) for more information.



Accessing the Manage My Account page

- Initially, the status will show **Online (preparing offline)**. Wait until the status shows **Online (offline ready)** in the top right corner of the screen. This indicates that the iPad is now ready for use without an internet connection. We recommend that you use the iPad with a wireless connection to ensure data continuously uploads to the server.



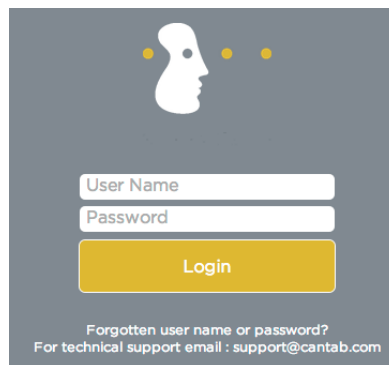
Possible Status Messages (connected via Wi-Fi)

Running a visit while offline

In order to run a visit while offline, you must have previously logged in and selected that study while online, so that the study has been cached.

To run a cached test offline:

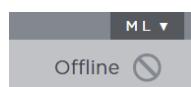
- Switch Wi-Fi off.
- Start CANTAB Connect Research.
- At the login screen, enter your User Name and Password and click **Login**.



Login screen

- If you only have one study cached, the Run Test or Review tab will be displayed
- If you have multiple studies cached, tap on the one you want to run, and tap **Select**.

The status at the top of the screen will be **Offline**.



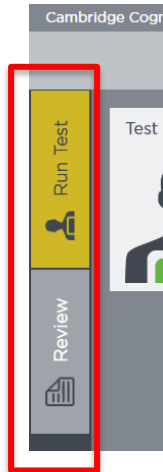
Status Message (Wi-Fi off)

- Run the visit. Your results will be stored locally (i.e. on your iPad).
- To upload the results, you will need to log out, switch Wi-Fi on, and log back in again. This will cause your data to be automatically uploaded. When the Online (Offline ready) status appears, this indicates that all data has been uploaded.

Navigating around the Rater interface

As you perform different tasks with CANTAB Connect Research on your iPad, it is useful to know how to navigate your way around the interface.

Click on the main tabs on the left of the screen to display the **Run Test** and **Review** pages:



Run Test: From this screen, you can select a subject to test, or add a new subject and optionally edit subject details. This is also where you can start or resume a visit.

Review: This screen allows you to review a subject's status (e.g. which visits they have attended), and the data that has been collected for each visit.

Example workflow

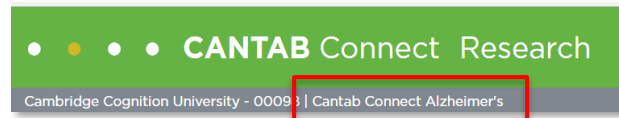
You will need access to at least one active study to log into the Rater application. Access to studies is managed within the Admin Application (refer to the *CANTAB Connect Research: Admin Application User Guide* for further information about managing user accounts). Once you have logged into the Rater application, you will be able to start a visit.

Here is a typical workflow:

1. Select a study when you log in. If you are assigned the role of tester for multiple studies, select the one you want to run.
2. Decide which subject to test. You have the following choices:
 - **Add a new subject:** You can either do this in advance and save their details for testing later, or you can create a new subject at the start of the testing session and then immediately begin the session. See [Adding a new subject](#) for further information on how to do this. (Note that you can also add a subject in advance via the Admin Application; refer to the *CANTAB Connect Research: Admin Application User Guide* for further details.)
 - **Test an existing subject:** When a subject arrives for a visit, select them from the list of existing subjects and run the visit.
3. Run the visit: Put the iPad on a stand in front of the subject and let them take the visit (refer to [Best practices](#) for further information on optimizing your data collection).

Changing studies

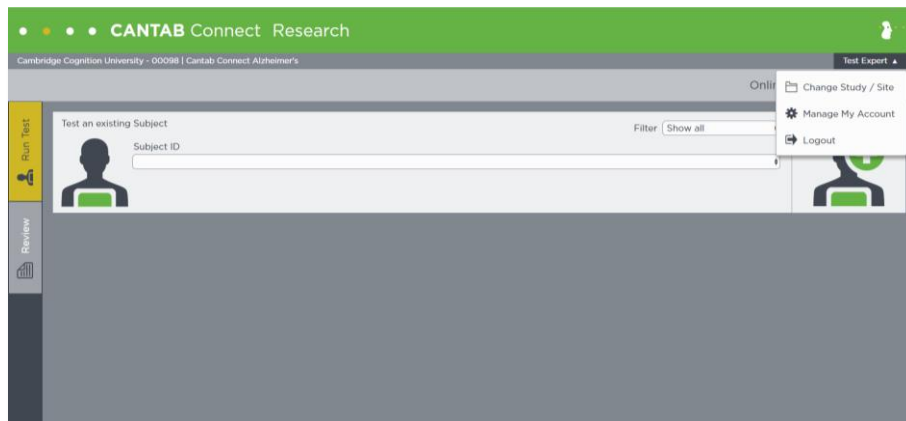
The name of the study you are currently running will be displayed at the top of the screen:



Organization and study name information

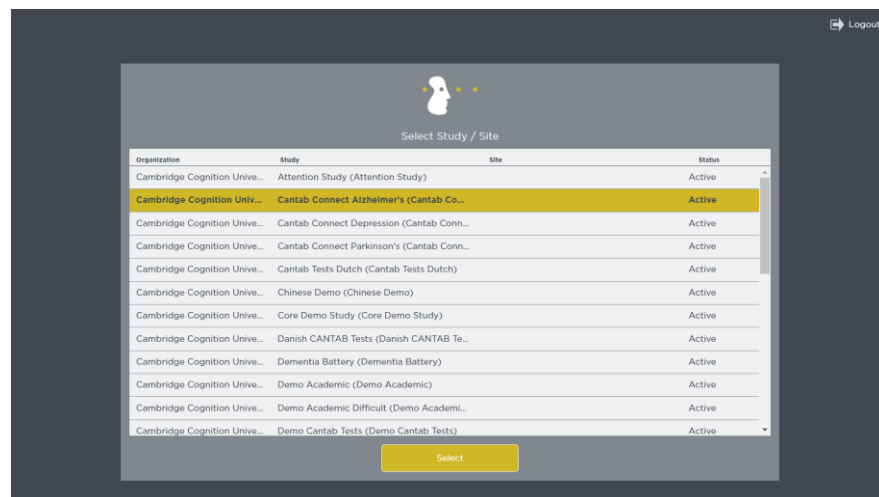
If you would like to run a different study:

1. Tap the button in the top right of the screen displaying your First and Last Name and select **Change Study/Site** from the drop-down list.



Accessing the Select Study/Site page

This will display the Select Study/Site page, which lists all the studies that you have access to.



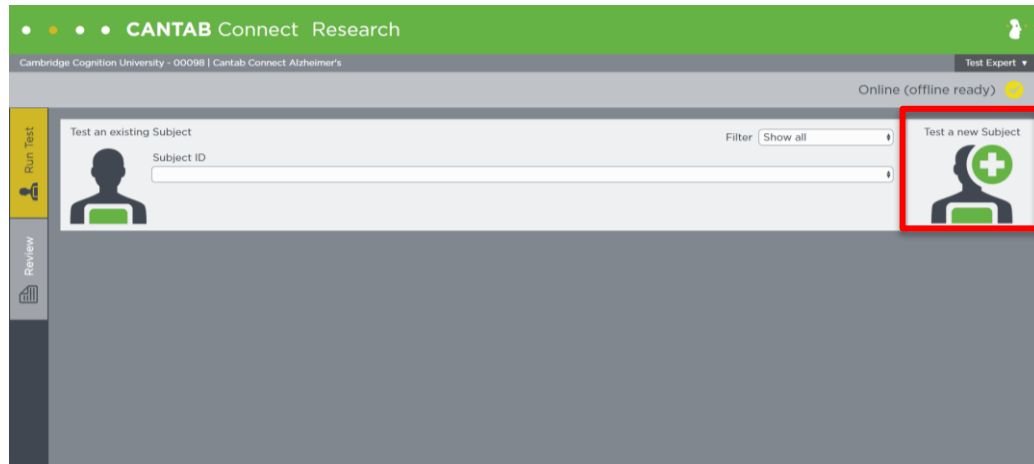
Study Selection page

2. Tap the study you would like to run and click **Select**.

Adding a new subject

To set up a new subject:

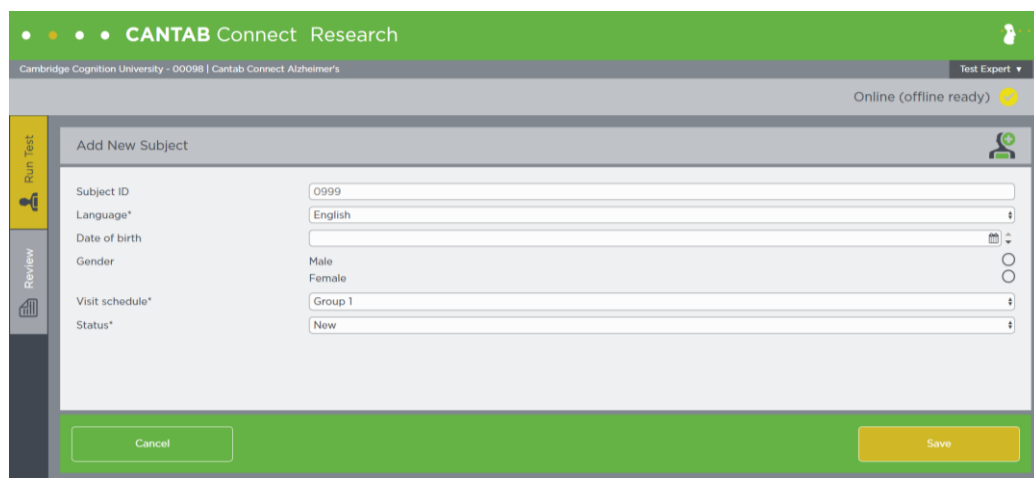
1. Navigate to the **Run Test** page by selecting the tab on the left side of the screen and tap **Test a new Subject**.



Accessing the Add New Subject page

This will display the **Add New Subject** page.

