Guide for the Botanic Garden app for use on tablets and other mobile devices

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CONTENTS

GARDEN APP INTRODUCED ........................................................................................................... 3
INSTALLATION .................................................................................................................................. 3
TRANSFERRING PLANT RECORDS DATA TO APP ......................................................................... 3
RDE FILE DATABASE CONTENT ....................................................................................................... 3
COPY RDE FILE TO DEVICE ........................................................................................................... 4
RDE FILE MANAGER FOR THE APP .............................................................................................. 4
EXISTING DOCUMENTS LIST ......................................................................................................... 4
LOAD RDE FROM DEVICE TO APP .................................................................................................. 4
EXPORT ........................................................................................................................................... 5
DELETE ........................................................................................................................................... 5
DATA THAT CAN BE ADDED/EDITED ............................................................................................. 5
APPLICATION MAIN MENU ........................................................................................................... 6
DATA GRID VIEW ............................................................................................................................ 6
PLANT DETAIL VIEW ....................................................................................................................... 7
MAP DATA ....................................................................................................................................... 8
IMAGES ........................................................................................................................................... 8
EVENTS AND REQUESTS ............................................................................................................... 8
ONLINE CHECKS FOR SPECIES ..................................................................................................... 9
FUNCTIONS FOR SELECTED RECORDS ......................................................................................... 10
ACT ON SELECTED ......................................................................................................................... 10
CHANGE LOCATION ....................................................................................................................... 10
ADJUST STOCK ............................................................................................................................. 10
CONFIRM STATUS ........................................................................................................................ 11
UPDATE STATUS .......................................................................................................................... 11
REQUEST LABELS ........................................................................................................................ 11
ADD COMMENTS .......................................................................................................................... 11
PROP REQUEST ........................................................................................................................... 11
ADD VERIFICATION ....................................................................................................................... 12
CREATE EVENT .............................................................................................................................. 12
CREATE REQUEST ......................................................................................................................... 12
MAPPING PLANTS ........................................................................................................................ 12
ADDING A NEW PLANT .................................................................................................................. 13
TRANSFER RDE DATA AND IMAGES TO BRAHMS ................................................................. 13
COPY AND OPEN RDE ZIP ............................................................................................................ 13
IMAGES ........................................................................................................................................... 13
NEW PLANTS AND ACCESSIONS ................................................................................................. 14
THE TRANSFER PROCESS ............................................................................................................. 14
KNOWN GLITCHES AND AREAS FOR IMPROVEMENT ............................................................. 16
AUTO-MOVING IMAGES FILES WHEN IMPORTING AFTER VIEWING IMAGES ...................... 16
GARDEN SUBAREA LOOKUPS ...................................................................................................... 16
Garden app introduced

The botanical gardens mobile app is used, in conjunction with BRAHMS desktop, to gather data and images for plants in botanic gardens or similar areas. The app, developed and licenced by Oxford University Innovation (OUI), runs on Android and iOS.

Data for selected plant records are exported from BRAHMS to a special RDE file using the export tool provided. The RDE file is then transferred to the app and edited by adding plant events and requests, map positions, images and a few other key categories of data. Data are then returned to BRAHMS desktop where they can be reviewed and then submitted to BRAHMS, updating existing plant records, registering new plants and adding images.

Functionality in the app includes data add/edit, query, field view selection, consult taxa online, geo-location and photography. Additionally, there are specific data options for stock level checks, requesting labels, plant moves, verifications, status checks and changes, adding notes and adding other general events and requests such as phenology events and propagation requests.

The app has the capability to work both on and off line. Thus, you can gather data in garden areas that have no internet/phone signal. We recommend you use the app on 8 – 11” tablets but it can be used on smaller devices including phones of a sensible size.

Installation

The brahms.apk file is ca. 25 MB. Copy the brahms.apk to your device using Bluetooth, a cable connection or in any other way. Run the installation on your device. This will replace any existing software. For convenience, you can add the BRAHMS icon to the tablet home page.

Transferring plant records data to app

In BRAHMS, in the main plants table, tag the plant records you wish to send to the app. This can be any group of plants. You may want to create more than one RDE file, for example one file per garden location. You have the choice of exporting existing events/requests for the selected plants so that these can also be viewed in the app. Existing images are not exported. You can restrict existing events/requests by date range. You can also restrict plants to those with a status representing ‘alive’. If you have tagged one or more records in the garden localities table, you can also use the option to Export all plants of tagged locations. Once created, the next task is to copy your RDE survey file(s) to your device.

The RDE file creation form. Once created, the RDE file can be copied to your device.
RDE file database content

When you create an RDE file for the app, the file includes:

- Data from the selected plants records.
- Optionally, all or selected events/requests already linked to these plants.
- Lookup lists for all relevant fields, taken from your Lookup list table.
- Label format names, taken from the main Labels table.
- All garden locations.

