

TimeZone Solution Document

Includes - Extension 1

Technology Stack:

- Java - 11 (LTS)
- Spring Boot - 2.3.0
- HTTPClient 2
- Apache Tomcat Application Server

Assumptions:

- DeviceId shall be alphanumeric
- When multiple entries are present for a device ID, the latest one is the first one
- When the coordinates are not found, api returns a 'Time Zone not found' message

External Dependency:

- Bing Maps TimeZone API - <https://docs.microsoft.com/en-us/bingmaps/rest-services/timezone/>

Challenges faced:

- **Finding an accurate external time zone api**
 - Explored multiple options to fetch the time the local time stamp given its coordinates and UTC time
 - Bing Time Zone API being accurate and open source and also having support from microsoft is the one chosen for the solution
- **Yet to find a api which supports timezones for water bodies**
 - Tried to use additional api calls to find the nearest location
 - Scope for improvement
- **Timestamp conversion to the required output format**
 - Used features of ZoneDateTime formatter

Improvements:

- Add loggers
- Extend the api search to include water bodies
- Include more extensive exception handlers
- Add test cases