2. Fill in the subject's ID. The greyed-out text in the field tells you what format this should be. For example, here it is a three-digit number with a leading zero:

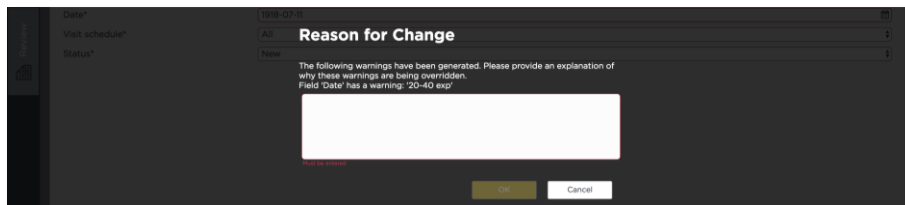


The Add New Subject page

3. Fill in the other subject data items required for a subject taking part in this study. The items with an asterisk are required fields (subject data item fields are defined as part of the study configuration within the Admin Application). Here are some key fields:
 - **Language:** This refers to the language used for the CANTAB tests (voiceover instructions and on-screen text) and the text on screen between tests.
 - **Visit schedule:** This will be determined by the group to which the subject belongs, based on the experimental design. For example, you might have a 'Patient' and a 'Control' group. If only one group has been defined, this field will be filled in for you.

- **Status:** This is an indicator of how far through the study the subject has progressed. Here are some guidelines:
 - When you add a new subject, the status will default to **New**
 - You may want to manually alter a subject's status during the study. For example, if a subject leaves the study, you could change the Status to **Withdrawn**
 - When the study was configured in the CANTAB Connect Research Admin Application, some status changes at certain visits may have been pre-specified. For example, the study might be configured to update to **Screened** after the first visit is complete. This will happen automatically.
4. Once you have entered in all the subject data, tap **Save**.

If you have entered any data that lies outside any permitted or expected range, or not entered information in a required field, an error message will be displayed. For example, if a date is selected that is outside the expected range, the following error message will be displayed with a free text field in which you must enter the reason for this value being outside the expected range.



Outside expected range message

5. If necessary, tap **Cancel** and correct the mistake, or enter the missing information, and tap **Save**.

Common types of data entry

- Date selector: Tap the calendar icon on the right side of the field, to expand the date selector. Tap on the Month and Year fields respectively to expand the full list of options and select the appropriate values. Simply tap the appropriate Day date.

Date selector

Once all the values are correct, tap the calendar icon again to collapse the date picker.

- Text or Number field: Tap in the box to display the iPad's keypad, and then enter free text as needed.
- List entries: The Radio button and Combo box options do not allow for multiple selection, while the Checklist option allows multiple options to be selected simultaneously.

Radio buttons

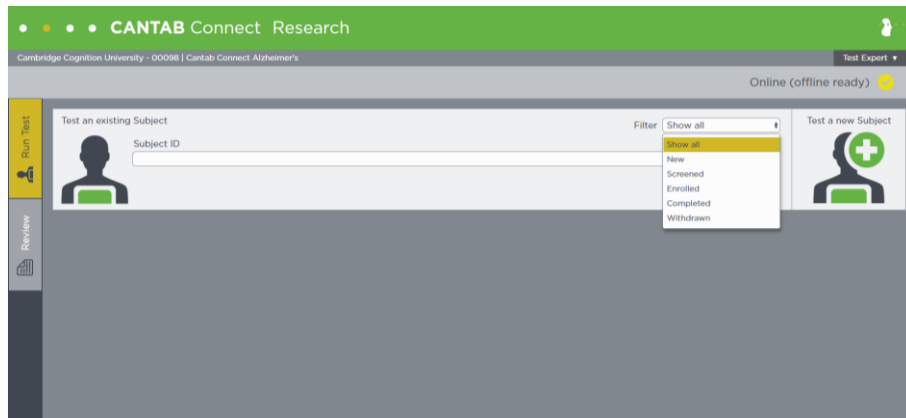
Combo box

Checklist

Testing an existing subject

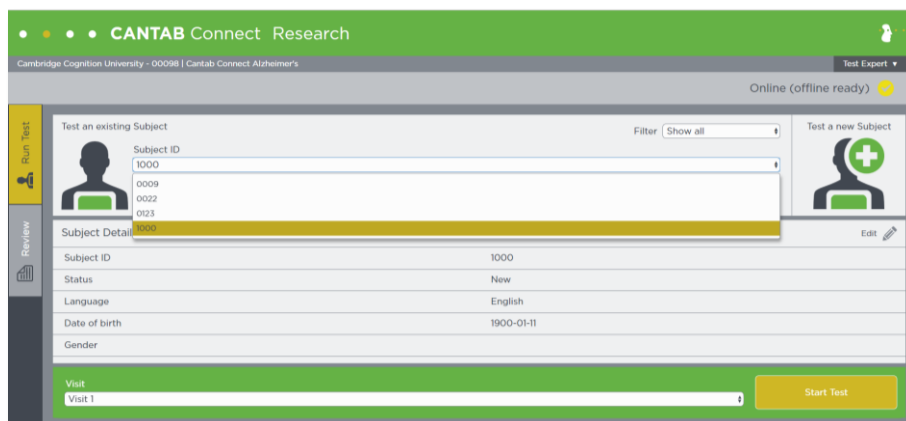
To run a visit with an existing subject (i.e. one whose details have previously been added to the database):

1. Select the **Run Test** tab on the left side of the screen.
2. (Optional) Tap the **Filter** drop-down menu to narrow the list of subjects down to those of a particular status (e.g. Enrolled):



Filtering subjects by Status

3. Tap the **Subject ID** drop-down menu and select a subject.



Subject Selector

4. The Subject Details will be displayed on the bottom half of the screen.

Subject Details		Edit
Subject ID	007	
Status	New	
Group	Group 2: Control	
Date of Birth	13/01/72	
Gender	Male	

Subject Details display

5. If the details do not match the subject you are testing, check you have selected the correct subject.
6. If you have selected the correct subject and you need to change any of the subject details, tap **Edit** in the top right of the display, make the changes, and tap **Save**.

Edit Subject Details page

Note: You will not be able to change the subject's group, as this determines the visits and the order of the visits that the subject completes.

7. If you are editing the subject details, enter a reason for the changes and tap **Save**.

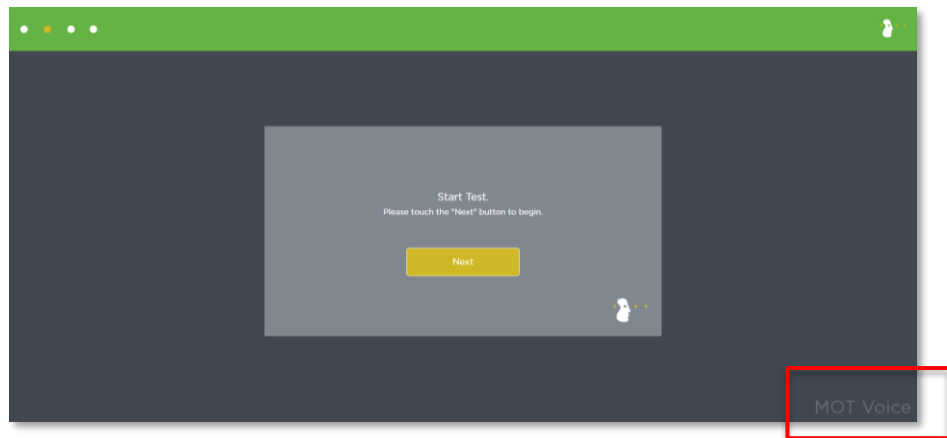
Reason for Change free text field

8. Select the **visit** that you now want to conduct from the drop-down menu.

Run Test page with expanded visit selection

9. Tap **Start Test**.

The name of the CANTAB test that is next will be shown in the bottom right of the screen (MOT Voice is shown in the example below).



Start Test page

10. Place the iPad on a stand in front of the subject and let them complete the test.

Recommendations

- The iPad must be in **landscape orientation** in order to run CANTAB Connect Research.
- We advise that the iPad is always positioned on a sturdy stand when the tests are being completed.
- We recommend having the iPad Home button on the right side with the volume buttons accessible on the top edge of the iPad.

Refer to [Best practices](#) for further information about optimizing the iPad for test administration.

Pausing or aborting a test

Important: Do not abort a test unless absolutely necessary.

If for any reason you need to pause or abort the test:

1. Tap with two fingers simultaneously in the opposite diagonal corners of the screen.
2. The test is now **paused**.
 - Tap **No** to resume the test
 - Tap **Yes** to abort.

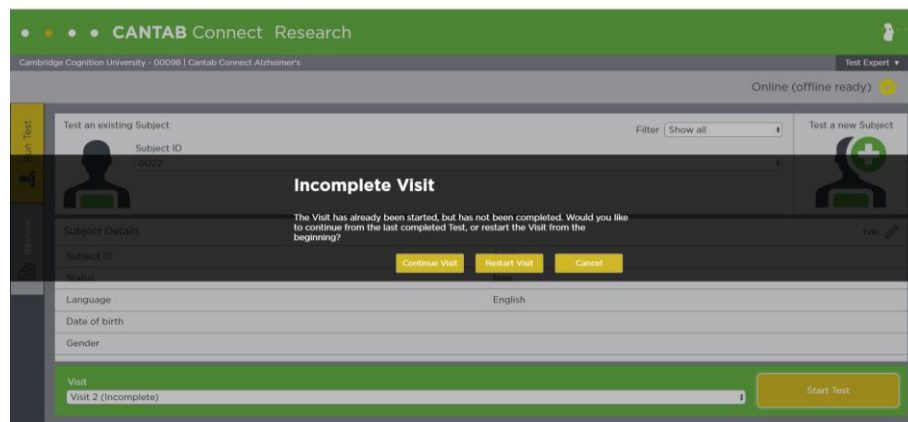


Pausing or aborting a test

Note: If a visit is aborted, the data will be saved up until your last completed test. Data will not be saved for any tests that are aborted before completion. A visit can be resumed from the last completed test in the visit (i.e. any aborted tests that appear in the visit *after* a previously completed test can be re-started).

