# Android - GPS

- This application allows the user to see their current location based on latitude and longitude
- The latitude and longitude gets updated on change of location
- `LocationListener` is used as callback whenever there are location events
- The permission `android.permission.ACCESS_FINE_LOCATION` has to be declared in `AndroidManifest.xml`
- `LocationManager` is used to access the GPS information on the device
- The location information can be obtained in 3 ways :
  - `NEWORK_PROVIDER`
  - `GPS_PROVIDER` (used in the example)
  - `PASSIVE_PROVIDER`
- Override `onLocationChanged()`
  - Called when the location has changed
  - To update the change in latitude and longitude

- The other callback methods are:
  - `onProviderDisabled()`
    - Called when the provide is disabled by the user
  - `onProviderEnabled()`
    - Called when the provider is enabled by the user
  - `onStatusChanged()`
    - Called when the provider status changes

- It may take a while for GPS information to be obtained
- Good practice to display the last known location whenever available
- `getLastKnownLocation()`
  - Gets the last known location
  - Returns `Location` object from which longitude and latitude from previous session can be obtained using `getLongitude()` and `getLatitude()`

# Using the “geo fix” command in the emulator console

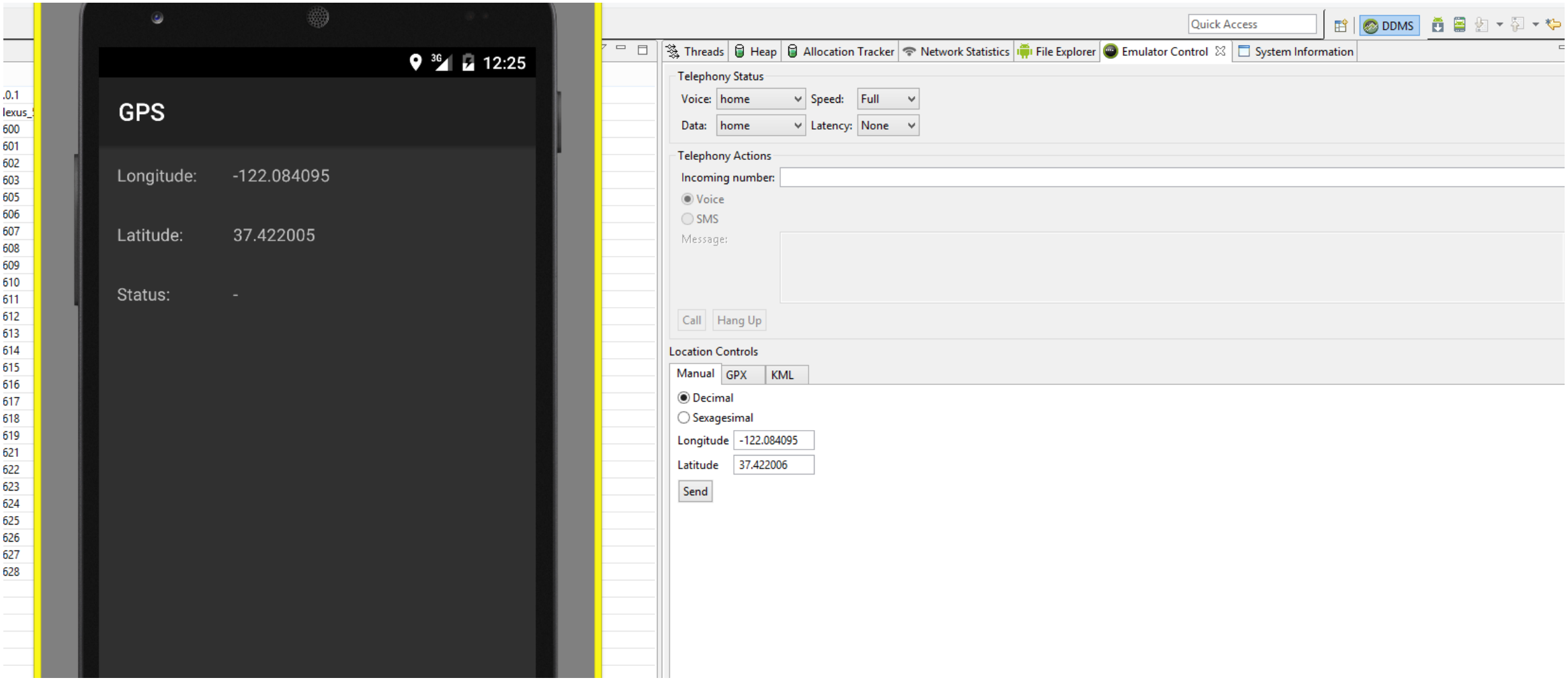
- To send mock location data from the command line.
- Launch your application in the Android emulator and open a terminal/console in your SDK's /tools directory.
- Connect to the emulator console. Use the command:
  telnet localhost *<console-port>*
  *telnet localhost 5554*
- Send the location data:
  *geo fix longitude latitude altitude*
- This command accepts a longitude and latitude in decimal degrees, and an optional altitude in meters. For example:
  *geo fix  -121.45356  46.51119  4392*

# Three ways to emulate GPS using DDMS

- Switch to the DDMS (Dalvik Debug Monitor Service) perspective.
- Using the Manual tab under Location Controls, manually send individual longitude/latitude coordinates to the device.
- Use a GPX file describing a route for playback to the device.
- Use a KML file describing individual place marks for sequenced playback to the device.

Accessed in Android Studio with:

Tools -> Android -> Android Device Monitor



# References

- LocationManager
- LocationListener

# Exercise

- Add another label that displays the accuracy of the Location object.