Copy RDE file to device

After creation, the RDE file is auto-registered in your RDE manager. You can open and check the RDE file to check the data – although this is not necessary.

Copy the RDE file(s) to your device using any method you like. Bluetooth is convenient but you may also use a cable connection or email. When you copy the RDE file(s) to the device, they normally go to your device’s downloads folder.

RDE File Manager for the app

Existing Documents list

When opened, the first screen you see is the RDE File Manager with a list of Existing documents. These documents refer to RDE files have already been registered or loaded into the app’s work space.

Load RDE from device to app

Use LOAD AN RDE FILE to locate and register any RDE files that you have copied to the device but not yet registered within the app. Loaded RDE files will be added to your Existing Documents list. When you load an RDE file you will be prompted as follows:

This information is used to populate the various records where events and requests are recorded.
Export

Export is used when you have completed your editing tasks with an RDE file. Export creates a zip file that includes the selected RDE file and any images you have taken for the plants in that file. If there are a lot of images, the zip file will potentially be large. The zip file can then be cable-copied back to your desktop and subsequently processed. This is covered in a separate section in this guide.

Delete

Delete will remove the RDE file and any images associated with that file from the app work space. Do not delete the file until you have used the Export option. Otherwise you will lose the file and your images.

A warning message is given when you use the Delete option.

After exporting and copying the zip back to your desktop, it is your responsibility to delete any processed files in your device’s downloads folder.

Data that can be added/edited

The following data can be added/edited. In some case this results in direct edits to the plant record, while in others, events and/or requests are added.

<table>
<thead>
<tr>
<th>Data</th>
<th>Notes</th>
<th>Updates Plant record</th>
<th>Adds Event/Request</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant Status Confirm</td>
<td>Confirm status of all selected records</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Plant Status Change</td>
<td>Update status of all selected records</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Stock Levels</td>
<td>Updating the remaining stock with notes.</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Plant Location</td>
<td>Change to location including subareas.</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Name Verification</td>
<td></td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Label Requests</td>
<td>Available label formats are as registered in your labels table.</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>Comments/Curation notes</td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>Propagation Requests</td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>General Events</td>
<td>Add events as registered in your BRAHMS lookup list.</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>General Requests</td>
<td>Add requests as registered in your BRAHMS lookup list.</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>Map Data</td>
<td>Lat/Long</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Images</td>
<td></td>
<td>Add image link</td>
<td></td>
</tr>
<tr>
<td>New Plants</td>
<td></td>
<td>New Plant records</td>
<td></td>
</tr>
</tbody>
</table>

Further details on data editing are provide below.
Application main menu

When you open an RDE file in the app, the menu appears in the top banner area with the RDE file name and some file stats.

The main menu includes the options:

- **Grid View**: open the RDE table in an Excel-like data grid with editing tools.
- **Map**: display a map showing all plant records within the current filter group.
- **Images**: display thumbs for all images linked to plants in the open RDE table.

Data Grid View

The Grid View is the main data viewing option, opened by default when a file is opened. The grid has the following key options:

- Drag columns to change order.
- COLUMNS: create and save a visible fields view.
- LOAD VIEW: select a saved field view.
- To resize field width, drag header dividers.
- Tap header once to sort AZ. Tap again to sort ZA. Tap a third time to remove sort.
- Tap another column to sort on additional column. Sorts are additive.
- Tap the Selected check box to select record(s). This adds a red tick mark.
- Use SELECT ALL/DESELECT ALL to tag/untag all records in file, within any filters you may have applied.
- Use SHOW SELECTED/SHOW ALL to filter on/off on selected records.
- Double tap any cell value to apply a filter on that cell value. Apply filters on multiple values.
- Use ADD FILTER to manually add one or more filter settings.
- Use REMOVE to remove filter(s).
- A single tap on a record opens the detail of that plant.
- The CLOSE RDE option closes the opened document. Data are auto-saved.

In addition to these grid functions, when the grid is open, you have access to the ‘Act on selected’ functions. These are further discussed below.
A grid view with some records selected and filters on the Living Status and Plant ID fields.

Selecting columns with options to Save the selection as new view.

**Plant Detail View**

To select and edit an individual plant record, use a single tap on the plant record in any field. This displays all non-null fields in the left hand panel. Across the top, there are menu options for Overview, Events, Requests and Images. Using the options on the right panel, you can add and edit the plant map location and add locality notes.
In plant detail mode, after tapping on a record, you can edit and view events, requests, map data and images.

Map data

If the plant already has a map location, the map zooms to and displays that plant. In Edit Map Point mode, the map becomes full screen and a blue dot indicates your current location - this changes as you move about. A Zoom to current location option is also provided. Tapping on the map updates the plant position which you can then save.

Also from the detail view, you can add Events and Requests. The lookup options for these will be as in your BRAHMS desktop.

