



Privacy Issues in Mobile Health Applications Assessment of Current Android Health Apps

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ABOUT AV-TEST



The AV-TEST Institute in Magdeburg

Introduction: About AV-TEST

Die besten Antivirus Programme für Windows Privatanwender

AV-TEST Produktbewertung und Zertifizierungsbericht - Mai/Juni 2016

Avira Antivirus Pro

Version: 2016
Plattform: Windows 8.1 (64 Bit)
Report: 10220
Datum: 04.06.2016

Schutzwirkung

Schutz gegen Malware (Inhalten von Web-Seiten und eingehende E-Mails)

Malware	Erkennung	Blockade
Erkennung von weit verbreiteter und häufig auftretender Malware aus dem letzten 4 Wochen (AV-TEST Malware Set)	100%	100%
Erkennung von weit verbreiteter und häufig auftretender Malware aus dem letzten 4 Wochen (AV-TEST Malware Set)	100%	100%

Geschwindigkeit

Verlangsamung beim Aufruf von populären Webseiten	Standard PC	Ergebnis	Höchstwert
40 besuchte Webseiten	7%	1%	13%
Verlangsamung der Downloads von häufig genutzten Programmen	2%	1%	1%
Verlangsamung beim Ausführen von Standardsoftware	14%	1%	10%
Verlangsamung der Installation von häufig genutzten Programmen	11%	1%	10%
Verlangsamung beim Kopieren von Dateien (lokal und im Netzwerk)	5%	1%	2%

Benutzbarkeit

Falschliche Warnungen oder Blockierungen während des Besuchs von Webseiten	0	0
Falschliche Erkennungen von normaler Software als Malware während eines Systemstarts	1	3
Falschliche Warnungen vor bestimmten Aktionen während der Installation und Benutzung von normaler Software	0	0
Falschliche Blockierungen von bestimmten Aktionen während der Installation und Benutzung von normaler Software	0	0



- Tests of security products regarding their protection performance
 - Anti-Virus software
 - Soft-/Hardware
 - Cloud Services
- Certification and awarding of outstanding products

Medial Mobile Applications

- Use device sensors and user inputs for health-related functions
 - E.g. Calorie counting
 - Eating habits (ingested food, restaurant visits, food allergies)
 - E.g. Fitness tracking
 - Movement patterns, fitness habits, whereabouts
 - General
 - Personal information (identity, insurance ...)
 - Bodily functions (heart rate, blood pressure ...)
 - Emotional states (stress rate, mood ...)
 - Movement (position, velocity, altitude ...)



The value of user information



Legal requirements

- Formalities
 - Validity conditions
 - Contact information

- Clear information about
 - Moment
 - Extent of collection
 - Purpose
 - Storage conditions
 - Retention periods

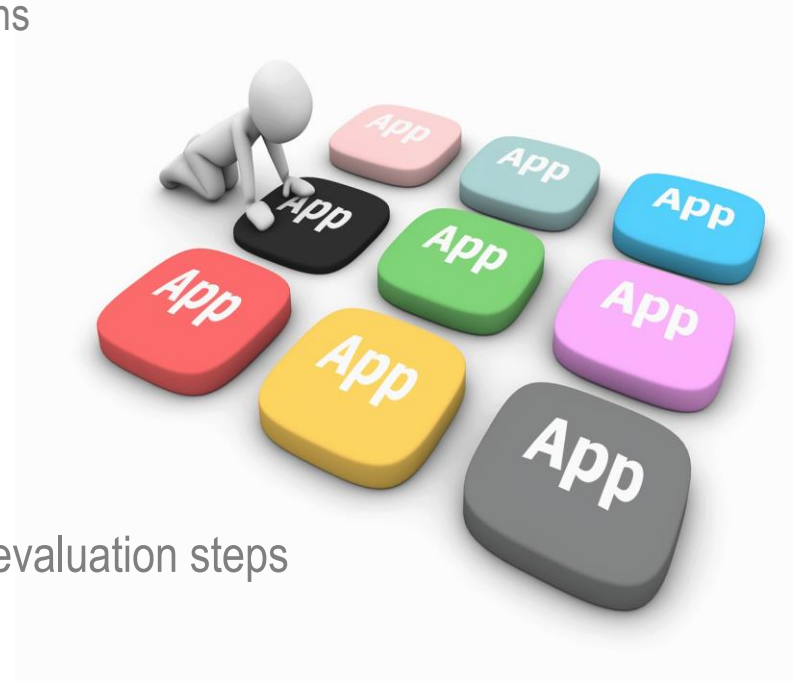


Applicability:

- company seat or data processing entities in Germany
- Seat outside EEA, collection of data of German citizens

Sample set

- Original set [Knackmuss, 2017]
 - 60 popular mobile apps from the Google Play Store
 - 12 sub-domains
 - Support and reminders
 - Explanation and revision of diagnoses
 - Search for medical information
 - Search and comparison of medical institutions
 - Risk monitoring (allergies, diabetes etc.)
 - Fitness tracking
 - Calorie tracking
 - Recipes
 - Contraception/Fertility tracking
 - Baby diaries
 - Sleep tracking
 - Stress handling, mental health
- Adaptation
 - 2 applications became unavailable between evaluation steps



Results: Formal requirements

- Availability of Privacy Statement
 - 55% offer such a link (but only 38% are actually correct)
 - 72% after extended (and benevolent) search (42/58)
 - 33% refer explicitly to mobile application (19/58)
 - Accessibility
 - 90% in German (38/42)
 - Validity
 - 35% include validity date (15/42)
 - Contact information
 - 28/42 email address
 - 17/42 postal address
 - 10/42 explicit contact person
 - 7/42 phone number
- Types of Manufacturers
 - Generic app developer (20/48)
 - Health-related company (17/48)
 - Explicit medical business (10/48)
 - University (1/48)

Results: Collected User Information

- Personal information

- Name (21) and email address (22)
- Phone number (12), fax number (3/42)
- Home address (14)
- Gender, age and birth date (7/42)

- Health insurance

- Plus patient ID (Weiße Liste)
- Plus symptoms (Jameda
Ärzt suche)

- Professional diploma (DocCheck)

Results: Collected Device Information

■ Device data

- Device ID (9/42), compared to 17/42 in permissions
- GPS (8/42), compared to 21/42 in permissions
- IP address (26/42)
- MAC address, SIM number, system logs

■ User behaviour

- Application (8/42)
- Newsletter/Emails (4/42)

- Chefkoch-App
 - Online clickstreams
- MyDays X
 - Installed applications, shopping behavior
- Adidas Fitness
 - Contact histories, product ratings, loyalty programs, in-app acquisitions
 - Linking to offline behavioral profiles

Results: Data storage, retention, processing

- Generic statement about data security (22/42)
- Storage
 - Limited information about retention (9/42)
 - Hardly any clear information about locations
- Processing/sharing
 - External storage of user data (6/42)
 - External processing (12/42)
 - Company group/partners (5/42)
 - Company transactions (6/42)
- Tracking
 - 52 different trackers named overall
 - FoodScanner/EasyRecipes
 - Combine collected information with other sources

Conclusion

- Desirable communication
 - accessible
 - complete
 - comprehensible

- Notable examples
 - Position data
 - Health Information
 - Diary/logging apps (food, cycle, sleep, symptoms)
 - Relaxation
 - Combination of data sources
 - Adidas, FoodScanner, EasyRecipes, MyDaysX
 - Sharing with pharmaceutical/other users
 - CatchMyPain Symptom Diary
 - Vague formulations
 - “Context data” – Fddb Calorie Counter





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