

Pieter Goos (1615 - 1675): Orbis Terrarum Nova et Accuratissima Tabula, Nederlande 1666
http://commons.wikimedia.org/wiki/File:1666-Orbis_Terrarum_Goos.jpg



20 Lines of Code

Margrit Höhme

Langjährige Java-Erfahrung

Großprojekte, Middleware

Eigene Projekte

Makrophyten-App

[https://play.google.com/store/apps/details?
id=de.mhoehme.android.macrophytes.basic](https://play.google.com/store/apps/details?id=de.mhoehme.android.macrophytes.basic)

Android-App

Standort

OSM-Karte

Overlays

1
Android-APP

Entwicklungsumgebung

Java

Android-SDK

android.jar,
tools, ...

<http://developer.android.com/sdk/index.html>

Arbeitsumgebung

- Kommandozeile + Editor
- Eclipse mit ADT-Plugin
- Idea / Androidstudio



Android SDK Manager

Android SDK Manager

Packages Tools

SDK Path: /opt/android-sdk

Packages

Name	API	Rev.	Status
Android 4.4W (API 20)			
Android 4.4.2 (API 19)			
Documentation for Android SDK	19	2	Installed
SDK Platform	19	3	Installed
Samples for SDK	19	5	Installed
ARM EABI v7a System Image	19	2	Installed
Intel x86 Atom System Image	19	2	Not installed
Google APIs (x86 System Image)	19	7	Not installed
Google APIs (ARM System Image)	19	7	Installed
Glass Development Kit Preview	19	8	Not installed
Sources for Android SDK	19	2	Installed
Android 4.3 (API 18)			
SDK Platform	18	2	Installed
Samples for SDK	18	1	Installed

Show: Updates/New Installed Obsolete Select [New](#) or [Updates](#) Install 2 packages...

Sort by: API level Repository [Deselect All](#) Delete packages...

Done loading packages.

<ANDROID_HOME>/tools/android

Location

Alarm

...

XML Parser

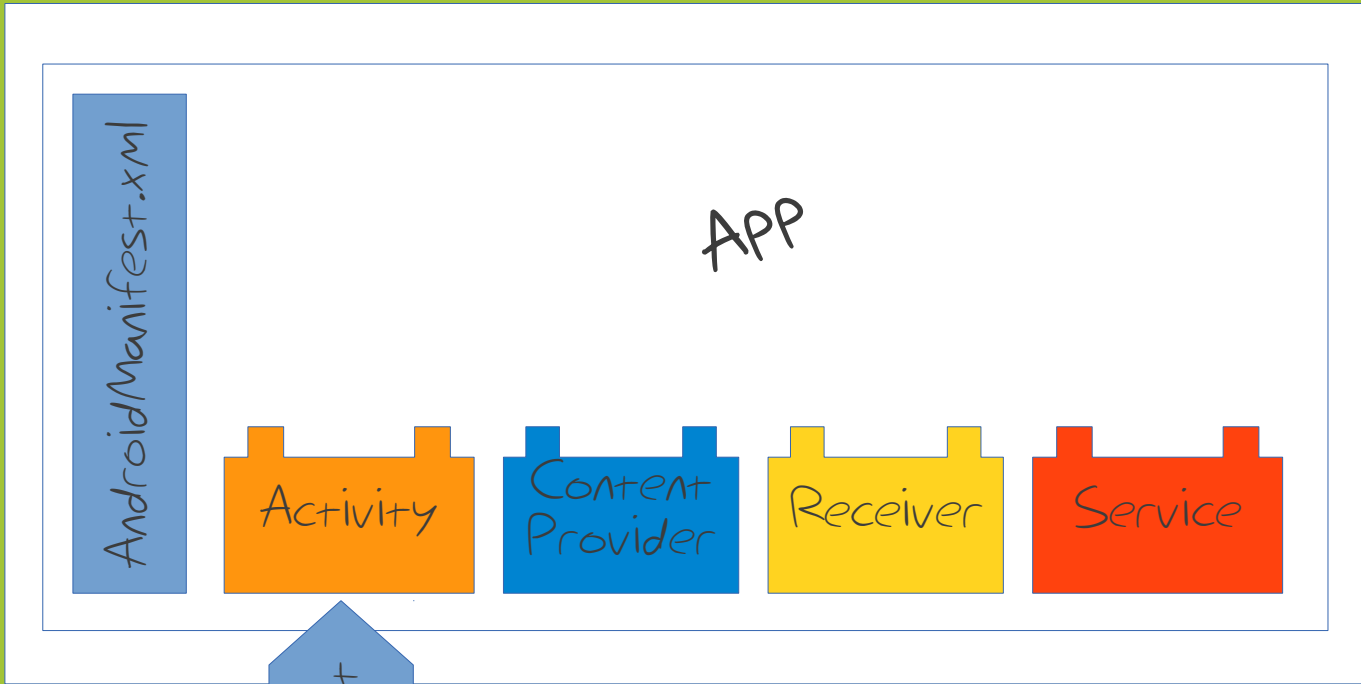
SQLite

Internet

Kamera

...