Images

To take images, select Images > TAKE PHOTO. This uses the device camera as configured on the device and link image(s) to the current plant record. All images of the current plant are displayed as thumbs on the Images page. On most tablets, you have to select OK to confirm after taking each photo.

To delete images, use the DELETE option.

Events and Requests

In plant detail mode, you can create new records using the CREATE EVENT option. To edit an exiting event, tap on the event. To delete a record, swiping the record left exposes a DELETE option. The same applies to Requests. You can only delete events and request created on the app.
Deleting records.

**Online checks for species**

Assuming you are online, you can check the current species online using the **LOOK UP SPECIES** option, currently provided with options for POWO, IPNI and Google Images.
Functions for selected records

Act on Selected

Standard editing functions are available for selected records. These functions are listed in the below screen:

Change location

You can edit the location details. The Subareas headings will be as defined in your BRAHMS location settings. Note that map references are adjusted separately. Lookups are available at all locality levels.

Adjust Stock

The remaining stock can be adjusted. If the remaining stock is higher than the initial stock, the initial quantity is adjusted up. Update plant record and adds a stock adjustment record to selected plant(s).
Stock adjustments are added as events but also update the main plant record.

Confirm Status
Confirm status for selected plants. Adds a confirm event record to selected plant(s).

Update Status
Change the status of a plant. Status values are available as in your BRAHMS lookup list. Adds a status change event record to selected plant(s).

Request Labels
Label formats are listed as in your Labels table in BRAHMS.

Add Comments
Add any curatorial notes. These data are stored directly to the plant comments field.

Prop Request
Add a propagation request event.
Add Verification
Add a plant name verification with verification type and notes. Updates plant record and adds a verification event record to selected plant(s).

Create Event
You can add events for any general events (Type, Group, Event) as stored in your BRAHMS lookup list. For example, Observation > Flowering > Full Flower.

Create Request
You can add requests for any general requests (Type, Group, Request) as stored in your BRAHMS lookup list. For example, Maintenance > Tree removal.

Mapping plants
If you are working offline or in a area with a poor signal, you may want to fully zoom into the area you are visiting prior to going to the field. The map data are cached on the device.

The Map option on the main menu will map all plants within the current filter group. Markers are colourer according to plant status with Alive plants coded bright green and all others orange/brown.

Tapping on a marker displays details of that plant. Tapping on the details box opens the map editor. You can turn on all map labels using SHOW ALL LABELS but this only works if you have a smallish number of points and/or are well zoomed in.
Adding a New Plant

When you add a new plant, the new plant identifier default to PLANT01, PLANT02, etc. Plant IDs must be unique as any images linked to these plants will include the ID as part of the image name. You can add the basic details here. A locality name is required. Images may be linked and you can also add a map reference.

Later on, when the RDE is being processed prior to transfer to BRAHMS, you can link the plant to an existing Accession - or add a new Accession.

Transfer RDE Data and Images to BRAHMS

Copy and open RDE zip

When you open an RDE zip returned from the app, this will add the RDE file and all associated images to your RDE registered folder. You can either overwrite the original RDE file or, if you wish, rename or move the original. In practice, there’s little point in keeping the original file. When you open the zip to your registered RDE folder, the RDE file will be listed in your RDE file list in BRAHMS.

Images

Before importing RDE files that have images back to BRAHMS, make sure that your shared image folder has been setup and is accessible. The shared images folder is edited using System > Options > Shared Folders.

When the RDE file is imported, the images are physically moved from your default RDE folder to your shared images folder and registered in the BRAHMS images table in that location. This means that other users will be able to see these images from within BRAHMS. Later on, these images may be moved elsewhere.
New plants and accessions

If there are new plants, these will be at the bottom of your RDE file. As a first step, you need to ensure all new plants have an accession number. To add this, use the lookup function provided. New plants that have no Accession cannot be imported.

The Accession Lookup is only enabled for new plants. Choose an existing accession or add a new one.

The transfer process

Import reporting indicates the number of new events, requests and images for existing and new plants.

Newly added plants must be assigned an Accession number. If you do add an accession, the plant will not be imported.
The importer reports on the addition of events, requests, images transfers, image links and new plant additions.
**Known Glitches and areas for improvement**

We are aware of three issues which are now being addressed.

**Auto-moving images files when importing after viewing images**

When you import an RDE file, the associated images are auto-moving from your RDE folder to your designated shared images folder. Prior to importing an RDE file, you can view/delete linked images. However the images for the ‘last record viewed’ are not auto-copied to your shared images folder. This only applies to images for the last viewed plant record. The image links are transferred correctly. Any images where the move failed are registered in the RDE import log file.

The work around is to manually copy any images remaining in the RDE folder to your shared images folder. If you do not preview images in RDE prior to transfer, all the images are moved OK. The cause of this is issue is that Windows seems to lock the last viewed image and the move fails. We are investigating and will resolve.

**Garden subarea lookups**

Lookups to be added to garden subareas. These and other location fields to be force select + allow nulls.