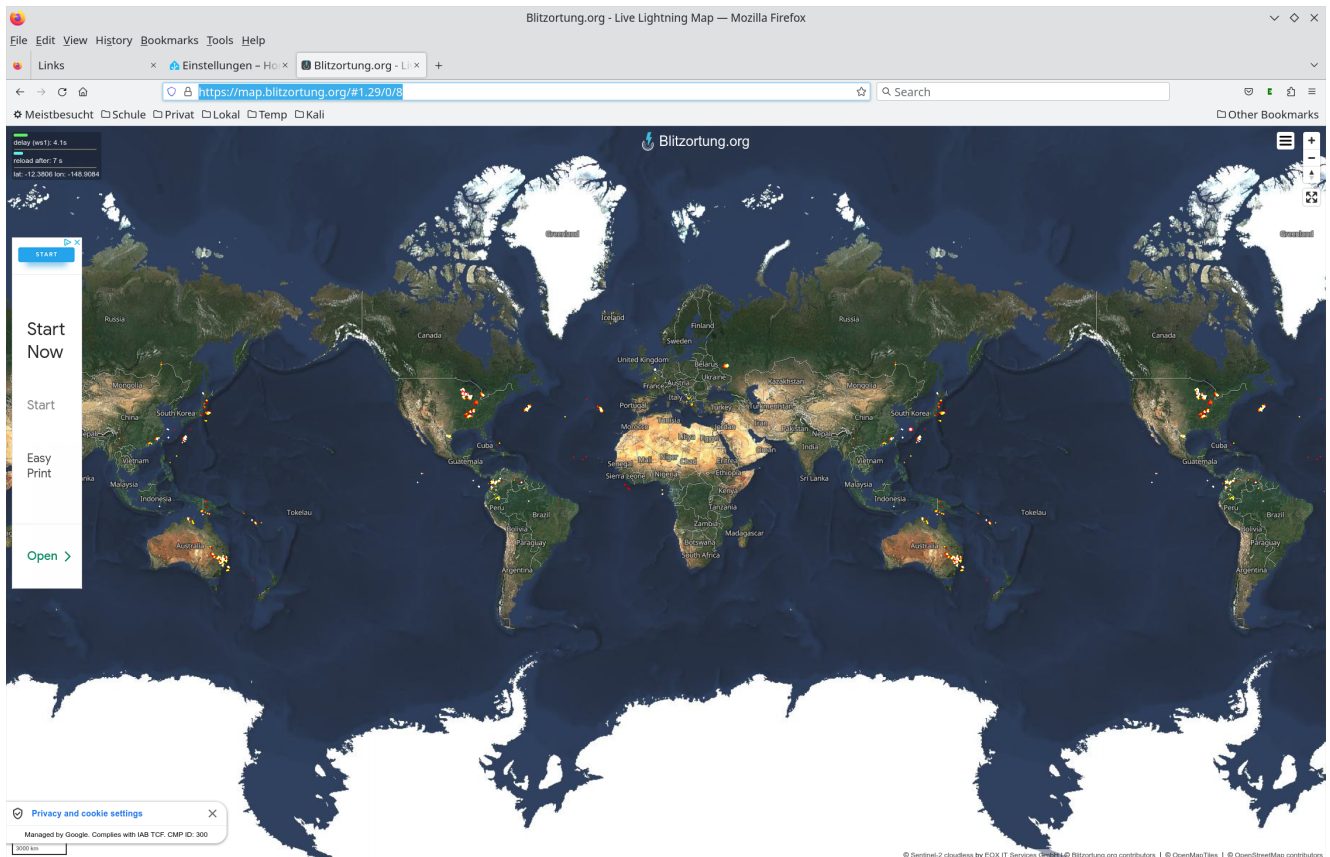


# Blitzortung

## Ausgangslage

<https://map.blitzortung.org/#1.29/0/8>



## github-Projekt: README

<https://github.com/mrk-its/homeassistant-blitzortung>

Blitzortung.org is a worldwide, real time, community collaborative lightning location network. This component uses Blitzortung data and provides real time notifications about lightning strikes in given area (by default within 100km radius of your home). Data is served through a public MQTT server (dedicated to serve requests for this component) - thanks to geohash-based topics and some other optimizations it greatly reduces amount of data sent to clients comparing to direct websocket connection to Blitzortung servers (it is also required by Blitzortung data usage policy - third party apps must use their own servers to server data for their own clients). Features