Android OS



AndroidManifest.xml

APP

Activity

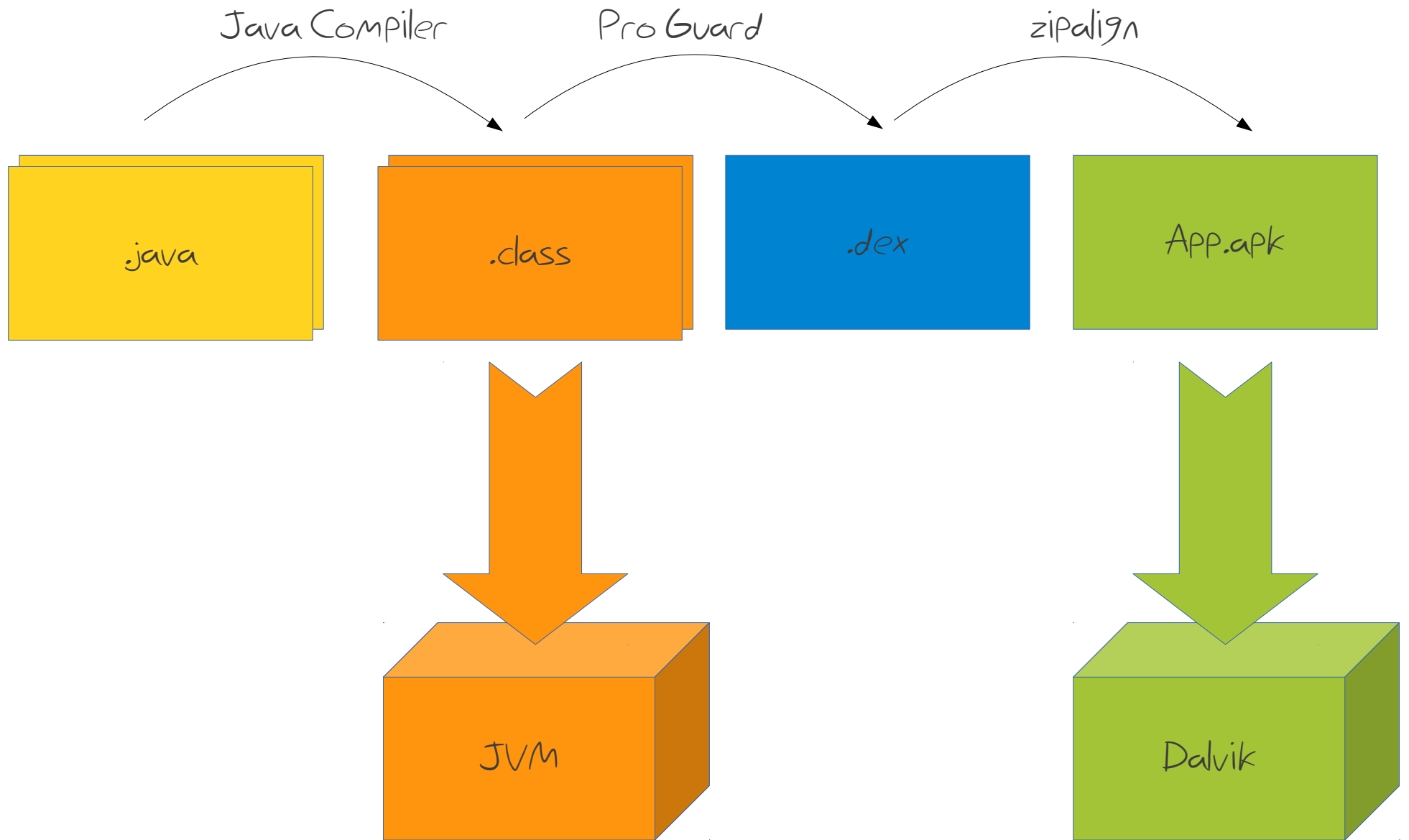
Content Provider

Receiver

Service

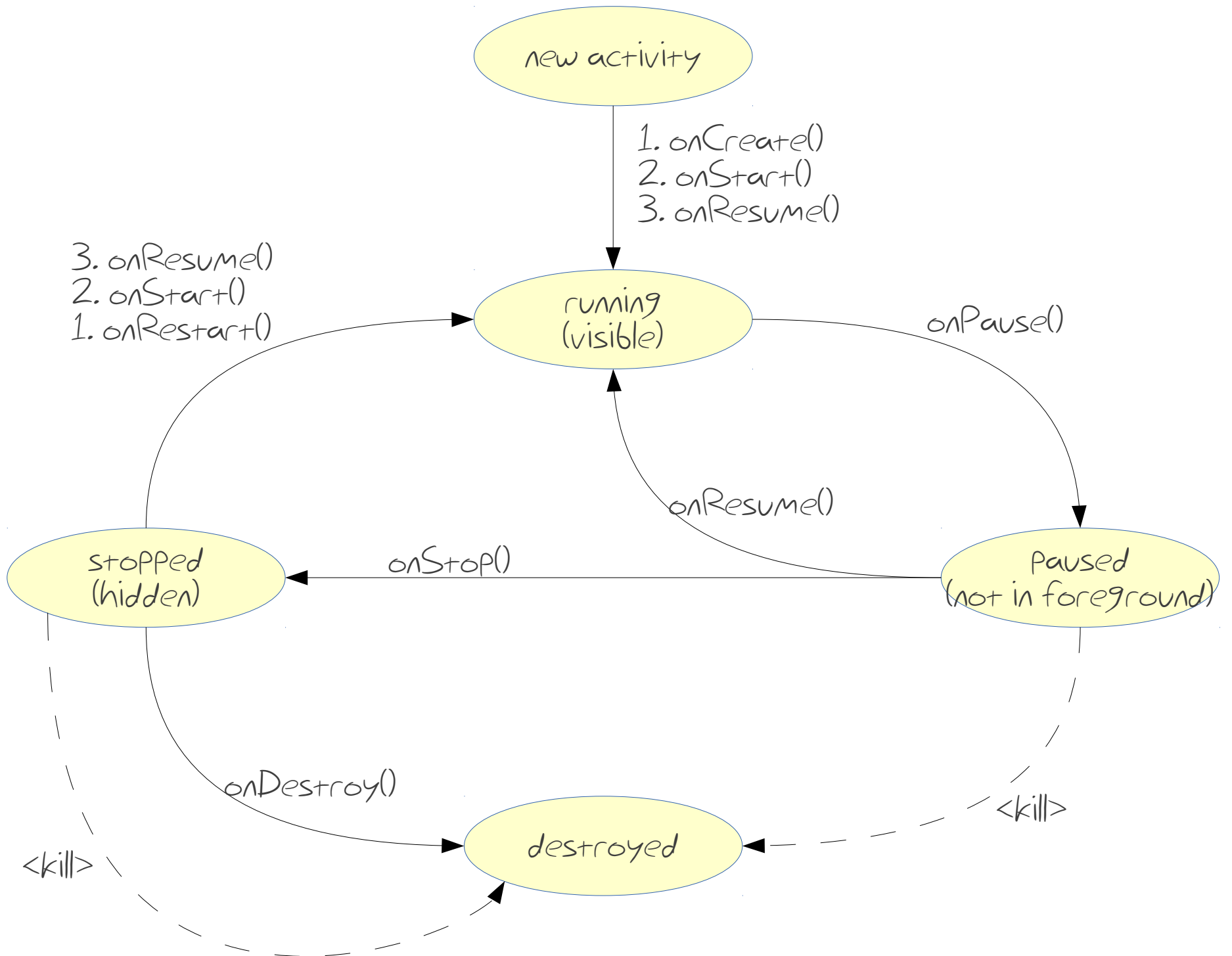
Intent

Intent

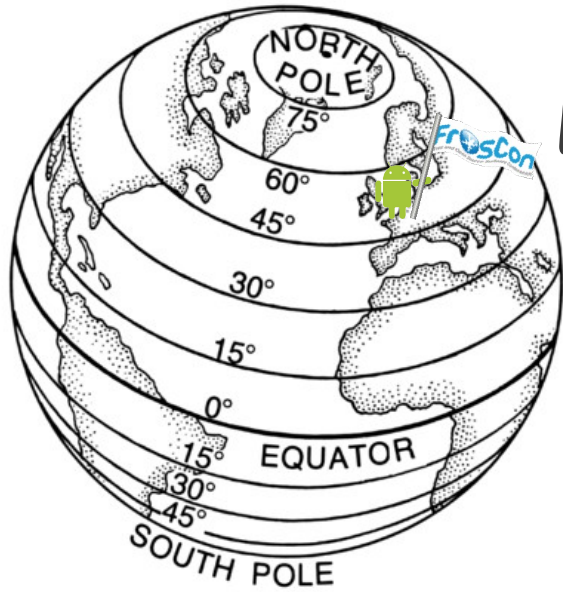


Hallo **FrOSCon!**

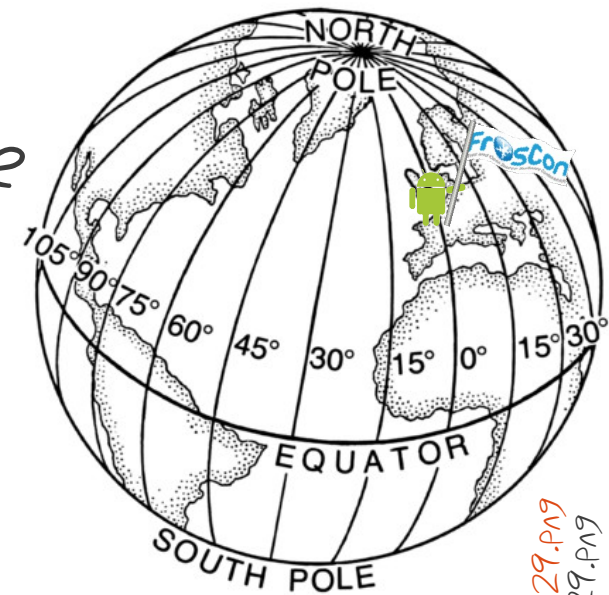




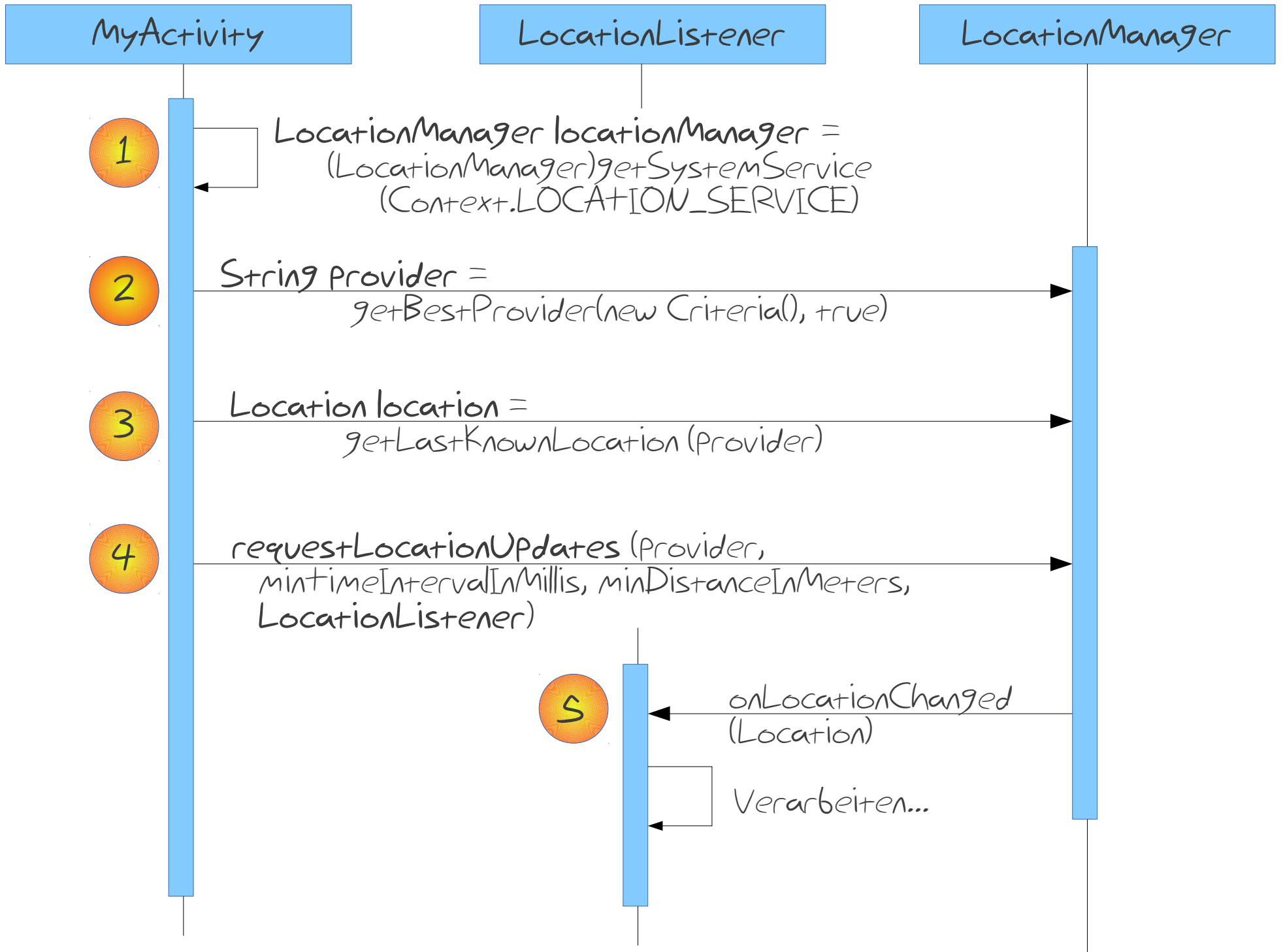
2 Geodaten



Latitude und Longitude



Format	Beschreibung	Verwendung
S0.780155 7.182144	Dezimalgrad (Decimal Degree, DDD)	Google Maps android.location
S0780155 7182144	E6 (Integerwerte)	Osmdroid intern DDD = E6 * 1E-6