Resuming a partially completed visit

If a visit has been partially completed, the next time you run that visit for that subject, you will be asked whether you want to continue from the last completed test or restart the visit.



Resuming an aborted visit

1. Tap **Continue Visit** to finish the partially-completed visit or tap **Restart Visit** if you would like the subject to restart the test battery from the beginning of the visit.

Note: resuming a visit will count as the same assessment from your license, whereas restarting a visit from the beginning will count as a new assessment.

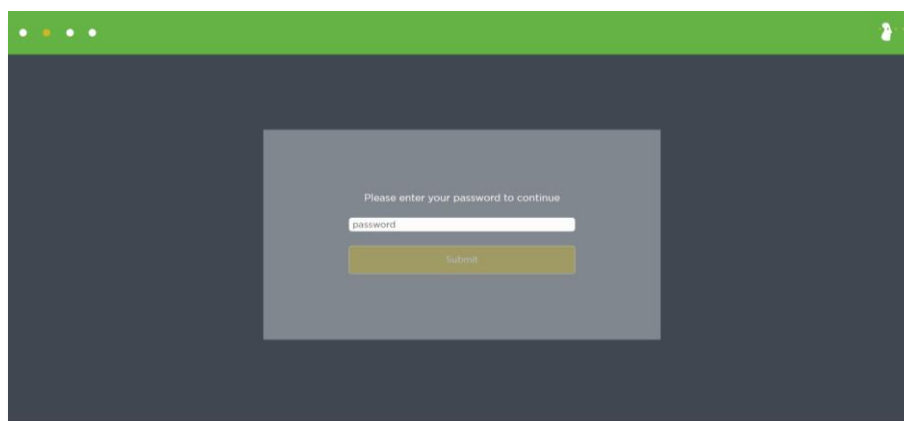
Note: If your visit contains a test variant with a delayed component, it might not be possible to complete this test when resuming a visit.

Completing a testing session

Once the subject has completed all the tests in the visit, they will be prompted to hand the iPad back to the test administrator.

To complete the visit:

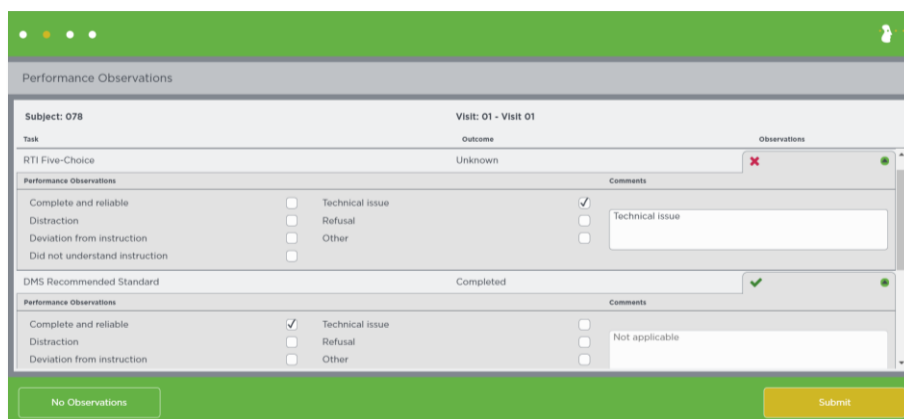
1. Enter your password.
2. Tap **Submit**.

A screenshot of a mobile application interface showing a password request screen. The screen has a dark grey background with a central light grey box. Inside the box, the text "Please enter your password to continue" is displayed above a white password input field containing the text "password". Below the input field is a yellow "Submit" button. The top of the screen features a green header bar with three white dots on the left and a white user icon on the right.

Password request screen

Entering performance observations

If Performance Observations have been enabled as part of your study design, the Performance Observations page for the visit will be displayed.

A screenshot of the "Performance Observations" screen in a mobile application. The screen has a green header bar with three white dots on the left and a white user icon on the right. Below the header, the title "Performance Observations" is displayed. The main content area shows a table with columns for "Task", "Outcome", and "Observations". The first row is for "RTI Five-Choice" with an "Unknown" outcome and a red cross icon in the "Observations" column. The second row is for "DMS Recommended Standard" with a "Completed" outcome and a green tick icon in the "Observations" column. Each row has a "Performance Observations" section with checkboxes for "Complete and reliable", "Distraction", "Deviation from instruction", and "Did not understand instruction". There are also checkboxes for "Technical issue", "Refusal", and "Other". A "Comments" text field is provided for each row. At the bottom of the screen, there is a green bar with a "No Observations" button on the left and a "Submit" button on the right.

Performance Observations screen

1. Tap on  to the right of the Observation column to expand the menu.
2. Select the appropriate Observation and (if you have selected 'Technical issue' or 'Other') enter Comments in the free text field.
 - The icon on the left side of the Observations column will automatically update as you enter the Observations
 - There will be a green tick if the observation is 'Complete and reliable'
 - For all other Observations, there will be a red cross.
3. Repeat for any other tests for which you want to enter Performance Observations.
4. Tap **Submit**.

Reviewing a subject's visits

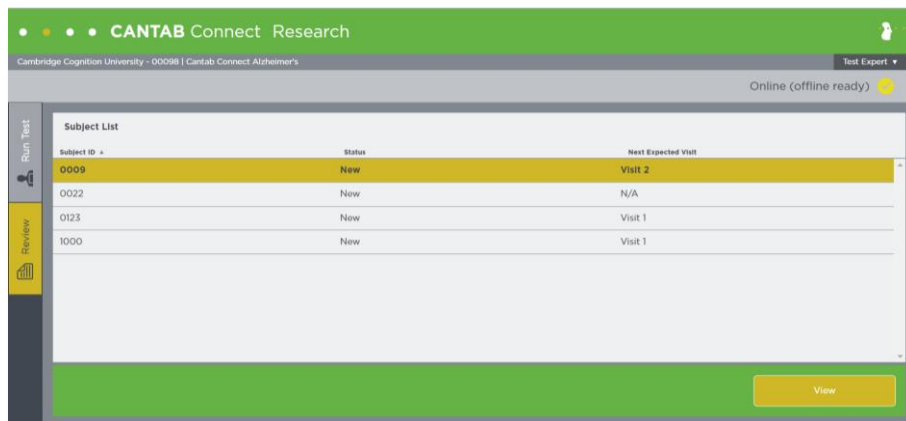
To check which visits a subject has attended, what data has been collected, and whether there were any performance observations reported:

1. Tap the **Review** tab on the left side of the screen. This will list all the subjects, their Status and their Next Expected Visit.



Review Subjects List

2. Tap the subject you would like to Review and tap the **View** button in the bottom right of the screen.



Viewing a subject's visits

This will display the subject's data at the top of the screen, and any visits they have attended in the bottom half of the screen.

3. Tap the visit you would like to review and tap the **View** button in the bottom right of the screen.

The screenshot shows the 'CANTAB Connect Research' interface. At the top, it says 'Cambridge Cognition University - 00098 | Cantab Connect Alzheimer's'. Below this, there's a 'Test Expert' dropdown and a status indicator 'Online (offline ready)'. The main section is titled 'Subject: 0009' and contains fields for 'Subject ID' (0009), 'Status' (New), 'Language' (English), 'Date of birth' (1900-01-01), and 'Gender' (Male). Below this is a 'Visit List' table with one entry: '01 Visit 1' with a start time of '2016-05-27 16:46:28 +01:00'. At the bottom, there are two buttons: 'Back to Subject List' and 'View'.

Reviewing a subject visit

All the tests in that visit will be listed, along with the following details:

- Task
- Start and End date and times
- Outcome (e.g. Aborted or Completed)
- Number of Measures recorded
- Observations

The screenshot shows the 'CANTAB Connect Research' interface with a detailed test list for 'Subject: 078' and 'Visit: 01 - Visit 01'. The table lists various tasks, their start and end times, outcomes, and the number of measures recorded. The 'Observations' column contains icons representing different states: a green circle with a checkmark for completed, a red circle with an 'X' for aborted, and a green circle with a plus sign for ongoing or not yet observed.

Task	Start Time (UTC +08:00)	End Time	Outcome	Measures	Observations
MOT Voice	2018-04-10 06:55:01	2018-04-10 06:56:09	Completed	4	✓
RTI Five-Choice	2018-04-10 06:56:14	2018-04-10 07:00:59	Completed	10	✓
DMS Recommended Standard	2018-06-25 22:13:27	2018-06-25 22:23:17	Completed	41	✓
PAL Recommended Standard	2018-06-25 22:23:23	2018-06-25 22:23:28	Aborted	0	✗
SWM Recommended standard	2018-06-25 22:23:30	2018-06-25 22:23:36	Aborted	0	✗
RVP 3 Targets	2018-06-25 22:23:38	2018-06-25 22:23:43	Aborted	0	✗

Visit Test list

4. To view the measures associated with a test in the visit, tap  for the relevant test in the Measure column. This will display the following, calculated from the subject's performance.

- Measure Name
- Measure Description
- Value
- Standard Score
- Percentile

CANTAB Connect Research

U.B | Normative Data Study

Academic User

Online (offline ready)

Run Test

Review

Subject: 0001

Visit: V1 - Visit 1

Task	Start Time (UTC +00:00)	End Time	Outcome	Measures	Observations
SWM Recommended Standard 2.0 Extended	2018-12-17 11:11:47	2018-12-17 11:16:22	Completed	24	
Measure Name	Measure Description	Value	Standard Score	Percentile	
SWMT468	SWM Total Errors: The total number of times a box is selected that is certain not to contain a token and therefore should not have been visited by the subject, i.e. between errors + within errors - double errors. Calculated across all assessed four, six and eight token trials.	0	-	-	
SWMBE468	KEY: SWM Between Errors: The number of times the subject incorrectly revisits a box in which a token has previously been found. Calculated across all assessed four, six and eight token trials.	0	2.33	99	
SWMWE468	SWM Within Errors: The number of times a subject revisits a box already shown to be empty during the same search. Calculated across all assessed four, six and eight token trials.	0	-	-	
SWMDE468	SWM Double Errors: The number of times a subject commits an error that is both a within error and a between error. Calculated across all assessed four, six and eight token trials.	0	-	-	
SWMT4	SWM Total errors 4 boxes: The number of times a box is selected that is certain not to contain a token and therefore should not have been visited by the subject, i.e. between errors + within errors - double errors. Calculated across all trials with 4 tokens only.	0	-	-	
SWMBE4	KEY: SWM Between errors 4 boxes: The number of times a subject revisits a box in which a token has previously been found. Calculated across all trials with 4 tokens only.	0	-	-	
SWMWE4	SWM Within errors 4 boxes: The number of times a subject revisits a box already found to be empty during the same search. Calculated across all trials with 4 tokens only.	0	-	-	
SWMDE4	SWM Double errors 4 boxes: The number of times a subject commits an error that is both a within error and a between error. Calculated across all trials with 4 tokens only.	0	-	-	

Back to Visit List

Visit Test list

5. To view the performance observations associated with a test in the visit, tap  for the relevant test in the Observations column. This will display:

- The performance observations for the test
- Any comments against them.