- distance and azimuth sensors of lightning strikes nearby
- counter of lightning strikes
- emits geo\_location events for lightning strikes (visible on the map)
- data is realtime, with average delay of few seconds

## Manual installation

Place custom\_components/blitzortung directory inside custom\_components dir and restart Home Assistant

## HACS installation

This component is available on HACS default

## Configuration

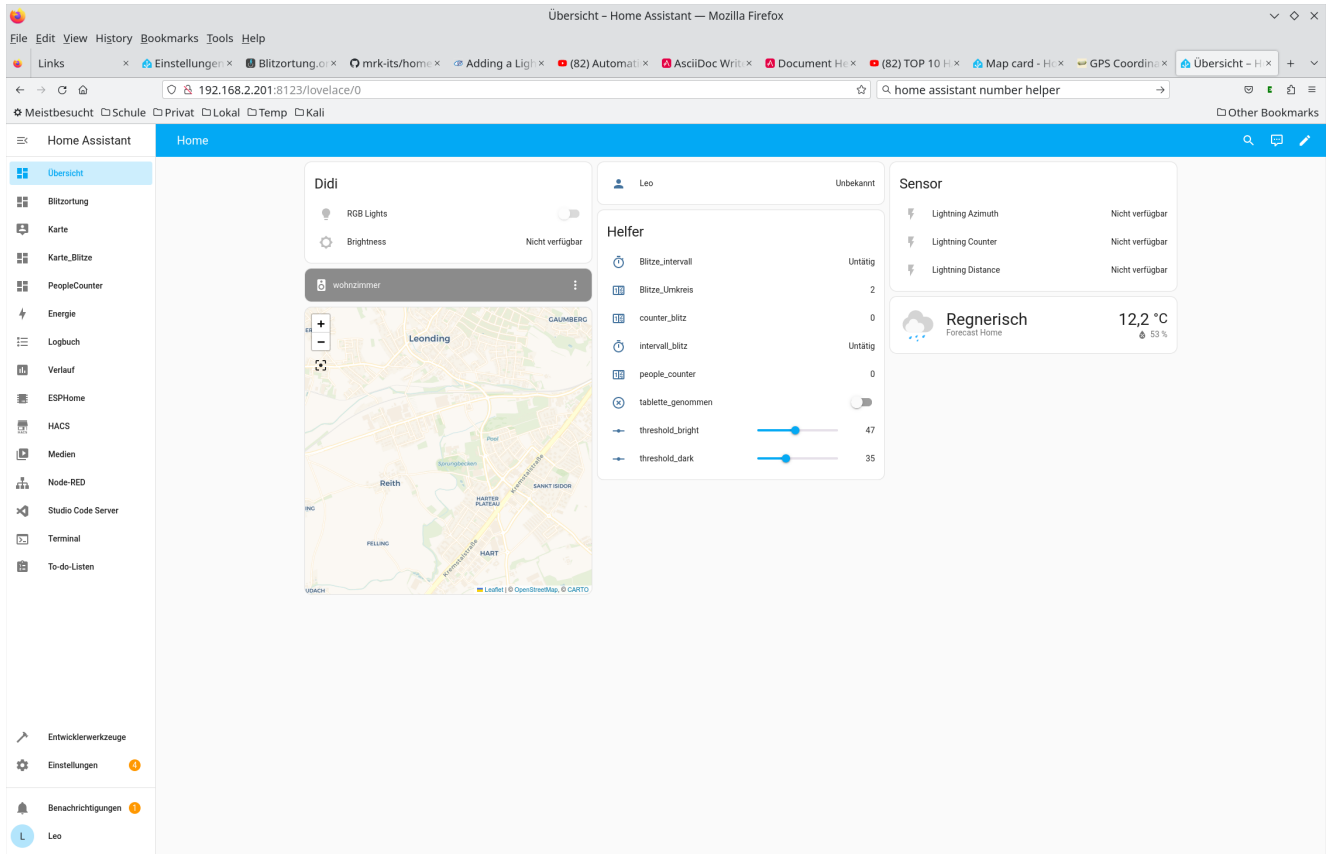
Search for Blitzortung on Configuration/Integrations page. After adding integration, you can optionally configure the location and radius with Blitzortung/Options (by default your home location is used with 100km radius).