N50° 46' 48.558" E7° 10' 55.718"	Grad, Minuten Sekunden (Degree, Minutes, Seconds, DMS), Sexagesimal	Geocaching
N50° 46.8093 E7° 10.92863	Grad, Dezimalminuten (Degrees, Decimal Minutes, DDM)	



LocationActivity.java



Gegebenheiten

Verfügbarkeit Netzwerk
Freies Feld
Andere APPs

Akku

Genauigkeit

GPS

Network,
Passive

GPS
Network

GPS

Network

Provider

GPS
Network
Passive

Criteria

horizontal accuracy
vertical accuracy
speed accuracy
bearing accuracy
Power requirement
altitude required
bearing required
speed required
cost allowed

Geschwindigkeit

Android Device Monitor

File Edit Run Window Help

Quick Access

DDMS

Devices

Threads Heap Allocati... Networ... File Exp... Emulat... System ...

Data: home Latency: None

Telephony Actions

Incoming number:

Voice

SMS

Message:

Call Hang Up

Location Controls

Manual GPX KML

Load GPX...

Name	Longitude	Latitude	Elevation	Description
Start Old Co	175,376177	-39,357751	747,0	24-JUL-10 8:51:54AM
Taonui Viadu	175,367811	-39,369659	710,0	24-JUL-10 9:30:03AM
Tunnel	175,394378	-39,385028	667,0	24-JUL-10 12:00:40PM

