



KDE, when's my next flight?

Exploring free alternatives for digital travel assistants

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Digital Travel Assistants

- TripIt, Google, Apple, etc.
 - Extract booking information from email
 - Show unified itinerary
 - Calendar integration
 - Monitor for delays/changes
- Price: “free” (ie.: your privacy)



Can we do better?

- Privacy by design
- Free software, open data
- Budget: a bit of spare time



What would we need?

- This is more about data than code
- Personal data
 - Booking emails
- Static data
 - Where is airport “VIE”?
- Dynamic data
 - Is flight OS 232 on time?



Booking Data

- De-facto standard data model: schema.org
- Email
 - Structured data (JSON-LD, Microdata)
 - Unstructured data (text, HTML, PDF)
- Apple Wallet passes
- Barcodes (IATA BCBP, UIC 918.3, etc)



Static Data

- Unicode CLDR
 - Localized country/region information
- OpenStreetMap
 - Timezone maps
- Wikidata
 - Every data we ever wished for



Dynamic Data

- No free data sources
- Few (pseudo) standard formats
 - GTFS (see `kde:publictransport`)
 - Apple Wallet passes
- Vendor-specific REST APIs exist
 - varying terms and conditions
 - API keys required

So much for the theory...



Data Extraction


- kde:kpckpass (part of KDE PIM 18.08)
 - Library for reading Apple Wallet passes
- kde:kitinerary (part of KDE PIM 18.08)
 - schema.org data model
 - Structured data extraction
 - Unstructured data extraction
 - Augmentation with Wikidata knowledge






KMail

- Data extraction plug-in since KDE PIM 18.04

Ihre Austrian Buchungsbestätigung (NTZLR)

 From: no-reply@austrian.com
To: [redacted]
Date: 14/04/2018 10:22

 pdf-[redacted]-127547-booking.pdf

| | | |
|-------------------------------------|---|-------------------------------------|
| TXL 10/08/2018 17:05 CEST |  OS 232 | VIE 10/08/2018 10:20 CEST |
| VIE 18/08/2018 09:00 CEST |  OS 225 | TXL 18/08/2018 10:20 CEST |

[Check-In](#) | [Modify](#)

- Show Calendar
- Add To Calendar
- Show 'Berlin - Tegel' On Map
- Show 'Wien' On Map
- Import into KDE Itinerary



KDE Itinerary App

- kde:itinerary

My Itinerary

Friday, 10 Aug 2018

Temperature: 20.1 °C / 26.3 °C
Precipitation: 0 mm

✈ OS 232 TXL → VIE 17:05:00

Departure from Berlin - Tegel: 17:05:00

GERMANY
Terminal: - Gate: - Seat: -
Arrival at Wien: 10 Aug 2018 18:25:00

AUSTRIA

Temperature: 20.6 °C / 31.9 °C
Precipitation: 0 mm

🏠 a&o Wien Hauptbahnhof

Sonnwendgasse 11
1100 Wien

AUSTRIA
Check-in time: 15:00:00
Check-out time: 18 Aug 2018 10:00:00

< > My Itinerary > Flight > Boarding Pass

Seat Gate
13C A

BRUSSELS BERLIN
BRU ✈ TXL

| Flight | Date | Boarding | Class |
|--------|------------|----------|-------|
| 2591 | 22/04/2018 | 20:20 | CHECK |

Passenger Status
KRAUSE/VOLKER LH

My Itinerary

Sonntag, 10.09.17

⚠ Entering Switzerland

Some incompatible power sockets: Type J
Some incompatible power plugs: Schuko

✈ LX 963 TXL → ZRH 06:15

Departure from Berlin Tegel: 06:45

My Itinerary

Donnerstag, 15.06.17

⚠ Entering United Kingdom

People are driving on the wrong side.
No compatible power sockets: Type G

✈ 4U 8462 TXL → LHR 12:25

Departure from Berlin-Tegel: 12:55



Conclusion

- It's possible!
- It's necessary: a lot of personal data involved
- Forget those privacy concerns for a minute, we need test data ;-)
 - Flights, trains, rental cars, hotels, buses, event tickets, restaurants, etc.
- More integration needed

Questions?



References

- Airline boarding passes
 - “Where in the World Is Carmen Sandiego? - Becoming a secret travel agent”, Karsten Nohl, Nemanja Nikodijevic, 33C3, 2016, [video](#)
 - “How to get good seats in the security theater? - Hacking boarding passes for fun and profit”, Przemek Jaroszewski, DEF CON 24, 2016, [slides](#) (has tons of further references)
- Data Model and Formats
 - <https://schema.org>
 - <https://developers.google.com/gmail/markup/reference/>
 - [Apple Wallet pass files](#)
 - GTFS: <https://developers.google.com/transit/>