Mobile Application Development Guidelines and Best Practices
Division of Agricultural Sciences and Natural Resources
Oklahoma State University
Last update: April, 2019

Primary Purpose

This document is intended for project leaders within DASNR and application developers working with these project leaders who intend to create mobile applications. The goal of this document is to outline elements that should be included with these applications and establish best practice procedures for developing mobile apps and mobile friendly web applications. While these guidelines mark the minimum requirements, developers are encouraged to go farther, do more, and exceed these expectations.

University-owned mobile applications (apps) are developed by university faculty, staff, students, and contracted vendors, with an intended distribution by OSU through various channels. Applications which use OSU trademarks, replicate publicly available University data, or in any way portray themselves as an OSU app must be published in conjunction with the University and the sponsoring project leader(s) must obtain appropriate rights to use University trademarks and data.

Guidelines for Mobile Application Development

DASNR Information Technology is interested in partnering with project leaders and interested stakeholders for the development of mobile apps and mobile-friendly website applications. OKSTATE has a developer's license to cover all iOS apps generated from within DASNR.
Similarly, DASNR has established a development ID for placement of apps into the Google Play Store. To be included on the university development team, send the developer's name and email address to dasnr_it@okstate.edu.

Design Principles

Defined Audience

All applications should have a reasonably well-defined audience. This may represent the application's utility to producers, students, academics, or other professionals, but some group should be selected for focus.

Clear Purpose

All applications should have a clear and reasonable purpose that is best met by a mobile app and is a responsible use of fiscal and human resources. Applications are not required to be large or perform highly specialized functions; they can provide a small measure of utility or be useful as a digitized collection of reference material. An inherent purpose will be for the app to enhance OKSTATE's overall reputation. Any app that represents DASNR and OKSTATE must be supported through content and necessary development for at least two years after publication of the app's last published revision. Unless prior approval is granted from the DASNR Vice President's office, apps must be free of charge and cannot include advertising.

Review

All mobile applications must be reviewed by DASNR IT before the application is submitted to Apple or Google for distribution. Included in this review will be source code, graphical assets, and development documentation. Each project submitted for review should include a functional and technical description of the app.

Namespaces

Apps must be published centrally through the university app store account to allow users to easily find all OKSTATE offerings and to allow the university to remove or replace discontinued apps.

Visual Guide

The DASNR logo should be featured as the primary icon and be visible on the "About" screen. The position and size of the logo may vary due to the design of the application. Any changes to the logo's appearance must be approved by Agricultural Communications Services. No logo affiliated with DASNR can be used in combination with or addition to another logo without express written consent from Agricultural Communications Services.

The official Oklahoma State University colors are Orange (#d95900), Light Orange (#f2d700), Gray (#b8b3ad) and Black (#333524). It is advisable that these colors or color combinations be used throughout the application.

All mobile apps created to represent OSU will comply with the University's visual identity and branding standards and guidelines and established visual style which are available at https://trademarks.okstate.edu/.

Minimum Requirements

Error Handling

All applications should handle incorrect inputs and error conditions gracefully and should never crash under normal conditions. Error messages should be plain and understandable as they are communicated to the user. Reasonable recovery methods should be used to handle system errors that the user cannot directly control.

Input Formatting

Whenever possible user interface/user experience (UI/UX) features should be employed to assist the user in their tasks. Common examples include offering a numeric keyboard when entering numbers or an email focused keyboard for email addresses. Simple data entry and input configurations will minimize the risk of incorrect input while providing an easier input interface for the user.

Data Collection

Applications which collect data should abide by OSU's Acceptable Use Policy. Applications that require login must follow the university's privacy policy.

Accessibility

It is DASNR's commitment that published apps be accessible to individuals in compliance with federal and state laws and regulations and university policies. The app developers should understand and adhere to the application's level of compliance with Section 508 of the Rehabilitation Act. More information about OKSTATE's assistive technology and accessibility is available at http://access.it.okstate.edu/.

Device Support

When developing an application with the expectation of publishing it to either the Apple Store or the Google Play Store, testing the application on the popular handheld devices and operating systems is a critical step in the development life cycle. Browser compatibility testing should be done throughout the application's development cycle.

Code Repository

DASNR IT maintains a code repository which must be used by any developer working with DASNR faculty and project leaders. Repository updates are to be made at all major and significant minor revisions. Along with all applicable source code, images and documentation, the repository must contain a README that details the supported platforms (iOS, Android, Web), dependent technologies and their versions (programming language(s), frameworks, database systems, web service systems, etc), and build instructions. Apps will not be published to app store (iOS, Android) until source code has been checked into the repository and confirmed by a DASNR IT Application Developer.

Best Practices for Mobile Site Development

- Test the site on multiple devices and platforms.
- Conduct usability tests whenever possible.
- Use progressive enhancement on mobile-based web designs and projects.
- Where applicable, provide a link to the original (full) version.
- Avoid the use of nonstandard, experimental, and unproven technologies.
- Manage download size and minimize the consumption of data that is forced upon the user; optimize when and where possible.
- Provide an "About" page with relevant contact information, DASNR's logo, and the URL to http://dasnr.okstate.edu/apps and the EOE statement.

Appendix

Android Development

The package name should be edu.okstate.dasnr.<app_name>. For example, if the app is titled "Winter Wheat", the package name must be edu.okstate.dasnr.winterwheat.

The following details are required by the Google Play Developer Console and must be provided to DASNR IT before the app can be published to the Google Play Store:
- Title: <30 characters
- Short Description: <80 characters
- Full Description: <4000 characters
- Screenshots: JPEG or 24-bit PNG (no alpha). Minimum length for any side: 320px. Maximum length for any side: 3840px. At least two screenshots are required overall. Maximum eight screenshots per type. Types are: Phone, Tablet, Android TV, and Android Wear. For the app to be showcased in the 'Designed fo tablets' list in the Play Store, at least one 7" and one 10" screenshot is required.
- Hi-res icon: 512x512, 32-bit PNG (with alpha)
- Feature Graphic: 1024w x 500h, JPG or 24-bit PNG (no alpha)
- Email address. By default this will be the PI/faculty who is the primary contact. If you desire a change, please send the information to DASNR IT at the time the app is sent for review.

Optional elements include:
- Promotional Graphic: 180w x 120h, JPG or 24-bit PNG (no alpha)
- TV Banner: 1280w x 720h, JPG or 24-bit PNG (no alpha)
- Promotional Video: URL to YouTube video

iOS

The Bundle ID should be of the format edu.okstate.dasnr.<app_name>. For example, if the app is titled "Canopeo" the Bundle ID will be edu.okstate.dasnr.canopeo.

The following details are required by the Apple App Store and must be provided to DASNR IT before the app can be published to the store:
- Name: <255 characters
- Description: <4000 characters
- Screenshots and App Preview: screenshots must be in the JPG or PNG format, and in the RGB color space. App previews must be in the M4V, MP4, or MOV format and cannot exceed 500MB. Screenshot and image specifications are here.
- App Icon: must be in the JPG or PNG format, with a minimum resolution of at least 72 DPI, and in the RGB color space. It must not contain layers or rounded corners.

Optional element include:
- Keywords: One or more keywords separated with a comma.

Both Android and iOS

Any app updates must include a description of the changes.