Name	Point C
Old Coach Rd	

Speed: 1X

MyPhone [emulator-5554]

- com.android.defcontainer
- com.android.providers.calendar
- com.android.keychain
- com.android.phone
- com.android.deskclock
- android.process.acore
- system_process
- com.android.inputmethod.latin
- com.android.systemui
- com.android.calendar
- com.android.launcher
- com.svox.pico
- com.android.email
- de.mhohme.android.partyfinder

3
OpenStreetMap
(OSM)

Suchen Wo bin ich?

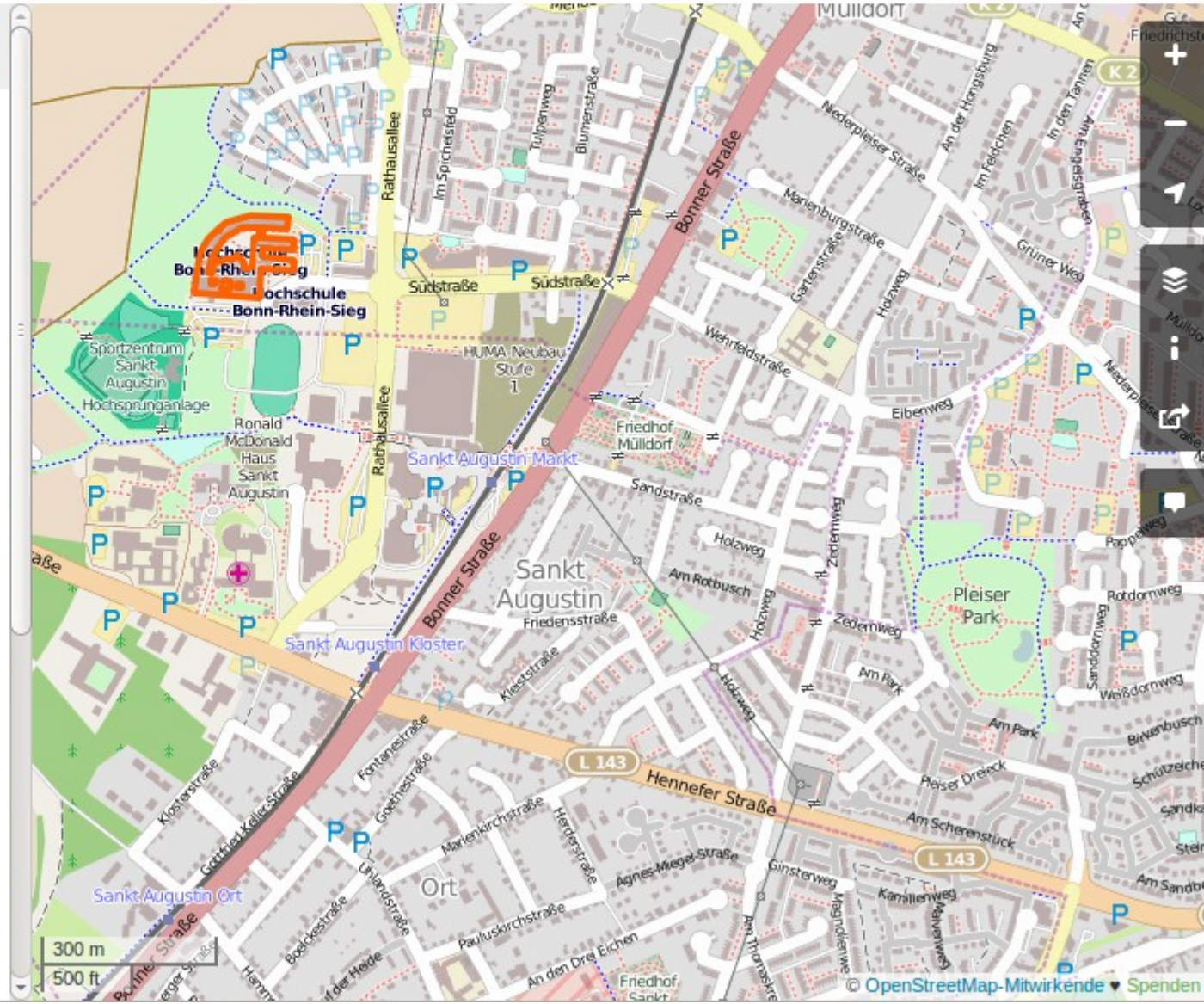
Relation: Hochschule Bonn-Rhein-Sieg (1322214)