The icon on the left side of the Observations column depicts whether the Performance Observation was 'Complete and Reliable' (green tick), or a different Observation (red cross).

CANTAB Connect Research

Cambridge Cognition University - 000998 | Demo Academic

Test Expert

Online (offline ready)

Run Test

Review

Subject: 078

Visit: 01 - Visit 01

Task	Start Time (UTC +00:00)	End Time	Outcome	Measures	Observations
MOT Voice	2018-04-10 06:55:01	2018-04-10 06:56:09	Completed	4	
RTI Five-Choice	2018-04-10 06:56:14	2018-04-10 07:00:59	Completed	10	
Performance Observations	Comments				
Technical issue	Technical issue				
DMS Recommended Standard	2018-06-25 22:13:27	2018-06-25 22:23:17	Completed	41	
Performance Observations	Comments				
Complete and reliable					
PAL Recommended Standard	2018-06-25 22:23:23	2018-06-25 22:23:28	Aborted	0	
SWM Recommended standard	2018-06-25 22:23:30	2018-06-25 22:23:36	Aborted	0	

Back to Visit List

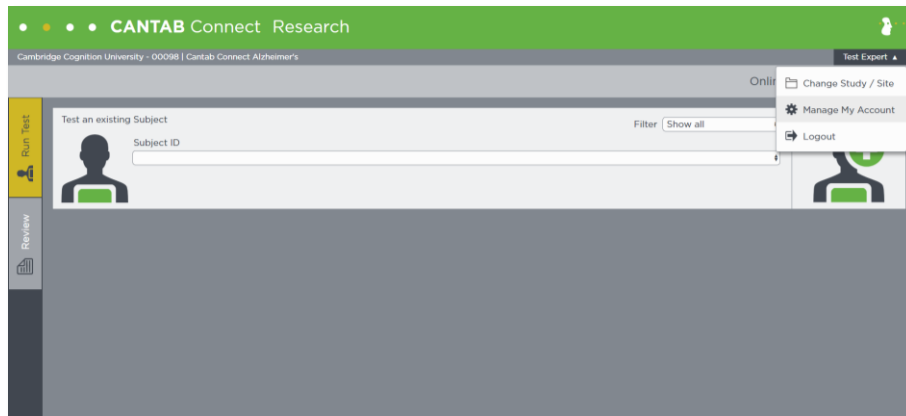
Visit Test list

Managing your account

When logged in to CANTAB Connect Research on an iPad, you can update your Account details.

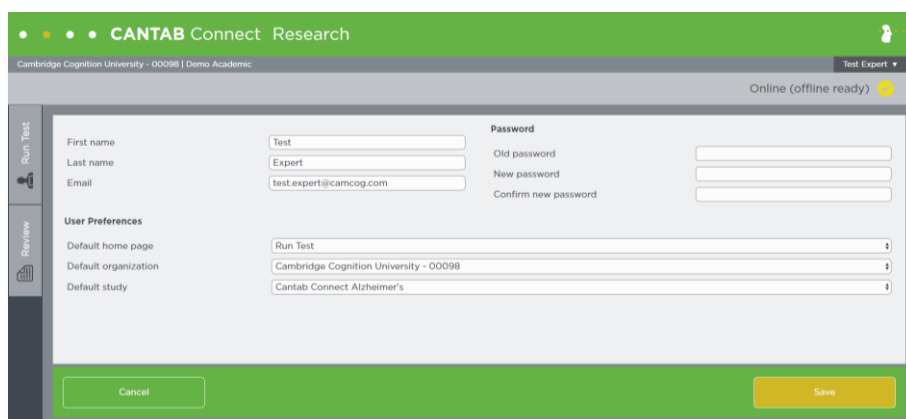
To edit your account details:

1. Tap on your name in the top-right of the screen and select **Manage My Account** from the drop-down menu.



Accessing the Manage My Account page

2. Change any Personal Details as necessary e.g. your Name or your Email.
3. If you want to change your password, enter your **Old Password**, enter your chosen password in the **New Password** and **Confirm New Password** fields and tap **Save**.
 - If you forget your password, it can be reset by a User Creator or Study Administrator in your organization
 - If you enter an incorrect password three times, you will be locked out of the system. Another user with the *User Creator* or *Study Administrator* role can reset your password for you.
4. Use the drop-down menus to set your user preferences (e.g. **Default Home Page**).



Manage My Account page

5. Tap **Save**.

Best practices

This section includes key tips for using CANTAB Connect Research on an iPad. We recommend that all test administrators using the software are familiar with the information below before commencing testing. For detailed information on study configuration and test administration, please refer to other chapters in this guide, and to the *CANTAB Connect Research: Admin Application User Guide*.

Testing setup

Administer CANTAB Connect Research tasks in a quiet room with minimal distractions. If subjects use glasses or hearing aids, make sure they are wearing them.



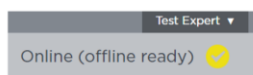
The iPad should always be in **landscape** orientation when testing, with the Home button on the right and volume buttons on the top left.

The subject should sit at a comfortable distance from the iPad and use the index finger of their dominant hand for the tests.

Prop the iPad on a stand to avoid it being dropped or broken.

Watch our video on setting up the ideal testing environment [here](#).

Testing online and offline



CANTAB Connect Research can be used both online and offline, making data collection possible in areas with little or no internet connection. If you are testing offline, **please read the following**:

- Any data collected while offline will only be stored locally on your iPad until you connect to the internet again and sync your device. If anything happens to your iPad before you can connect to the internet, the data might be lost.
- Once you are back in an area with Wi-Fi, open CANTAB Connect Research and wait until the status changes to 'Online (offline ready)'.
- Check your reports regularly to ensure all your offline data has synced and appears in the reports.

See also [Logging in](#).

Software updates

- As part of our ongoing improvements to CANTAB Connect Research, we release a software update once a month. You will be notified of any server downtime and new features a minimum of three days before the update.
- When a new version of iOS is released, we will inform you via email when the latest operating system has been validated.

Client Installs

When you download CANTAB Connect Research onto your iPad this will create a single application icon, or 'client install' on the device. Any data collected within CANTAB Connect Research will be stored within that client install until it is synced over Wi-Fi.

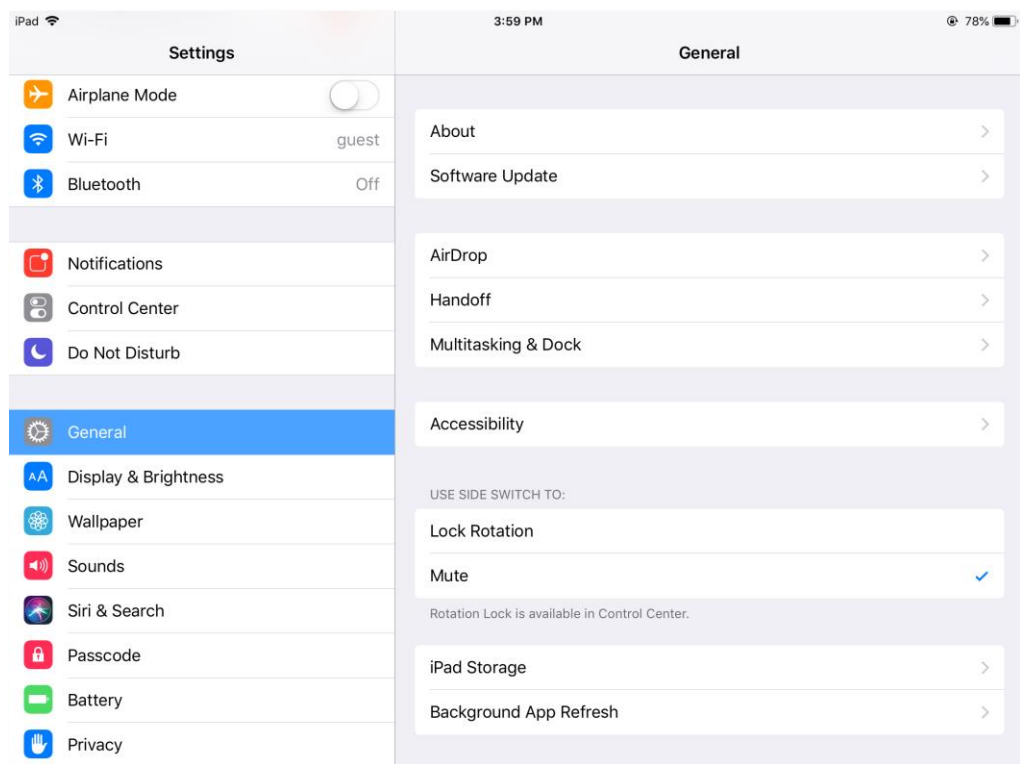
- If you have multiple client installs on your iPads, each client install will need to be synced individually (i.e. Online (offline ready) status reached) in order to successfully upload the data to the cloud.
- Please refrain from downloading the software multiple times on a single iPad unless you are absolutely certain the data from the other client installs has already been uploaded.
- If an application icon is deleted without syncing, this will delete the data that was stored locally within that client install; it will no longer be stored on the device.

Tips for using your iPad

Please read the following information to familiarize yourself with the Settings on your iPad.

To access the iPad settings:

1. Tap the **Settings** icon on your iPad home screen. Note this guide does not explain all iPad settings, but instead focuses on those that are helpful when using CANTAB Connect Research.



