Factsheet

Tests – Crowdsource

Crowdsource

**Crowdsource**
Supported clients: iOS and Android

Mapping mobile internet performance and availability is challenging. Crowdsource is a tool for citizen testers to collect data on mobile devices. This data is then used to check maps provided by the mobile operators and support applications for funds.

Using our mobile SDKs for both Android and iOS, Crowdsource is built in a modular way so you can choose to include different features. The benefit of this is a reduced build time of the application. So you spend less time thinking about app design and more time analysing data.

You can choose from a selection of pre-built and tested modules (see the module list). Once your app is launched you can add and remove features without having to redeploy new builds, all by our remote configuration platform.

If there are features no included in the standard feature modules, we can build them, or alternatively you can licence the SamKnows mobile SDKs and build your own application.

All of the data collected by applications is ingested into our analytics platform, SamKnows One.

**User interface**

The Android and iOS applications are designed as utility applications, providing a simple and easy to navigate user interface which conforms to platform-specific design guidelines.

The following customisation options are available to clients:

- Application name.
- Specifying a primary and secondary colour for use throughout the application.
- Branding logos for ‘hero’ image and application icons (Vector format).
- Web content URLs for information screens (‘About’, ‘Contact’ and ‘Privacy policy’).

You can also decided which content and application images should be used in the Google Play and/or Apple store when the applications are published.

**Modules**

**Measurements**

The Crowdsource platform currently supports Download, Upload, Latency (includes Jitter and Packet Loss), Web browsing, and YouTube streaming measurements. This is extensible and we’re working on adding more of our proprietary measurements to the platform, see the measurements product page for more information: [https://samknows.com/technology/tests/measures](https://samknows.com/technology/tests/measures)

**Measurement configuration**

While the base application is designed to run a complete sequence of performance measurements, the sequence customisation module allows your users to customise each sequence executed by manually turning on or off a subset of the measurements. For example, they may only want to run a download measurement instead of the entire set. The test configuration add-on feature allows users to do this using a simple toggle switch user interface. The test configuration is persisted to the device and will retain their choices each time they toggle them.
The subset of tests offered within the application can be remotely configured, i.e. we can turn specific tests on/off as and when your needs change. For example, if you decide that you want to add the YouTube test to your application at a later date, this is something we can accommodate.

**Measurement Runner**

The measurement runner is part of the default application, it runs measurements based either on client configuration module. The runner will show the overall progress of the measurements and intermediate results. Upon completion, users can either restart a measurement or directly share their results through social media.
Results
The application maintains a complete record of all measurements run by the user and displays them in categorised tabs (by date or connection type) allowing the results to be viewed at any point in time. The default application comes with the lists based results screen.

Instead of basic lists, you can choose instead to offer your users a charts feature. The lists and charts features are mutually exclusive, i.e. it’s one or the other. The data charting feature provides users with graphs to allow them to better visualise their data as well as trends in their measurement results.

Maps are another optional add-on feature allowing for the visualisation of results through platform-specific maps (Google Maps on Android and Apple Maps on iOS). This is particularly useful if your users are collecting measurement data at multiple locations. If your users grant the application explicit permission to collect location data, measurement results will be tagged with latitude and longitude, before being ingested to SamKnows One persisted to local device storage. This location data is displayed to the user on a dynamic map when this feature is included in the application. If the user decides to deny the location permission, the map section of the results history will show a high-level map with a reminder for location services to be enabled.
Result details
Users have access to individual measurement results from any of the results screens (lists, charts, and maps). If the mapping feature is enabled, and the user has granted explicit permission to tag measurement results with location data a map will be displayed, pinpointing the exact location the measurement was undertaken.
Sharing
This feature allows your users to share their test data across a variety of social media platforms and services. They can share their results either immediately after running a test, or from the result details screens.

Mobile data cap
The application users can choose to run active or background measurements (Android only) against their mobile/cellular networks. The data cap feature allows them to monitor and manage the amount of data being used by the application. They can either opt-out of using their monthly data allowance or restrict the application from exceeding a specified limit. Additionally, users can set the date their billing period rolls over allowing the data usage to reset in-line with their billing period.
We measure how much data each test uses. Set a notification in the mobile data screen to receive an alert.