Sankt Augustin: Grenzen der Stadtbezirke, WIWOSM.

Bearbeitet vor etwa ein Jahr von [adjuva](#)
Version #3 · Änderungssatz #16964486

Tags

addr:city	Sankt Augustin
addr:country	DE
addr:housenumber	20
addr:postcode	53757
addr:street	Grantham-Allee
amenity	university
building	yes
building:levels	1
name	Hochschule Bonn-Rhein-Sieg



Objekt bearbeiten



Punkt
 Linie
 Fläche

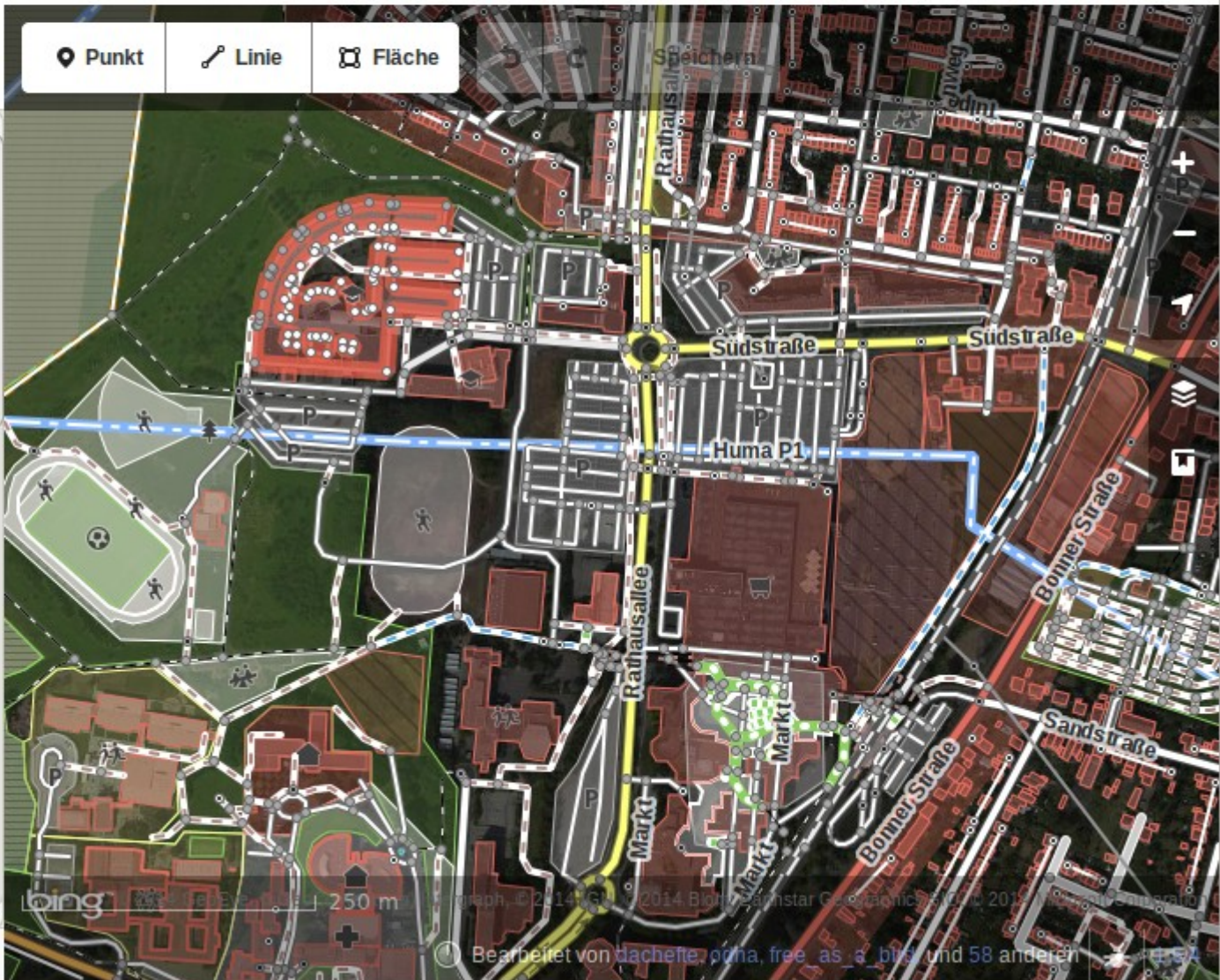
Universität
i

Name i
 Hochschule Bonn-Rhein-Sieg +

Betreiber i
 Unbekannt

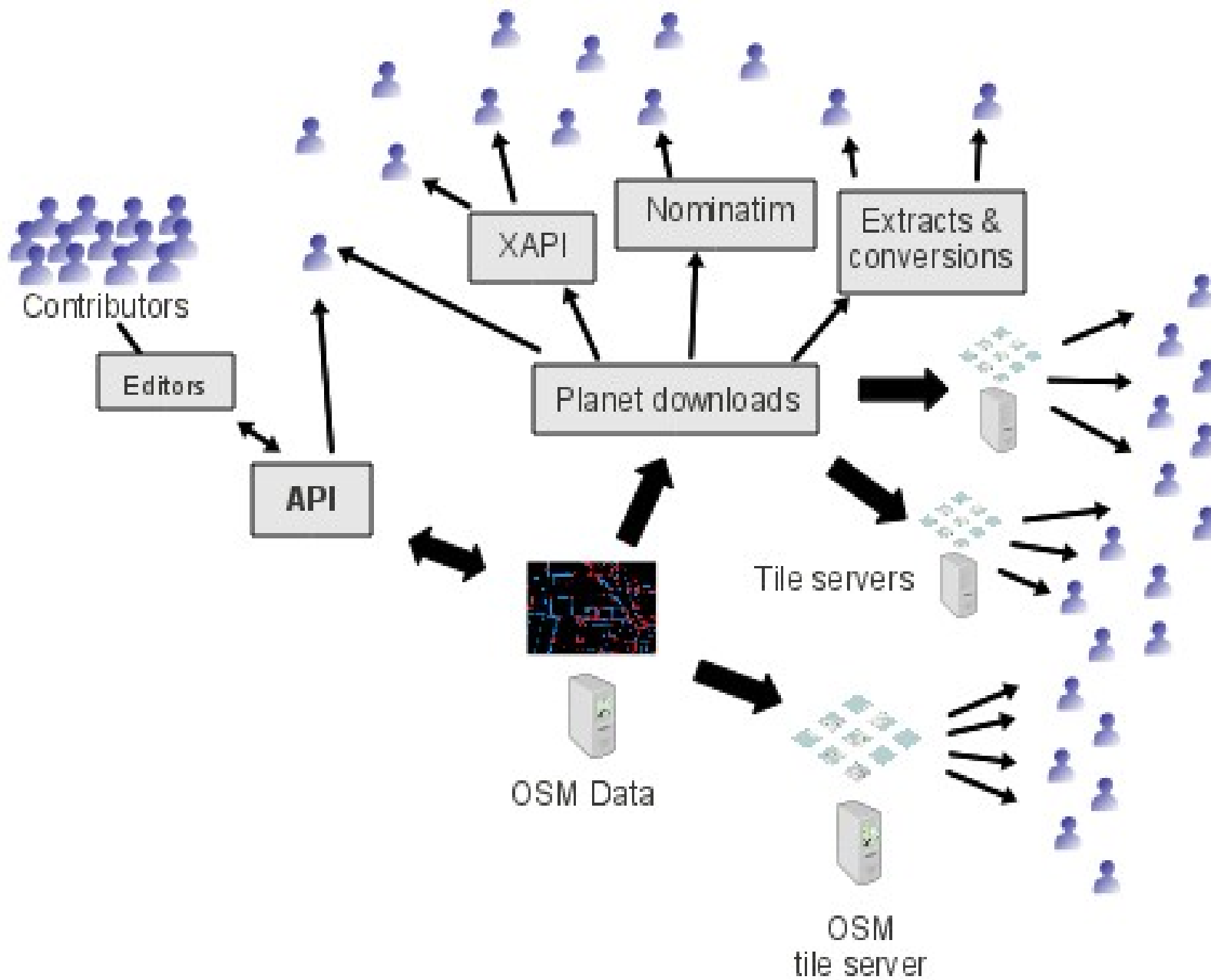
Adresse i
 Grantham-Allee 20
 53757 Sankt Augustin

