



navitia.io

KDE Itinerary

A privacy by design travel assistant

WikipakaWG @ 36C3

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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)



Privacy Issues

- Directly leaked data
 - Name, birthday, CC number, passport id, etc.
- Indirectly leaked data
 - Correlating data from many travelers uncovers relations between people
 - Your interests, who you work for, where your family lives, people you know, etc.



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/documents/websites
- Static data
 - Where is airport “LEI”?
- Dynamic data
 - Is ICE 505 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)



- Freely available, comprehensive collections
 - Wikidata (almost everything imaginable)
 - OpenStreetMap (timezone maps)
 - Unicode CLDR (localized country/region information)
- Work needed
 - Vendor-specific station identifier
 - Terminal maps, coach/platform maps, seat maps



- For trains: GTFS/GTFS-rt via Navitia
- Apple Wallet (leaks user identification)
- Vendor-specific REST APIs
 - varying terms and conditions
 - API keys required

So much for the theory...



- Kitinerary library
 - schema.org data model
 - Structured data extraction
 - Unstructured data extraction, generically and with vendor-specific scripts
 - Augmentation with Wikidata knowledge
 - Consumes HTML, MIME, PDF, iCal, text, PkPass



- KPublicTransport library
 - Navitia/GTFS data model
 - Location, departure and journey queries
 - Backends for Navitia, Hafas, EFA
 - Result aggregation from multiple backends
 - Open Data attribution handling
 - Train/platform layouts



KDE Itinerary App

- Trip timeline and boarding pass access

☰ My Itinerary 📅 Today

📅 Friday, 12/27/19

▼ Trip: Leipzig (December 2019)

Date: 12/27/19 8:30 AM (4 days)
🌦️ 0.7°C / 2°C

🚆 ICE 505 8:30 AM

Departure from Berlin Hbf (tief) on platform 1
GERMANY 📍 >

Arrival at Leipzig Hbf on platform 11
Arrival time: 12/27/19 9:42 AM
GERMANY 📍 📅

☁️ 🌧️ Temperature: 0.7°C / 2.2°C
Precipitation: 1.2 mm

👥 36C3 11:00 AM

Congress Center Leipzig
Leipzig
GERMANY 📍 >
End time: 12/30/19 6:00 PM

< > 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



- Power plug incompatibility warnings :)

☰ | My Itinerary 📅 Today ⋮

📅 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 📅 Today ⋮

📅 Donnerstag, 15.06.17

📍 Entering United Kingdom

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

✈️ 4U 8462 TXL → LHR 12:55

Departure from Berlin-Tegel: 12:55



- Real-time data, alternative connections, stats

Departure
 Time: 13.01.19 14:52 +0
 Station: Düsseldorf Hbf
 Platform: 17 (was: 18)

Arrival
 Arrival time: 13.01.19 19:27 +27
 Station: Berlin Hbf
 Platform: 11 A - D

Alternative Connections

12:05
2:51

0 changes

12:30
3:21

12:30 +0 S+U Berlin Hauptbahnhof (tief) 2

ICE 509 (3:21)

15:51 +0 Nürnberg, Hauptbahnhof 9

Komfort Check-in möglich <http://bahn.de/komfortcheckin>
Bicycles conveyed - subject to reservation
Number of bicycles conveyed limited
Bordrestaurant
vehicle-mounted accessaid
VBB-Verbundfahrausweise ganz oder teilweise ungültig
Bicycle conveyance

Save

13:37
3:15

0 changes

2019

Total

Trips ^ 51

Distance ^ 15,842 km

Hotel nights ^ 23

CO₂ ^ 2,955 kg

Flights

Flights v 14

Distance ^ 10,093 km

CO₂ ^ 2,874 kg

Trains

Trips ^ 35

Distance ^ 5,736 km

CO₂ ^ 80 kg

Bus

Trips > 2

Distance ^ 12 km

CO₂ ^ 0.82 kg

Car

Trips > 0

Distance > 0 km

CO₂ > 0 kg

Data providers: [Berlin, Germany](#), [Nuremberg](#), [openstreetmap](#), © [navitia.io](#)



- KMail: Data extraction, calendar integration

Buchungsbestätigung (Auftrag **PH7070**)




From: buchungsbestaetigung@bahn.de

To: mail@volkerkrause.de

Date: 11/12/2019

Attachments:  [PH7070.pdf](#)


Berlin Hbf (tief) [1] 

27/12/2019 08:30 CET

⊕ Class: 2 Coach: 7 Seat: 127




ICE 505


Leipzig Hbf 

27/12/2019 09:42 CET

 Show Calendar

 Add to Calendar

 Add to KDE Itinerary

 Send to volkerkrause.de



Browser Integration

Akademiy 2019 - Milan, Italy - x +


akademiy.kde.org/2019

Akademiy

Milan, 7th

[About](#) [Register](#) [Event Details](#) [Travel & Accommodation](#) [Wiki](#) [Sp...](#)


Akademiy 2019 - Milan, Italy - 7th-13th September



Akademiy 2019 will be held at the [University of Milano-Bicocca](#) in Milan, Italy, from Saturday the 7th to Friday the 13th of September.

