# Data Description – Android Developer Survey (Security)

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Google Play Information from Christian Stransky, Leibniz University Hannover

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This note describes the fields in the Tab Separated Variables (TSV) file Anonymised\_Results.tsv.

The file has two heading rows. The first provides workable row titles, such as ‘Q4’; the second details the actual questions asked in the survey.

The survey questions and codings are in the attached MS Word document, Android\_Developer\_Survey\_QuestionsAndCoding\_Final.docx.

The following table describes the columns in the TSV file:

|  |  |
| --- | --- |
| Field | Description |
| StartDate | Generated by Qualtrics – see https://www.qualtrics.com/support/survey-platform/data-and-analysis-module/data/download-data/understanding-your-dataset/ |
| EndDate |  |
| Status |  |
| Progress |  |
| Duration (in seconds) |  |
| Finished |  |
| RecordedDate |  |
| ResponseId |  |
| LocationLatitude | Generated by Qualtrics and rounded to nearest integer… |
| LocationLongitude |  |
| DistributionChannel | Generated by Qualtrics… |
| UserLanguage |  |
| Q4 | Coded answers to survey questions. See Android\_Developer\_Survey\_QuestionsAndCoding\_Final.docx |
| Q5 |  |
| Q5\_6\_TEXT |  |
| Q6 |  |
| Q7 |  |
| Q8 |  |
| Q9 |  |
| Q10 |  |
| Q11\_1 |  |
| Q11\_2 |  |
| Q11\_3 |  |
| Q11\_4 |  |
| Q11\_13 |  |
| Q12\_1 |  |
| Q12\_2 |  |
| Q12\_3 |  |
| Q12\_4 |  |
| Q12\_5 |  |
| Q12\_6 |  |
| Q13 |  |
| Q14 |  |
| Q15 |  |
| Q16 |  |
| Q17 |  |
| Q17\_7\_TEXT |  |
| Q18 |  |
| Q19 |  |
| Q20 |  |
| Q20\_4\_TEXT |  |
| Q21\_1 |  |
| Q21\_2 |  |
| Q21\_3 |  |
| Q21\_4 |  |
| Q21\_5 |  |
| Q22 |  |
| Q23 |  |
| Q24 |  |
| Q25 |  |
| Q26 |  |
| Q27 |  |
| Q28 |  |
| Q29 |  |
| Q30 |  |
| Q31 | Country codes are in countryCodes.txt |
| Q32 |  |
| Q33 |  |
| Identifier | Our internal identifier for the corresponding APK |
| DownloadRange | Google Play download range – see below. |
| Date | Last APK Update |
| Instr | Data from parsing the APK… Count of Instructions |
| class | Count of classes |
| method | Count of methods |
| field | Count of fields |
| Hermes: cryptographic key handling | Count of calls found to functions involving… |
| Hermes: javax.crypto.Cipher getInstance |  |
| Hermes: using Certificates |  |
| Hermes: using KeyStore |  |
| Hermes: using Mac |  |
| Hermes: using MessageDigest |  |
| Hermes: using SecureRandom |  |
| Hermes: using Signature |  |
| CogniCrypt: ConstraintError | See <https://github.com/CROSSINGTUD/CryptoAnalysis> for CogniCrypt errors. |
| CogniCrypt: NeverTypeOfError |  |
| CogniCrypt: ForbiddenMethodError |  |
| CogniCrypt: ImpreciseValueExtractionError |  |
| CogniCrypt: RequiredPredicateError |  |
| CogniCrypt: IncompleteOperationError |  |
| CogniCrypt: TypestateError |  |
| LibScout: OLD VERSION | https://doi.org/10.1145/2976749.2978333 |
| LibScout: SECURITY |  |
| FlowDroid Leaks | https://doi.org/10.1145/2594291.2594299 |
| BadSSL | Count of errors by extracting any URL from the constant pools of the classes contained in the app using the OPAL framework (Version 1.0.0) and checking the server configuration and certificate using the command-line tools curl (Version 7.64.0) and openssl (Version 1.1.1b). |
| MalloDroid | <https://doi.org/10.1145/2382196.2382205> |

The mapping of the Google Play Downloads value is:

|  |  |
| --- | --- |
| 0 | 1 - 5 |
| 2 | 5 - 10 |
| 3 | 10 - 50 |
| 4 | 50 - 100 |
| 5 | 100 - 500 |
| 6 | 500 - 1,000 |
| 7 | 1,000 - 5,000 |
| 8 | 5,000 - 10,000 |
| 9 | 10,000 - 50,000 |
| 10 | 50,000 - 100,000 |
| 11 | 100,000 - 500,000 |
| 12 | 500,000 - 1,000,000 |
| 13 | 1,000,000 - 5,000,000 |
| 14 | 5,000,000 - 10,000,000 |
| 15 | 10,000,000 - 50,000,000 |
| 16 | 50,000,000 - 100,000,000 |
| 17 | 100,000,000 - 500,000,000 |
| 18 | 500,000,000 - 1,000,000,000 |
| 19 | 1,000,000,000 - 5,000,000,000 |
| 20 | 5,000,000,000 - 10,000,000,000 |
| 21 | 10,000,000,000 - 50,000,000,000 |