

Android Location Fused Location WiFi And Cell Data

e-discovery.uk, Computer Forensics Lab. Published 2026-09-02.

<https://e-discovery.uk/library/android-location-fused-location-wifi-and-cell-data>

ANDROIDLOCATION · A GUIDE FOR UK LAWYERSAndroid Location: Fused Location, Wi-Fi andCell DataHow an Android Phone Works Out Where It Is, What It Keeps, and Why theSource of a Fix Governs Its WeightCOMPUTER FORENSICS LAB§ ABOUT THE AUTHORPREPARED BY COMPUTER FORENSICS LAB E-DISCOVERY TEAMSOURCE, ACCURACY & CONVERGENCE CPR PART 35 EXPERT REPORT SFULL CHAIN-OF-CUSTODY DOCUMENTATIONS§ CONTENTSIn this guide01 Executive summary02 The problem in plain English: a fix is only as good as its source03 How Android derives location: the fused model04 Where Android keeps location05 Accuracy by source: point, locality, area06 Attribution, convergence and honest limits07 Deployment: placing a phone in time and place08 Source architecture: where else the evidence lives09 Worked examples10 Common mistakes and technical limitations11 Questions to ask · Suggested wording12 Checklist and red flags · When to involve a digital forensic expert13 Frequently asked questions14 Glossary · References · Disclaimer · How a specialist laboratory can assist§ 01 · ORIENTATIONExecutive summaryThe headline point: an Android phone fuses satellite, Wi-Fi, cell and sensor signals into a single locationwhose accuracy depends entirely on which signals fed it, and keeps that location in Google's LocationHistory, the phone's caches, app databases, photo metadata and cell and Wi-Fi records, so the source of everyfix must be established because it governs the fix's accuracy and weight, and a placement rests on sourcesconverging.§ 02 · FIRST PRINCIPLESThe problem in plain English: a fix is only as good as its source§ 03 · THE FUSED MODELHow Android derives location: the fused modelGNSS WI-FI CELL SENSORS FUSED + ACCURACY§ 04 · WHEREITLIVESWhere Android keeps location§ 05 · ACCURACY BY SOURCEAccuracy by source: point, locality, area§ 06 · ATTRIBUTIONANDCONVERGENCEAttribution, convergence and honest limits§ 07 · DEPLOYMENTDeployment: placing a phone in time and place§ 08 · THEWIDERMAPSSource architecture: where else the evidence livesEVIDENCE LOCATION RECORDS CELL-GOOGLE CELL / WI-FI CARRIERHISTORY (DEVICE) SITEPHONECACHES / WEARABLE / INDEPENDENTAPPS / COUNTERPART (CCTV / ANPR)PHOTOS§ 09 · IN THE WILDWorked examplesEXAMPLE1 · THEFUSEDFIXTHATWASREALLYACELLFIXEXAMPLE2 · THECONVERGENCEHATPLACEDTHEPHONEEXAMPLE3 · THEPAUSEDHISTORYANDTHECACHESTHATREMAINED§ 10 · WHEREITGOESWRONGCommon mistakes and technical limitationsCommon mistakesTechnical limitations§ 11 · INTERROGATORIES & DRAFTING AIDSQuestions to ask · Suggested wordingAsk your clientAsk your opponentAsk your e Discovery / forensic providerSUGGESTED WORDING · INSTRUCTIONFORANANDROIDLOC AT IONANA LY SIS§ 12 · QUICK CONTROLChecklist and red flags · When to involve a digital forensic expertThe Android location checklistRed flagsWhen to involve a digital forensic expert§ 13 · COMMON QUESTIONSFrequently asked questionsHow does an Android phone know where it is?Where does an Android phone keep its location?A location record shows an

exact coordinate. Isn't that precise?Google Location History is empty. Does that prove the person didn't travel?How do you make an Android location finding reliable?Does location prove where a person was?§ 14 · REFERENCEGlossarySources and authoritative referencesDISCLAIMER§ HOW A SPECIALIST LABORATORY CAN ASSISTWorking with Computer Forensics Lab35 or CrimPR Part 19. This guide continues the Android block. Conflicts checks, confidential scoping discussionsSpeak to a forensic examiner, not a salesperson.INSTRUCTTHELABNEWENQUIRIESEMAILE - DISCOVERY

Questions and answers

A location record shows an exact coordinate. Isn't that precise?

Not necessarily, and this is the commonest error (

Google Location History is empty. Does that prove the person didn't travel?

No, it usually reflects the user's settings (

How do you make an Android location finding reliable?

By establishing each fix's source and accuracy, then converging (

Does location prove where a person was?

It proves where a phone was; the inference to a person needs care (

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