Settings Page

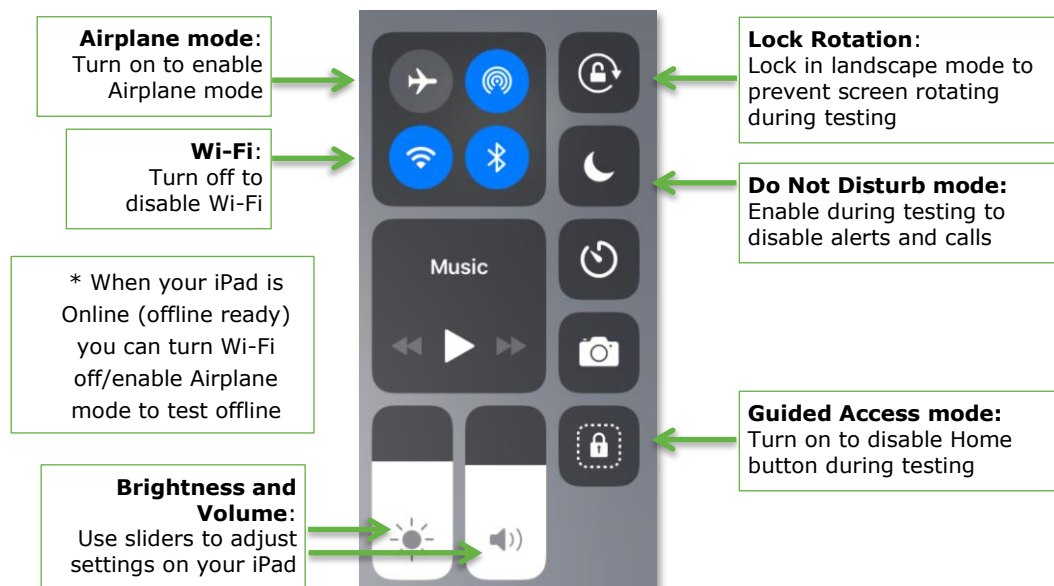
Relevant settings are as follows:

- **Airplane Mode / Wi-Fi:** Always remember to regularly synchronize your iPad with Wi-Fi when using CANTAB Connect. However, if you do need to test offline, we advise that you turn off the Wi-Fi or turn on Airplane Mode here. This can also be done via the control center (detailed below).

- **Notifications:** We recommend turning off Notifications for other apps to reduce the chance of distractors during testing, especially if you are using your iPad for other purposes. Choose 'Never' under Show Previous to turn all notifications off.
- **General:**
 - **About:** tap here to find out which version of iOS you are running
 - **Software Update:** tap here to see any iOS software updates that are available to download. Please only download new versions of iOS when we inform you via email that CANTAB Connect has been validated for it.
 - **Use side switch to:** select 'Lock Rotation' or 'Mute' to configure whether the side-switch is used for locking the iPad in either portrait or landscape mode, or to mute / unmute sounds. Depending what you choose, the other option will always be available in the control center.
 - **Accessibility:** Scroll down to 'Learning' to find Guided Access Mode. Detailed instructions for enabling Guided Access Mode can be found on the next page.
- **Display and Brightness:** We recommend setting Auto-lock to 'Never', to ensure that the iPad does not time-out in the middle of a task.
- **Sounds:** We recommend turning Change with Buttons on, to ensure that you can adjust the volume of the ringer with the volume buttons on the iPad.

Control Centre

The Control Centre on your iPad is accessible by swiping down from the top right-hand corner of your home screen. You can customize this by selecting **Customize Controls** and adding / removing controls. Note that these include shortcuts to some settings detailed above.



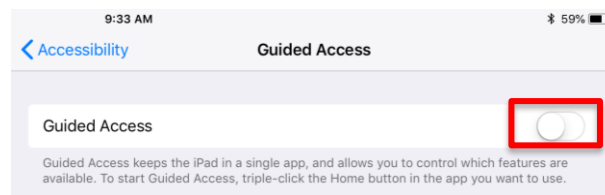
Control Centre

iPad Guided Access Mode

We recommend enabling Guided Access Mode on your iPad to prevent a testing session from ending early when subjects or users accidentally tap the Home button while taking a test. It also means other applications will not be accessible while it is on. Guided Access Mode can be used in both online and offline modes.

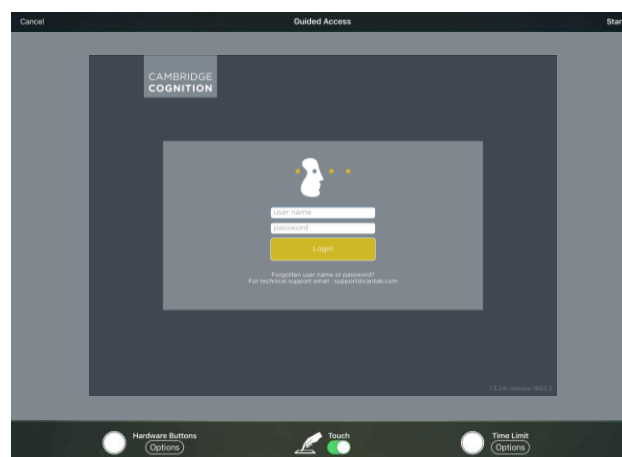
Enabling Guided Access Mode

1. Tap **Settings > General > Accessibility > Guided Access**.
2. Toggle the **Guided Access** switch to **On**.



Enabling Guided Access Mode.

3. Tap **Passcode Settings > Set Guided Access Passcode** and enter a Passcode. **Important!:** Remember the passcode, as you need it to exit the Guided Access Setting.
4. Open the Rater Application.
5. Quickly triple-click the Home button.
The Guided Access Mode options will be displayed on your screen.
6. Tap on the **Hardware Button** options.
7. Ensure the **Sleep/Wake** button is turned **on** (green).
8. Tap **Start** in the top right-hand corner to initiate Guided Access Mode while using CANTAB Connect.
9. Log in with your CANTAB Connect username and password.



Start Screen

Logging in for subsequent sessions

1. Open the CANTAB Connect Research app.
2. Quickly triple-click the Home button.
A pop-up message 'Guided Access Started' will briefly be displayed on the screen.
3. Log in using your Connect username and password.

During testing, if a subject/user taps the Home button, the following message will show on the top of the iPad screen: **"Guided Access is enabled. Triple-click the home button to exit"**

Ending a Guided Access session

1. Triple-click the Home button.
2. Enter the Guided Access passcode.
3. Press **End** in the top left-hand corner.

Guided Access Passcode Information

If you enter the passcode incorrectly, the system will be locked for ten seconds before you can attempt to re-enter the passcode. If you have forgotten the passcode, you can reset it when **not in Guided Access Mode** as follows:

1. Tap **Settings > General > Accessibility > Guided Access**.
2. Tap **Passcode Settings > Set Guided Access Passcode** and enter a Passcode.
3. Enter a new passcode and re-enter to confirm.

Rater-led Test Administration

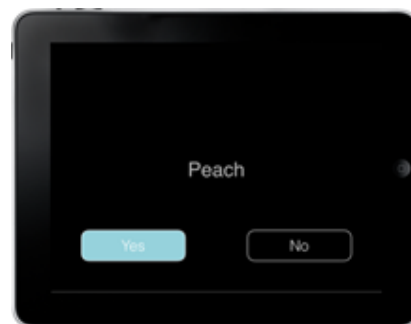
The majority of the CANTAB tasks require minimal input from the test administrator. However, there are a few instances where additional input is required from the test administrator and these are outlined below.

Verbal Recognition Memory (VRM)

Administration Time: ~ 6 Minutes

Task Description: VRM measures the ability to encode and subsequently retrieve verbal information.

During this task, words are presented on-screen and subjects are subsequently asked to recall them in a free-recall stage. A recognition test is then carried out where the subject is shown a set of words (including target words and distractors) and is asked to answer 'Yes' or 'No' as to whether they saw the word previously. After a 20 minute delay period, another recognition test is then carried out, this time with a new set of distractor words.

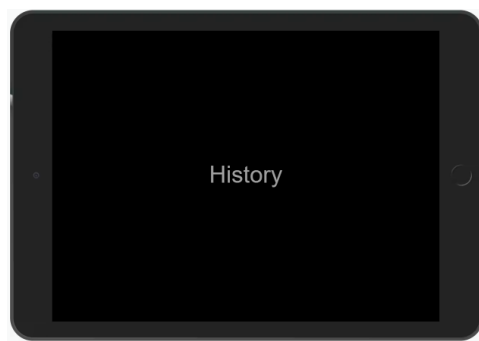


This section outlines how to deliver the rater-led free recall portion of the task. The task consists of 4 stages, a presentation phase (1), a rater-led free recall phase (2), an immediate recognition phase (3) and a delayed recognition phase (4) which occurs after a 20 minute delay period.

The subject will be notified via voiceover instruction when they need to notify the supervisor that this phase is about to begin. The supervisor should read the text in the coloured boxes to the subject and use the on screen buttons to progress through this stage when required.

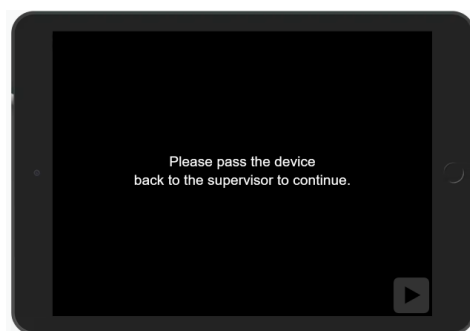
1. Presentation

The task will begin with a presentation phase in which the subject will be presented with a set of words one at a time on screen.

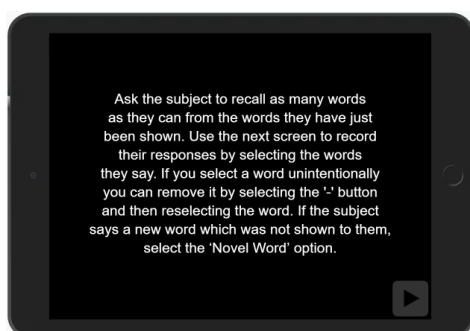


2. Free Recall

At the start of the free recall phase, the subject will be asked to contact the supervisor in order for the task to continue.



