BRAHMS v8
An update on development

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Optimizing efficiency and promoting research in herbaria of all sizes

A comprehensive database for Botanic Gardens and Arboreta

Seed procurement, processing testing, certification and distribution

Maps for publication, conservation assessment and diversity analysis

Managing images for curation, identification and public engagement

Mapping and analysis of diversity and bio-quality of differently scaled areas
BRAHMS, developed over the last 25+ years, embodies the collective knowledge and requirements of a wide range of botanical projects.

Using BRAHMS v7 as a template, we are creating a next-generation, modular, flexible, powerful and sustainable data management system for the botanical sciences.
Flexible data storage

- SQLite (always available)
- MS SQL
- PostgreSQL

Scalable solutions
- Local/personal databases
- Project networks
- Institutional networks (enterprise)
- Regional networks

SQLite is built into BRAHMS v8 (requires no installation), is capable of handling large number of records and is highly portable.

Further RDBMS e.g. MySQL, Oracle could be easily added
One of the challenges in developing v8 has been to ensure this new system is accessible to all levels of user – personal through to enterprise.

Installation, configuration, daily operation and maintenance have all been planned carefully.

No computer expertise is needed to install v8 and the system is delivered with a sample SQLite database – ready to go.

You can add new personal databases in SQLite or scale up to MS SQL Server or PostgreSQL when or if you need.
Authentication

- Log in using Windows authentication using local machine accounts or Active Directory.

- Alternatively, log in using BRAHMS generated credentials (as in v7).
Language

- UNICODE based data storage allows storage of all character sets.
- Presentation layer (user interface) fully translatable.

 Vietnamese characters as one example
Facilities are available to

- Create new projects
- Edit project metadata
- Import or export entire databases to/from xml files
- Load existing database projects.
Setup example: background imagery

Fixed image, images folder cycle or Bing images of the day
Modular system encourages co-development

- Each module (and module component) can be developed and maintained independently of every other module/component.

- The user interface, although initially developed using the Windows Presentation Foundation (WPF) framework as a Desktop application, could gradually be replaced or enhanced by any other implementation of a user interface e.g. in Html5/JavaScript.

- The service layer could additionally implement Web Services making selected facilities available to mobile devices and third party applications through http calls.
Window docking within the main application

- All windows in v8 can be docked within the application window and/or dragged to separate screen areas or monitors.

- Multiple data modules can be opened simultaneously, together with relevant data tools.
Window docking showing modules dragged to separate windows
Data grid tools

Ribbon toolbars are context-sensitive. Grid tools are common to all grids with options to:

- Tag
- Add
- Delete
- Merge
- Filter/Query
- Calculate
- Zoom
- Sort
- Display tree views
- Manage columns
Web Links: dynamic links to multiple external websites

Here showing three weblink windows, all docked within the BRAHMS application.
Web Links: dynamic links to multiple external websites
Here showing weblinks docked and in separate browser windows
Mapping: dynamic links to ArcGIS, fully integrated with BRAHMS v8

No need to install ArcGIS.

Data can also be mapped to QGIS, DIVA, Google Earth and elsewhere.
Mapping: records mapped from the Conifer Database
Images: full image display with metadata
Images: automated links to Zegami for cool image display
Visible columns can be selected dynamically to optimize viewing and editing tasks.

Column selections can be named, saved, restored and shared.
Window docking with column visibility, sigma summary and zoom
Tree view control

- Tree views provide an additional mechanism to locate and filter on taxa, places and other hierarchical data.
Drag data to Excel

Drag selected grid rows and columns directly to an Excel spreadsheet.

![Image showing data being dragged from a grid to an Excel spreadsheet.](image-url)
Queries/filters are remembered and can be selectively enabled.

Structured query commands can be combined using **AND** or **OR** expressions with parentheses.
Links to BRAHMS Online (BOL)

- Bootstrap-based, responsive websites can be designed and published directly from BRAHMS using WebConnect on any server running the BOL application.
- One to many database projects can be linked to each portal.
- Data and images can be selectively uploaded with restrictions applied as required.
- Published data are easily updated and/or removed.
Transfer BRAHMS V7 into V8

- All V7 data can be transferred to v8 via XML.
- Primary and foreign keys are generated as GUIDs.
More BRAHMS v8 news soon. We expect a Beta system around April 2016.

Version 7 users will be able to transfer their data.