## Unser Ansatz

Wir verwenden HACS.

Youtube Video:

- HACS Blitzortung gesucht und heruntergeladen
- HAOS neu gestartet
- Einstellungen - Geräte und Dienste - integration hinzufügen - Blitzortung - Konfigurieren
  - Koordinaten Sperlhof: 47.71409, 14.35846, Radius 100km
- Neues Dashboard erstellt
- Zum Dashboard hinzugefügt: Einstellungen - Geräte und Dienste - HACS - 4 Dienste - Tab Geräte - Konfiguration - Zum Dashboard hinzufügen



## Automatisierungen:

- Bei Änderung der Blitzanzahl wird der Zähler blitz\_counter erhöht (funktioniert aus ungeklärter Ursache nicht).
- Wenn der blitz\_counter erhöht wird, dann wird ein Timer (wieder) gestartet. (funktioniert bei manuellem Start).
  - hier ist wichtig, dass nur dann wenn dafür sorgt, dass der Timer nicht gestartet wird, wenn blitz\_counter 0 wird.
- Wenn der Timer abläuft, wird der blitz\_counter auf 0 zurückgesetzt. (funktioniert bei manuellem Start).
- Wenn ein Schwellwert für blitz\_counter überschritten wird, dann wird eine Gewitterwarnung angezeigt. (nyi)

## Idee: Anzeige mit Karte

- Aus longitude, latitude, distance, azimuth und Erdradius die Koordinaten des Blitzes berechnen und in Karte anzeigen.

GPS Coordinates Calculator - Online Meridian/Azimuth/Direction — Mozilla Firefox

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Wenn Knieschmerzen auftreten,  
versuchen Sie es  
(es ist genial)

Geographic Coordinates Calculation - dCode

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dCode is free and its tools are a valuable help in games, maths, geocaching, puzzles and problems to solve every day!  
A suggestion ? a feedback ? a bug ? an idea ? Write to dCode!

## How to calculate a point at equal distance of 2 others?

dCode calculate the **median** (middle) point on a sphere with the same radius as Earth (it is not the same than on a plan).

Example: Take the coordinates P1 (45.678 N, 5.4321 E) and P2 (46.810 N, 5.1015 E), the **median** point is located (46.2441 N, 5.2685 E), whereas on a 2D plane it would have been slightly shifted (46.2440 N, 5.2668 E).

## How to calculate a finish point when having a starting point?

Knowing the starting point ( $\phi_1, \lambda_1$ ) (latitude, longitude) the direction  $\theta$  (**azimuth** from the north) and the distance  $d$  on a sphere of radius  $R$ , dCode can calculate the path (calculations in radians) and find the arrival coordinates ( $\phi_2, \lambda_2$ ) by the formula:

$$\phi_2 = \arcsin\left(\sin(\phi_1)\cos\left(\frac{d}{R}\right) + \cos(\phi_1)\sin\left(\frac{d}{R}\right)\cos(\theta)\right)$$
$$\lambda_2 = \lambda_1 + \text{atan2}\left(\sin(\theta)\sin\left(\frac{d}{R}\right)\cos(\phi_1), \cos\left(\frac{d}{R}\right) - \sin(\phi_1)\sin(\phi_2)\right)$$

NB: this formula uses the `atan2` function defined as

$$\text{atan2}(y, x) = 2 \arctan \frac{y}{\sqrt{x^2 + y^2}} + x$$

## How to find a GPS coordinate from a given address?

Use **geocoding** / geolocation function also available on dCode. It is not a calculation but of an association between an address and coordinates (latitude, longitude) on a map.

Wikipedia

Feedback