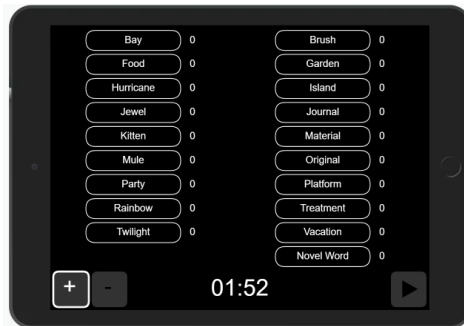
Touch the "Play" button to start



Say...

"Please recall aloud as many words as you can from the words you have just been shown."

Touch the "Play" button to start

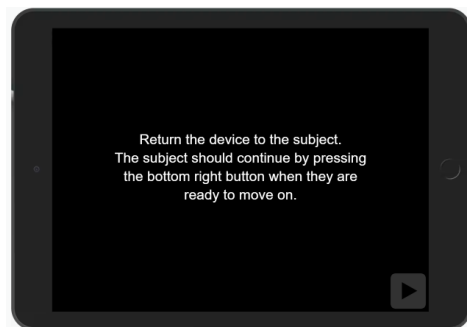


Use this screen to record the subject's responses by selecting the words they say. If you select a word unintentionally you can remove it by selecting the '-' button and then reselecting the word. If the subject says a new word which was not shown to them, select the 'Novel Word' option.

Once the timer reaches 00:00...



Touch the "Play" button to continue

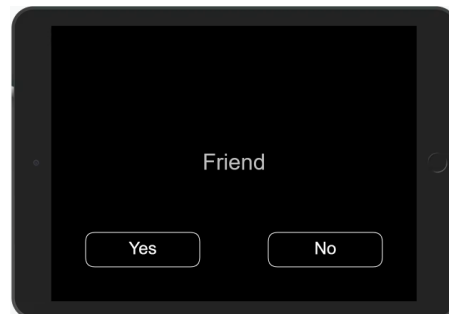


At the end of the free recall stage, return the iPad to the subject so they can continue with the rest of the task.

3. Immediate Recognition

The subject will then be presented with another set words, some of which they have seen previously, and they must select 'Yes' or 'No' depending on whether the word was shown previously.

Following the immediate recognition phase, a 20 minute timer will appear to countdown to the delayed recognition phase. During this period the subject may be asked to complete other CANTAB tasks, or take a break from the iPad.



4. Delayed Recognition

Following a 20 minute delay period, the subject will then be presented with another set of words, some of which they have seen previously, and some are novel words. They must again select 'Yes' or 'No' depending on whether the word was shown previously.

End of Task

Tone Variants

The word 'tone' after the variant name indicates that the test instructions will be given by the test administrator, not automated within the software. The tone variants should only be used in certain populations, such as pediatrics or those that may be impaired. For further information about the tone variants, and to obtain a copy of the tone variant scripts, please get in contact with a member of the support team.

NeuroVocalix Tasks

When subjects are completing voice-based assessments (Verbal Paired Associates (VPA) or Digit Span (DGS)) it is particularly important that background noise is kept to a minimum as this can cause interference. For best results we would also recommend that the subject uses the system's inbuilt speakers and microphone rather than any external devices.

The NeuroVocalix tasks require an active internet connection to run as they use Automatic Speech Recognition (ASRs) technology. ASR requires an active Wi-fi or similar connection to process the verbal data and store it securely on the Connect platform as a task outcome measure. If Wi-fi or similar connection isn't present, the ASR will not be able to process the data and the task will not be able to continue.

The Subject Application

This section explains how to administer the CANTAB tests to your subjects remotely using the web-based platform. It also outlines the full subject user experience.

For information on how to create web-based studies, see the *CANTAB Connect Research: Admin Application User Guide*.

The subject experience

This section describes:

- The enrolment process
- The study procedure (including Preparatory screens, assessment, Interstitial screens, Performance observations and the Release page).

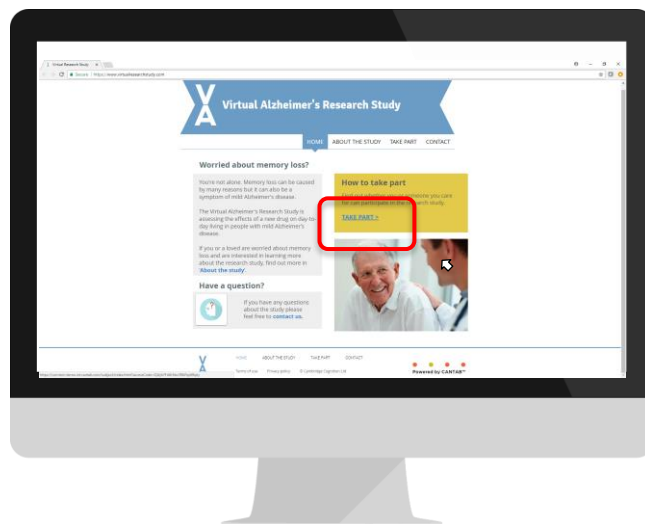
Enrolling subjects

The first stage of any web-based study is subject enrolment. The CANTAB Connect web-based platform allows you to enroll subjects via self-enrolment and pre-enrolment.

Self-enrolment

Every web-based study on CANTAB Connect will have its own unique URL link (see the *CANTAB Connect Research: Admin Application User Guide* for details).

- If you do not know who your subjects are before starting your study, you can copy and embed the link to your study on an online webpage (for example)



Example showing a study hyperlink embedded in a webpage

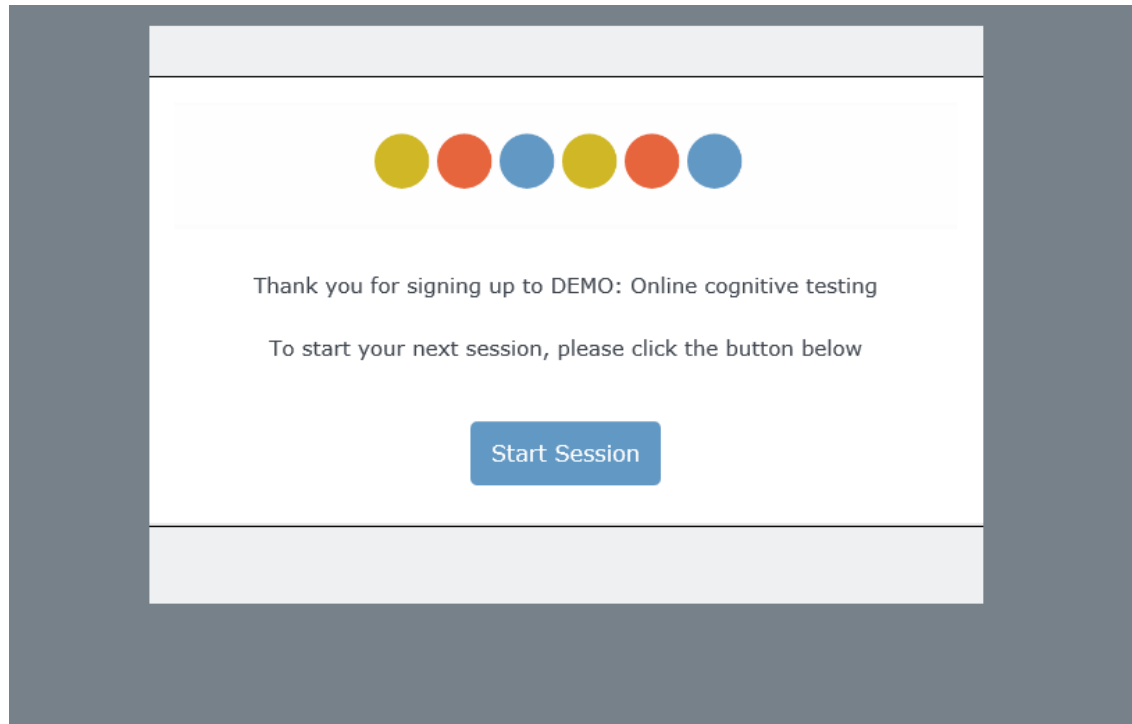
- If you know a subject's email address, you can share the link via email.

Pre-enrolment

If you already know the subjects that you want to take the assessments, pre-enrolment may work well. Researchers add subjects to the study, then email them directly with a personalized link to access and complete the assessments. The *CANTAB Connect Research: Admin Application User Guide* explains how to find and copy the link.

Web-based studies with multiple visits

If a subject is self-enrolling and there are multiple web-based visits in the test schedule, they will submit their email as part of the enrollment process. They will then be sent an email containing a subject-specific URL link through which they complete their first testing session as well as subsequent visits.

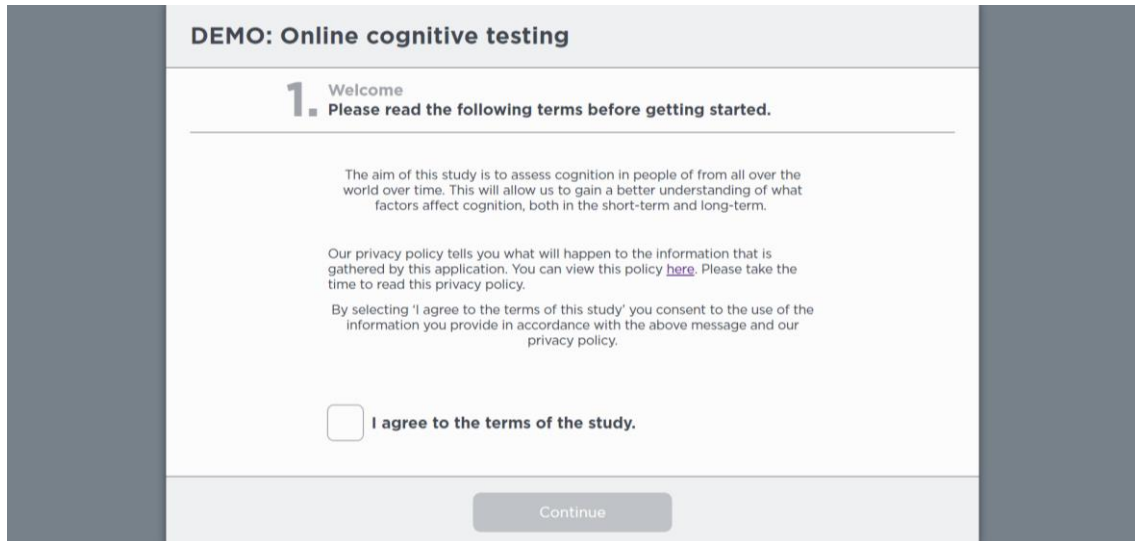


Email containing subject-specific 'Start Session' link

The test procedure

The procedure followed by subjects when they access the study URL link is defined by the study's creator, as part of enabling web-based testing (described in the *CANTAB Connect Research: Admin Application User Guide*). Here is a brief look at the process from the subject's point of view:

1. A consent message page will be displayed. The text displayed on this page is completely customizable to each researcher's requirements.



