Lessons from previous development work
- Designed with API to suit any level of complexity
- Open platform with a full data access to all database entities
- User controlled access with row level privileges system
- Device management and ‘non-human’ system users

Entities extendable
- All relevant types of data interlinked
- Germplasm
- Pedigree (two types)
- Experiments
- Inventory (seeds, samples, etc) with storage
- Markers with genetic and physical maps
- Environment with geographic coordinates
- Lots of meta-data and grouping abilities

Open Source Software Components
- MySQL
- PostgreSQL with PostGIS
- Perl – MVC framework, DBI for data connectivity, more from CPAN
- Custom module for authentication

Standard Data Formats
- Data exposed in JSON, XML and CSV formats
- Bulk data import / export in CSV
- GeoLocation data in GeoJSON
Data Access Layer – RESTful API

- ALL access to the KDDart system is through DAL;
- Ensures data integrity
- Applications language of choice (already used with Java, C/C++, Perl, Python, Javascript);
- It can function as a Software as a Service (SaaS);
- Low cost without compromise to research efforts and investment
- 264 operations now available in current version

For Developers and Non-developers
- Explore schema entities and relationships (tabular and graphically)
- Navigate the schema
- View results of DAL operations
- Display entities and relationship graphs
- And more …

Basically: understand the complexity

Databases supported
- KDDart-DAL forwarding mode
- BMS

Operations (just a couple to get started)
- Genus: get, list
- Genotype: get, list, list-aliases (includes search)
- System: login, logout, get/version, etc

Client Applications

- Integration with KDDart via KDMan
- Online (office) and offline (field) operation
- Synchronise directly to KDDart OR
- Stage to Curation tool and then to KDDart

KDXplore

KDSmart

KDMan

KDLog

KDSan

KDXcompute

KDDart

For Developers and Non-developers
- Explore schema entities and relationships (tabular and graphically)
- Navigate the schema
- View results of DAL operations
- Display entities and relationship graphs
- And more …

Basically: understand the complexity

Dal-Interop Server

- Databases supported
  - KDDart-DAL forwarding mode
  - BMS

- Operations (just a couple to get started)
  - Genus: get, list
  - Genotype: get, list, list-aliases (includes search)
  - System: login, logout, get/version, etc

DAL-Client Libraries

- Support for developing programs to use the DAL
  - Java
    - Desktop, Android and Server applications
  - Javascript
    - Browser applications
    - IOS and Android
    - Node.js for server-side
  - Perl
    - Server, Desktop, scripting
Thank you!
Questions?

http://www.kddart.org
https://github.com/kddart