**Allow mobile data use**

**Mobile data limit**
- 100 MB
- 200 MB
- 500 MB
- 1000 MB
- Unlimited

**Mobile data reset day**
- 5

**Data usage this month**
- 288.92 MB

**Total data usage**
- 765.1 MB

Select the date your billing period starts each month:

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**Data usage this month**
- 288.92 MB

**Total data usage**
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Test your internet

Data usage

0.0 MB of your 200.0 MB data limit has been used.

Cancel  Start testing
Data export
The base application includes a feature to store all test results in a local database, these results can be viewed on the various results history screens. The data export add-on feature allows for this data to be exported to JSON files for viewing, analysing, and storing outside of the application itself. Users have the option to export all results or choose between two specific data and either save directly to a ZIP file or email said ZIP file using their chosen email client.

The export format varies between Android and iOS simply due to the volume of environmental data that is captured on Android.

Whitebox dashboard
This feature allows users that have a SamKnows Whitebox connected to their home broadband network to log in and visualise some basic analytics and data trends. This is not a replacement for the SamKnows One dashboard, as it only provides basic metrics.
Scheduled measurement (Android ONLY)
Including background tests in your application will allow your users to opt-in to allowing passive background measurements. You can decide how many times this measurement should take place within a 24-hour window, this schedule can be remotely changed as and when needed.
The Android operating system manages the execution of the background test and will only run it when specific device constraints are met:

1. The device is connected to a network (Mobile or Wi-Fi)?
2. If the user has allowed the schedule measurement to run against a mobile network connection, has the user exceeded their monthly data cap?
3. Is the device idle?
4. Is the device plugged into a charger?

The time interval is not guaranteed but is a best-effort system managed by the operating system. The scheduled test can be configured to run against Wi-Fi only or both Wi-Fi and mobile networks. If/when running against the user’s mobile network their data usage settings will be respected.

### Measurement definitions
A static screen providing users with basic definitions of each configured measurement. If you decide that your app only has active download, upload, and latency measurements, then the definitions for the Web browsing and YouTube tests won’t be visible.
Enhanced failure support and reporting
The base application handles test failures and reports partial and complete tests sequence results to SamKnows One. The enhanced failure support accounts for additional failure scenarios e.g. failure to resolve a test target server and creates a test record in local history and submits this failed record to SamKnows One. This provides a more detailed dataset of test failures and the causes. This is particularly useful if you’re trying to crowdsource data in an area of limited/poor connectivity. The enhanced failure support has built-in anti-gaming protection, so the result-set can’t be polluted by means of placing the device into flight/aeroplane mode or deliberately displaying Wi-Fi or mobile/cellular connectivity. This way you can be assured that the failed results are genuine and due to connectivity issues.

Anonymised data
You may have concerns over data protection and management of your users’ personally identifiable information. To facilitate the need for better anonymisation, all data submitted to SamKnows One from the mobile applications can be done so using a unique agent ID, so no two records can be correlated. Additionally, this feature will obfuscate other fields like Wi-Fi SSIDs which can also be used to identify a particular user through data analysis.

Enhanced environmental data (Android only)
Although both the Android and iOS applications can provide the device and environmental data, for example, connectivity type (mobile vs Wi-Fi) and SSID etc. The Android application has the capability of providing very detailed telemetry data pertaining to the device and cellular/Wi-Fi connectivity (cellular tower, signal strength etc.)

On the Android platform, a snapshot of the environmental data is captured at the beginning and end of each discrete measurement. So for example, if the app is running the download, upload, and latency tests, a snapshot of the environmental data will be taken at the start and end of each of those measurements. Additionally, environmental data deltas are calculated while a measurement

Web content
The platform supports three different types of client-defined web content, all we need are the URLs for mobile optimised web pages, this is something we can help design and build for you. The SamKnows crowdsource platform currently supports three different types of web content:

1. Privacy policy: You can display your own privacy policy pertaining to user data collection and storage.
2. Contact page: You can display contact information or a contact web form.
3. About page: You can display information about your project or the purpose of the application and data collection.

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is running so we can get a real picture of how connectivity changes throughout the measurement. This can be particularly useful in analysing results and why they aren’t meeting expectations. See the environmental data dictionary for further information.

**Internalisation**
The platform currently supports English, Arabic, Chinese (Simplified and Traditional), this is extensible and all text will be translated into languages to support your user base.