

# Meta-Data

“ [!toc] Table of Contents

Here we describe what metadata is and where it can be found. If you just want to know how to clean metadata from files, check out our [recommendations](#).

## The data behind the data

### Metadata in communication

Imagine you are writing a message to someone or talking to a friend on the phone. You might think, “As long as no one knows the content, everything is fine!” - but that's not entirely true.

Even without knowing the content, a lot can be found out about you from the metadata.

Metadata is data about your data. In lots of messengers for example, it can reveal:

- Who is communicating with whom
- When and how often you are in contact
- Where you sent a message from
- Which app or device you are using

Metadata can be used to deduce habits and how your everyday life usually looks like.

Contact networks can also be identified in the same way: If person A is in contact with person B, and person B always immediately writes to C after receiving a message from A, then C is also connected to A.

IP addresses and location data also belong to the category of metadata. In 2024, for example, several high-ranking intelligence officials from major NATO countries were [identified](#) using a commercially available data set because they had used apps and devices that collected their location data and sold it to so-called data brokers. (*Entire series of articles in german on [netzpolitik.org](https://netzpolitik.org)*)

It is therefore important to avoid metadata wherever possible.

According to [Mike Kuketz](#), [Briar](#) is a role model in this regard: “The metadata generated during use is obfuscated in such a way that it is impossible to trace who was in contact with whom.”

Signal is also rather sparing with metadata. [Matrix](#), email, and Delta Chat, on the other hand, require a lot of metadata to function properly. This metadata is then stored on [all servers](#) with which communication takes place.

This does not mean that these messengers do not have their advantages, but the disadvantage of metadata should be kept in mind.

“ [!technical] Details about SMTP metadata

Delta Chat uses the old SMTP email protocol. For those who want to delve deeper into metadata in SMTP, here are a few resources:

- [Delta Chat](#)
- [Email](#)

## Metadata in files

Even simple files often contain metadata. A photo taken with a smartphone, for example, may even contain the location where the photo was taken (*if the settings are poorly chosen*). In addition, the device model, date, time, and similar information are often included.

PDFs, Word, Excel, and similar files also usually contain a lot of metadata that reveals the device and operating system used for editing, the creation or editing date, user name of editor, and similar information.

This becomes a particular problem when files are uploaded somewhere, as the metadata is also uploaded and can then be viewed by anyone who downloads the file.

“ [!tip] {static}

- [GrapheneOS's](#) Camera e.g. doesn't store any meta data on photos you take with it, by default.
- Our recommendations include a list of [tools for cleaning metadata](#).

# Metadata on paper

Yes, unfortunately, even printed paper contains metadata, known as printer dots. These are tiny yellow dots that some color laser printers use to leave information about the printer model and print date, which are not visible to the naked eye.

Such dots were presumably [used to identify](#) the US whistleblower Reality Winner.

Until 2017, the civil rights organization Electronic Frontier Foundation had compiled and maintained [a list of such color printers](#). However, this has since been discontinued because all color laser printers now leave detectable traces in one form or another.

“ [!warning] Warning {static}

Therefore, in highly sensitive cases, no (high resolution) photos of original documents should be uploaded. In our recommendations, we describe a [possible alternative](#).

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