Quality Assurance, Sprint 3

# Emulator Device Specification:

Resolution: 1280x800

CPU: Intel Atom (x86\_64)

Target: Android 5.1.1 - API Level 22

RAM: 1536 MB

SD Card: 1024 MB

Our user uses a Samsung Tab 4 – so the specs are as close as the actual device. As for this sprint, the app only has to run on this device with no significant defects. SD card is required to test storage functionalities of the app.

# Defects in Garden App

Garden App is the front end of the app, so most of the tests are done manually in Android emulator. Unit tests are run if such tests exist.

### File IOs may fail if the permission to read/write on external storage is denied

**Status**: Closed

**Reproducibility**: Rarely

**Priority**: Low

**Description**: Found by code review. App ops (available on many custom ROMs and rumored for future versions of stock android) revoking permissions from this app will cause it to fail every time. This defect cannot be reproduced on stock Android. It can be reproduced on emulator by not setting an SD card. This is low priority because it is not needed at the moment. YAGNI.

### FileOperation.load does not trim the white spaces and newline characters

**Status**: Fixed

**Reproducibility**: Always

**Priority**: High

**Description**: Found by unit tests. FileOperation.load() always returns a string with a newline feed at the end. This caused test failures when the input string does not have a newline in the end. Fixed by trimming the string before return.

### Layout in ViewSpeciesInfoActivity cutting off information

**Status**: Fixed

**Reproducibility**: Occasionally

**Priority**: Medium

**Description**: Found by running the app on emulator with screen size less than 5”. When the app is in View Species Info, part of the text is displayed outside the screen. Fixed by setting layout weights so the display is scaled evenly at all screen sizes.

### Garden resets upon returning to the main activity

**Status**: Fixed

**Reproducibility**: Always

**Priority**: High

**Description**: Found by running the app on emulator. Upon returning to main screen, the garden is reset. All changes made to the garden are discarded. Fixed by adding code to only load the garden once in main activity.

### Minimizing the app in View Garden causes the app to crash

**Status**: Open

**Reproducibility**: Always

**Priority**: Medium

**Description**: Found by minimizing the app when the app is in View Garden. Trying to bring the app back up causes the app to stop. Not fixed yet – cause of crash is unknown, may need some time to look into it.

### Main activity lacks unit tests

**Status**: Fixed

**Reproducibility**: Always

**Priority**: High

**Description**: Found by code review. There is no test for loading garden from storage in main activity. Fixed by breaking onCreate() into small methods and adding tests for these.

### Drawing activity takes longer to start

**Status**: Open

**Reproducibility**: Always

**Priority**: Medium

**Description**: Found by running the app on emulator. There is a slight performance issue where the app freezes for a second before the garden view shows up. The issue is currently being investigated.

# Defects in Garden Engine

Garden engine is tested with Unit Tests and code inspections.

### Garden.getSpeciesInfo returns a reference of the specie in garden

**Status**: Fixed

**Reproducibility**: Always

**Priority**: High

**Description**: Found by code review. getSpeciesInfo() should return a pointer to the copy of the species found instead of the specie inside the garden. Fixed by changing the method and creating a clone of the object.

### Garden serialize and deserialize has issues dealing with datetime

**Status**: Open

**Reproducibility**: Always

**Priority**: High

**Description**: Found by unit tests and code review. Garden.gardenToString() uses 24-hour date time format but Garden.stringToGarden() uses 12-hour date time format.

### Species.java does not have getters and setters for the fields

**Status**: Open

**Reproducibility**: Always

**Priority**: Medium

**Description**: Found by code review. Currently Species class does not have getters and setters for its fields. They should be added.

### Garden.getSpeciesInfo throws a NullPointerException when the species to be returned has a null plant date or prune date

**Status**: Fixed

**Reproducibility**: Always

**Priority**: High

**Description**: Found by unit tests. The method is supposed to return a copy of the species with the specified name. It throws a null pointer exception when plant date or prune date of such species is null. Fixed by modifying the code in the method to check for null conditions.