The conference is expected to draw hundreds of attendees from the global KDE community to discuss and plan the future

Plasma Browser Integration



Akademiy 2019

For most of the year, KDE—one of the largest free and open software communities in the world — works on-line by email, IRC, forums and mailing lists. Akademiy provides all KDE contributors the opportunity to meet in...

Sat, Sep 7, 2019, 09:30 AM to Sat, Jul 13, 2019, 04:30 PM

Piazza dell'Ateneo Nuovo, 1, 20126, Milan (IT)

[Add to Calendar](#)

[Add to Itinerary](#)

ubuntu
Delivered by Canonical

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AKDAR

~~Work in progress~~
World premieres ;)



- Automatic local transport navigation

☰ My Itinerary 📅 Today

📅 Friday, 12/27/19

🔄 Home to Berlin Hbf (tief) 7:49 AM

🚶 🚗 🚶 🚶 🚶 🚶 🚶 One change

🚆 ICE 505 8:30 AM

Departure from Berlin Hbf (tief) on platform 1
GERMANY 📍 >

Arrival at Leipzig Hbf on platform 11
Arrival time: 12/27/19 9:42 AM
GERMANY 📍 📅

🔄 Leipzig Hbf to Congress Center Leipzig 9:48 AM

9:48 AM Hauptbahnhof (Tram/Bus), Leipzig
🚶 STR 16 (0:20)
10:08 AM Messegelände, Leipzig

Select...

🚶 36C3 11:00 AM

Congress Center Leipzig



KDE Itinerary App

- Train layout display

☰ < > Vehicle Layout

Leipzig Hbf - ICE 1555 - Fri Dec 27 10:31:00 2019 GMT+0100
Platform: 14

v

21	*	Second class	A
22	*	Second class	
23	*	Second class	
24	*	Second class	B
26			
27	*	First/second class	C
28	*	First class	

v

D



- Thunderbird

⌵ → Weiterleiten 📁 Archivieren 🔥 Junk 🗑️ Löschen ⌵ Mehr ⌵

Von noreply@eurowings.com ☆

Betreff **Bordkarten für Ihren Eurowings Flug der Buchung ██████** 24.06.19, 13:34

An ██████@██████.de ☆

STR Mi., 19. Juni 2019, 09:40 MESZ	✈️ EW 2530	VLC Mi., 19. Juni 2019, 11:50 MESZ
VLC Mi., 26. Juni 2019, 12:30 MESZ	✈️ EW 2531	STR Mi., 26. Juni 2019, 14:50 MESZ

Add to KDE Itinerary

Eurowings

Ihre Bordkarten

Im Anhang dieser E-Mail finden Sie Ihre Bordkarten. Bitte drucken Sie Ihre Web Bordkarte aus oder speichern Sie die mobilen Dokumente auf

▶ 📎 4 Anhänge 108 KB 📁 Alle speichern ⌵

Ungelesen: 1437 Gesamt: 3365



- Nextcloud: stay tuned for January :)

```
namespace OCA\Mail\Integration\Kitinerary;  
  
class Parser {  
  
    public function parse(array $itineraries): Itinerary { $itineraries:  
        return new Itinerary();  
    }  
}
```

Variables

- \$itineraries = {array} [1]
 - 0 = {array} [6]
 - @context = "http://schema.org"
 - @type = "TrainReservation"
 - reservationFor = {array} [9]
 - @type = "TrainTrip"
 - arrivalPlatform = "8"
 - arrivalStation = {array} [5]
 - arrivalTime = {array} [3]
 - departureDay = "2019-07-22"
 - departurePlatform = ""
 - departureStation = {array} [5]
 - departureTime = {array} [3]
 - trainNumber = "ICE 943"
 - reservationNumber = "T4T444"
 - reservedTicket = {array} [3]
 - underName = {array} [4]



Get Involved!

- Get KDE Itinerary:
 - https://community.kde.org/KDE_PIM/KDE_Itinerary
- Look for your train stations in Wikidata
- Forget those privacy concerns for a minute, we need test data ;-)
 - Flights, trains, rental cars, hotels, buses, event tickets, restaurants, etc.

Thank you!

Questions?



References

- Project overview: <https://phabricator.kde.org/project/profile/280/>
- Wiki: https://community.kde.org/KDE_PIM/KDE_Itinerary
- Source code
 - kpkpass: <https://phabricator.kde.org/source/kpkpass/>
 - kitinerary: <https://phabricator.kde.org/source/kitinerary/>
 - kpublictransport: <https://phabricator.kde.org/source/kpublictransport/>
 - KDE Itinerary: <https://invent.kde.org/kde/itinerary>
 - KMail plug-in: <https://phabricator.kde.org/source/kdepim-addons/>
 - Browser Integration: <https://blog.broulik.de/2019/11/taking-itinerary-to-the-next-level/>
 - Nextcloud Integration: <https://github.com/nextcloud/mail/compare/feature/kitinerary-integration>
- Blog: <https://volkerkrause.eu>
- Provider support: https://community.kde.org/KDE_PIM/KItinerary/Supported_Providers
- Nightly APKs: https://binary-factory.kde.org/job/Itinerary_android/