DEMO: Online cognitive testing

1 Welcome
Please read the following terms before getting started.

The aim of this study is to assess cognition in people of from all over the world over time. This will allow us to gain a better understanding of what factors affect cognition, both in the short-term and long-term.

Our privacy policy tells you what will happen to the information that is gathered by this application. You can view this policy [here](#). Please take the time to read this privacy policy.

By selecting 'I agree to the terms of this study' you consent to the use of the information you provide in accordance with the above message and our privacy policy.

☐ I agree to the terms of the study.

Continue

Example consent message page, with embedded Privacy Policy document

2. The subject must tick the **I agree to the terms of the study** box, then tap **Continue** to proceed with the enrolment and assessment process.
3. The subject should fill in the necessary details on the 'Your personal details' page the tap **Submit details**.

The data items on this page can take the following forms:

- Response format (e.g. checkbox, drop-down list)
- Data items: these can be set to 'required' (marked by an asterisk *) which subjects must fill in before proceeding
- Parameters: these can be set to require acceptable responses (e.g. 'Age' can require an answer above 18)
- Email addresses: these can be collected and exported (via the reporting mechanism in the Admin application) so that pre-enrolled subjects can be sent subject-specific study links for repeated testing in future. Self-enrolled subjects will automatically receive a subject-specific study link to their email address when the study has multiple visits.

DEMO: Online cognitive testing

2. Welcome
Your personal details

To take part we first need a few details. Please provide the following information and then select 'Submit details'.

Age*
✓ 50

Gender *
✓ Male ☐
Female ☒

Please enter your email address if you are happy to take part in the study again in 6 months' time.
✓ web_subject@camcog.com

Submit details

Example personal details page

4. The next screen summarises the subject's personal details currently stored in the database. At this point they can:
 - Tap **Change my details** if any details are incorrect (this takes them back to the **Your personal details** page where they can edit the details accordingly)
 - Tap **Continue**.

(When designing a study, there is the option to remove the **Change my details** screen if you do not want subjects to be able to edit their subject data items themselves.)

DEMO: Online cognitive testing

3. Welcome
My details

Please check that the information on this page is correct before continuing.

Age 50

Gender Female

Please enter your email address if you are happy to take part in the study again in 6 months' time. web_subject@camcog.com

Change my details Continue

Example personal details confirmation page with option to 'Change my details'

5. The next screen asks the subject to complete a sound check before they complete the assessments. This ensures that they will hear the voice-over instructions which explain the tasks to them. The **Continue** button will not be responsive until the subject has ticked the box indicating that they have heard the bell.

The screenshot shows a web interface titled "DEMO: Online cognitive testing". Below the title is a section header "4. Sound check". The main content area contains the following text: "In the next part of the session you will hear a voice-over. Before you continue, please make sure you have your speakers turned on and your volume set at a suitable level. To check your audio, click on the picture of the bell to play a sound. When you hear the bell ring you are ready to continue." Below this text is a button with a bell icon. Further down is a checkbox with a green checkmark and the text "I hear the sound when I click on the bell". At the bottom of the page is a blue "Continue" button.

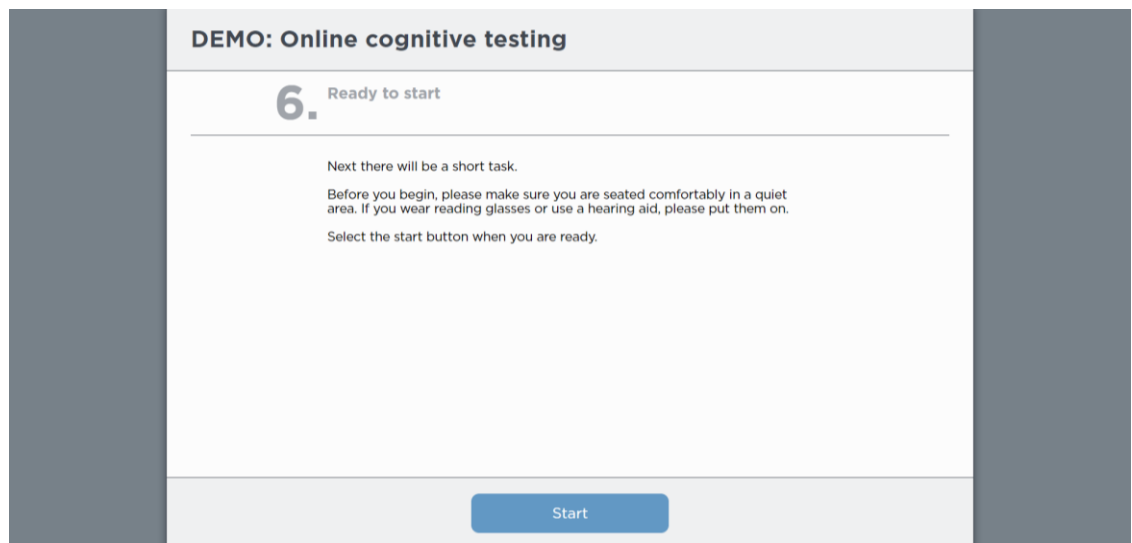
Sound check page

6. Subjects will see on-screen instructions and hear a voiceover prompting them to **Enter full screen mode**. This means that for subjects completing the assessment on a desktop or laptop computer, the task will take up the full screen and they will not be able to see anything other than the task on their screen. The **Continue** button will not be responsive until full screen mode is activated.

The screenshot shows a web interface titled "DEMO: Online cognitive testing". Below the title is a section header "5. We need to go full screen". The main content area contains the following text: "To help you complete the rest of the session, your browser will need to be in full screen mode. Please select 'Enter full screen mode' to allow this to happen." Below this text is a button labeled "Enter full screen mode". At the bottom of the page is a greyed-out "Continue" button.

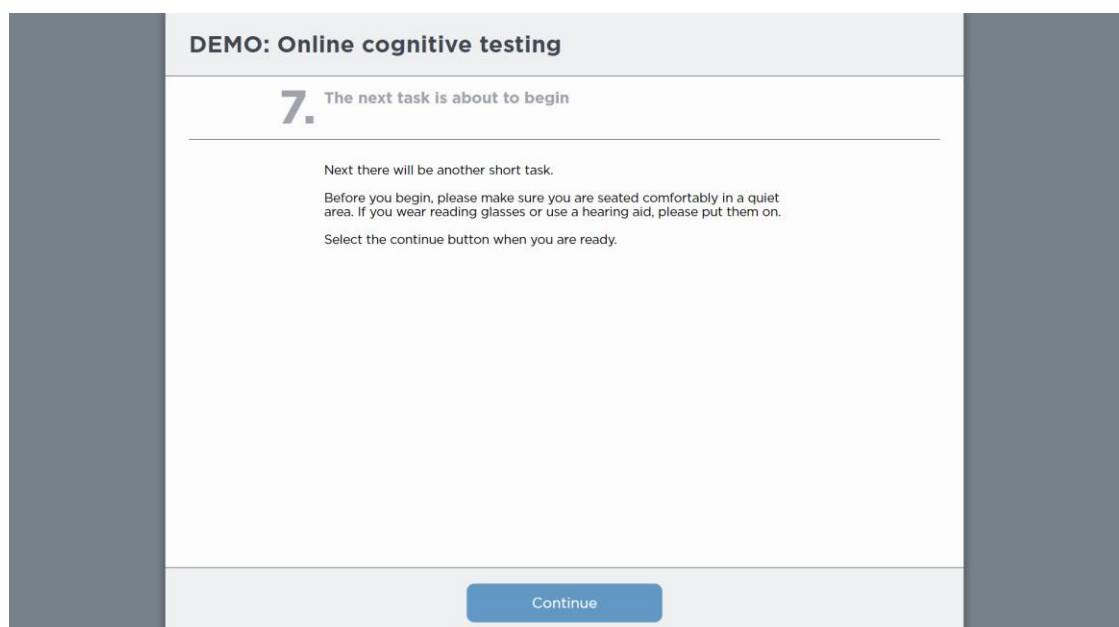
Enter full screen mode page

7. Subjects will be asked to make sure they are comfortable and in a quiet area. They will also be prompted to wear glasses or their hearing aid if they require them. The subject should select the **Start** button when they are ready.