Wikipedia i
 Deutsch
 Hochschule Bonn-Rhein-Sieg



[Auf openstreetmap.org ansehen](#)

Bearbeitet von dacheffe, poma, free as a bird und 58 anderen



<http://www.harrywood.co.uk/blog/2012/09/06/workshop-on-using-openstreetmap-data/>

Weitere Details:

-> http://wiki.openstreetmap.org/wiki/Component_overview

4

osmdroid

OSM-Integration mit osmdroid

Layout.xml

```
<org.osmdroid.views.MapView  
    android:id="@+id/openmapview"  
    android:layout_width="fill_parent"  
    android:layout_height="fill_parent"/>
```

Activity.java: onCreate()

```
final MapView mapView = (MapView)  
    findViewById(R.id.openmapview);  
mapView.getController().setZoom(14);  
.  
.  
.  
mapView.getController().setCenter(  
    new GeoPoint(50.780155, 7.182144));
```



Delay!

MapActivity.java

Map und MapController-Interface

tileSource setzen

- Mapnik (default), cyclemap, public transport, ...
- <http://wiki.openstreetmap.org/wiki/tileservers>

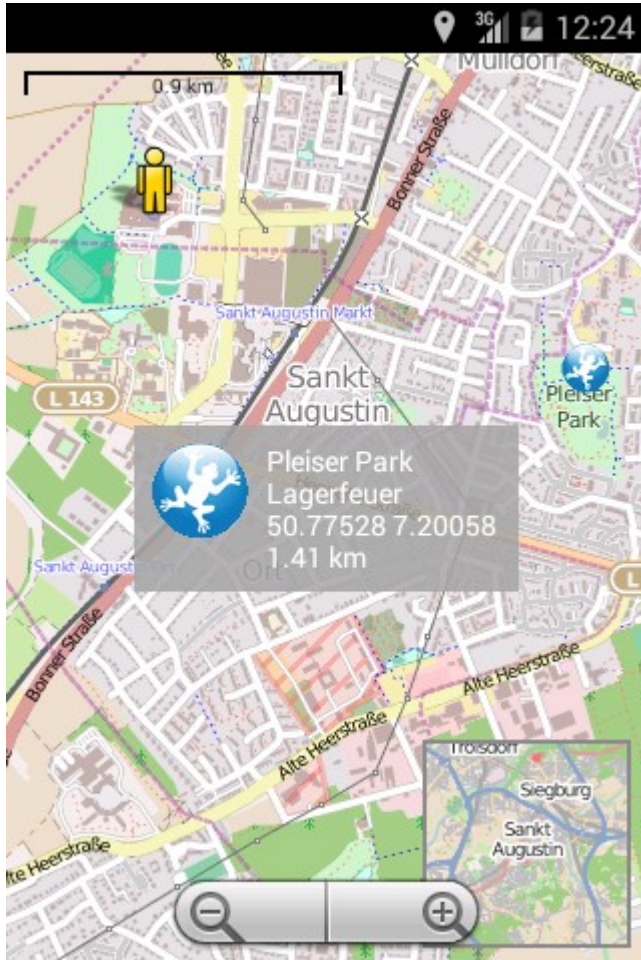
Zentrieren

- auf einen Punkt
- Bounding box

Zoom

- verfügbarer Zoom abhängig vom tile Server

Panning



ScaleBarOverlay
MinimapOverlay
MyLocationOverlay
ItemizedOverlay

SimpleOverlayActivity.java

MyLocationMapActivity.java

PartyMapActivity.java

Weiterführende Themen

Geoinformation

- Eigene Overlays
- Eigene Datenbanken

Offline-Karten

- `mapView.setUseDataConnection(false);`
- Maperitive
- Indoor-Navigation

Referenz

- Android Developer
- Stackoverflow
- <http://www.osmdroid.org>
- Reto Meier, Android Protips: Advanced topics
<http://de.slideshare.net/retomeier>
- Reto Meier, A Deep Dive into Location
<http://android-developers.blogspot.de/2011/06/deep-dive-into-location.html>
- Font: Nihilschiz Handwriting
<http://www.fontpalace.com/font-details/Nihilschiz+Handwriting/>

Folien und Quellen



<http://www.mhoehme.de/android/froscon2014/>