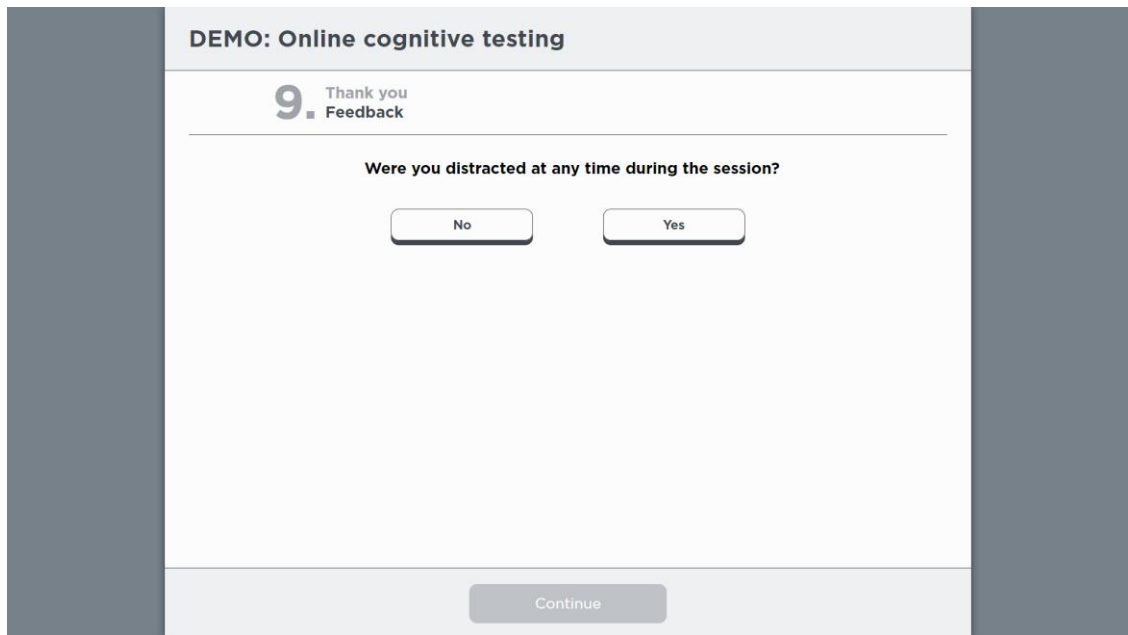
Appropriate conditions for completing the task(s) outlined

8. The available CANTAB Connect tasks for web-based testing are described in the *CANTAB Connect Research: Admin Application User Guide*. Subjects will receive standardised, automated voiceover instructions which guide them through the practice phases of the tasks and prepare them for the assessed phases.
9. Each task will be separated by an interstitial (explanatory) screen. When the subject is ready to proceed with the next task, they should select the **Continue** button



Interstitial screen

10. If the option to include Performance Observations for the visit has been enabled, subjects will be asked at the end of their assessment whether they were distracted at any time during the session.



DEMO: Online cognitive testing

9. Thank you Feedback

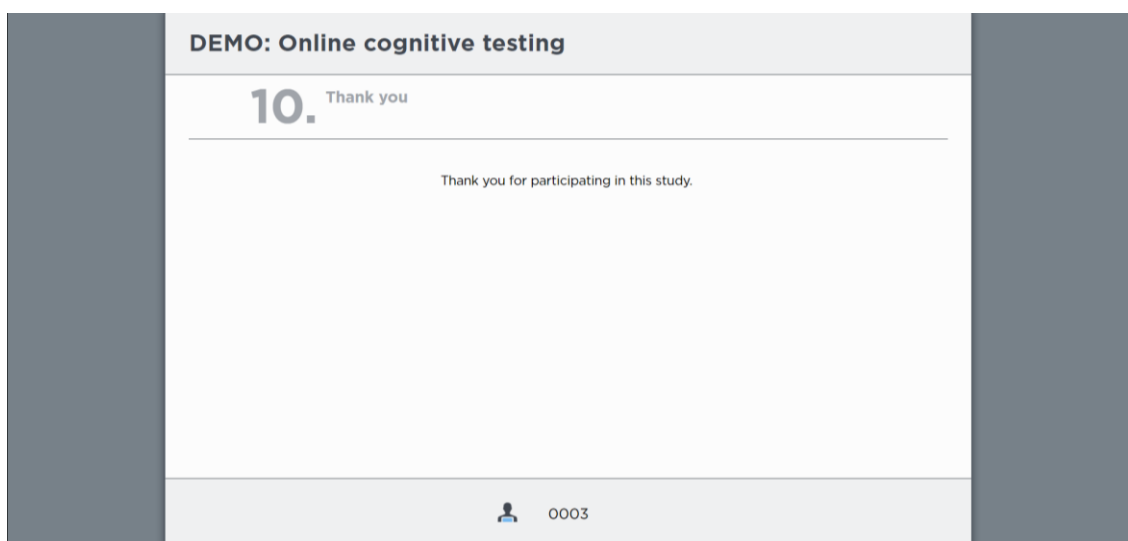
Were you distracted at any time during the session?

No Yes

Continue

Performance observation page

- If the subject selects **Yes**, their visit will be marked with the performance observation as 'Distracted'. For subjects completing the assessment on a desktop computer or laptop, the application will also monitor whether the assessment was completed in full-screen mode for the entire duration.
 - If the subject exits full-screen mode at any point during the assessment, the application will mark the visit as 'Distracted'. The performance observation will be output with their raw scores and can thus be used as a data quality check.
11. Subjects will be taken to a **Thank you** page. The text on the page is completely customisable to each researcher's needs.



DEMO: Online cognitive testing

10. Thank you

Thank you for participating in this study.

0003

'Thank you' page

Validated devices for web-based testing assessments

The CANTAB tasks can be completed on a wide range of devices (laptop computer, desktop computer and iPad) and are supported for several Operating Systems and Web Browsers as detailed below.

Operating System	Operating System Version	Browser	Permitted Web Based Testing Devices
Windows	Version 8	Chrome 50+ Firefox	
	Version 8.1	Chrome 50+ Firefox	
	Version 10	Chrome 50+ Firefox Edge	
Mac OS X	Sierra 10.12	Safari 12.x	Mac
	-	Chrome 50+ Firefox	
iOS	12.x	Safari 12+	iPad
iPadOS	13.x	Safari 13+	iPad

Languages supported for web-based testing

We can support web-based studies in multiple-languages. Please [Contact Us](#) for further information.

Web-based testing FAQs

Have these tasks been scientifically validated for web-based testing?

All CANTAB tasks must go through rigorous scientific and technical validation before being made available for online testing.

[Our scientific validation report](#) for the CANTAB tasks indicates that performance does not differ significantly between capture on an iPad at site and on a standard laptop/desktop computer at home. However, we do not recommend comparisons of any latency outcome measures collected using web-based testing due to differences in the capture of response speed between devices.

How do subjects access the web-based assessments?

There are two key ways in which subjects may be enrolled to participate in web-based assessments: pre-enrolled and self-enrolled subjects.

For a subject to be pre-enrolled their details, in particular their email address, must already be known by the researcher. Once the subject has been created in Connect, a subject-specific link can be sent to the subject, from which they can complete the web-based assessments. Any known subject data other than their email address e.g. date of birth, gender etc. can also be input by the researcher.

Self-enrolled subjects, who have not yet enrolled to participate in the study, can simply access the study by clicking on a study URL link, which is not subject-specific. This allows subjects to enroll themselves and can be placed on a webpage or in an email. Subjects will then be asked to input any subject data you would like to collect (which you define in the study design in Connect). This must include email addresses if the study has multiple visits, such that subjects can be sent a link automatically to access subsequent assessments.

How can subjects self-enroll and begin testing if I need to get consent from them before testing?

When self-enrolling on a study, subjects will be asked to agree to a study-specific consent message before testing. There is also the option to display a consent message to pre-enrolled subjects if appropriate.

Can a study have both pre-enrolled and self-enrolled subjects?

Yes. If self-enrolment is enabled, subjects can still be pre-enrolled too. Subjects can be added to the study via the Admin or iPad application.

Do subjects require any training to access and complete assessments online?

No. The online application has clear on-screen text and voiceover instructions to help users complete the assessment process without assistance or supervision.

Are the assessments accessible to subjects at all times?

As the assessments are web-based, subjects can participate in the study online at any time. If subjects have started a given visit but have exited the browser before they had completed the visit (i.e. they have not finished all the cognitive tests in that visit), the visit may be 'resumed'. When subjects access their subject-specific link again, they will restart whichever task they had been doing when they exited the application.

Before subjects have returned to complete the visit, 'ABORTED' will appear alongside the tasks they did not complete in the data report(s). Once they have returned and have completed all the tasks in a visit, the data for those tasks will then be populated.

Are there any connectivity limitations that would prevent someone from completing the test?

As the assessments are run on the internet in a web browser, there is no offline storage of data. After each task is completed, the software attempts to send the data to the CANTAB Connect servers to be saved. If this does not work straight away, the software will retry up to three times before moving on to the next task. If it fails three times, further attempts will be made at the end of the next task. The application will spend up to 10 minutes trying to contact the Connect servers. The subject will be made aware of connection issues at this point and prompted to check their internet connection. If after 10 minutes no connection has been established, the application will end the testing session without submitting the data. This means that the data is not saved and is lost. This application will display a message to the subject to make them aware of this.

How do I know whether subjects were compliant when completing assessments unsupervised at home and were not distracted?

If performance observations are enabled, the software will monitor any changes in visibility during testing, i.e. whether the subject exited full-screen mode during testing. In this case, assessments will be given the performance observation of 'distracted'. Also, subjects will be asked to self-report whether they were distracted at any time during the assessment after testing has finished. If they answer 'yes' then all the tasks will be given the performance observation of 'distracted'.

I would like to do a follow-up web-based visit as part of my study schedule. Is it possible to have a combination of web-based and non-web-based assessments in a single study?

Yes. In a single study schedule, a combination of web-based and non-web-based assessments can be configured.

How do I tell which visits are web-based and which are non-web-based visits in a study schedule in a report?

Currently, the standard .csv row-per-session and row-per-measure reports do not output any web-based assessment identifiers in the data. However, as part of the study configuration, the visit ID's can be named accordingly to identify web-based testing sessions in the report (for example, you can precede the visit name with WB if this is a web-based testing session). Each visit will also have a date and timestamp, which may help distinguish visits.

Where is the data stored? How do I access the data?

Data from each web-based assessment is instantly captured, scored and stored in a private cloud for real-time monitoring.

Data can be accessed by selecting the  button in the left-hand navigation pane of the Admin application and downloading the row-per-session and/or row-per-measure report using the  icon.

Once the report status in this table says 'AVAILABLE', click on the  icon to download the report to your computer. You will then be asked to provide your username and password. These are the same details you use to log in to the CANTAB software. You will then be able to access the dataset.

What format will the reports be exported in?

The reports generated from CANTAB Connect Research will be in .CSV format. These files can be imported into standard statistical packages.

Contact and support

Call +44 1223 810700
Email support@camcog.com

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Cambridge Cognition Ltd

UK Headquarters

Tunbridge Court
Bottisham
Cambridge
CB25 9TU
UK

US Headquarters

Cambridge Innovation Center
1 Broadway
Cambridge
MA 02142
US