

Automatically refresh traffic on route



Revision	Author	Date	Reviewer	Approver	Disapproval	Changelog	JIRA Story
0.2	Zhang, Mingming	26 Jun 2021	<input type="checkbox"/> Li, Mingzhou <input type="checkbox"/> Zhang, Xufeng <input type="checkbox"/> Adrian Tut <input checked="" type="checkbox"/> Zhou, Jun <input type="checkbox"/> Razvan Oprea <input type="checkbox"/> Lorin Atzberger - (p) <input type="checkbox"/> Chai, Ruifeng	<input type="checkbox"/> Li, Mingzhou <input type="checkbox"/> Zhang, Xufeng <input type="checkbox"/> Adrian Tut <input checked="" type="checkbox"/> Zhou, Jun	<input type="checkbox"/> Li, Mingzhou <input type="checkbox"/> Zhang, Xufeng <input type="checkbox"/> Adrian Tut <input type="checkbox"/> Zhou, Jun	<p>Currently, refreshRoute of MapView only monitors the SCHEDULED_REFRESH event.</p> <p>In order to be consistent with the traffic flow display on the map, we also need to monitor SOURCE_SWITCHED , SETTING_CHANGED , FORCE_REFRESH to refresh route.</p>	<div>  ANDROID-2386 - [SRMS-10070] Navi-NorwayGuidancethe route showing the map is not updated on time when the network status changes CLOSED </div>
0.1	Zhang, Mingming	15 Dec 2020	<input type="checkbox"/> Li, Mingzhou <input type="checkbox"/> Zhou, Jun <input type="checkbox"/> Adrian Tut <input type="checkbox"/> Razvan Oprea <input type="checkbox"/> Lorin Atzberger - (p) <input checked="" type="checkbox"/> Chai, Ruifeng	<input type="checkbox"/> Li, Mingzhou <input type="checkbox"/> Adrian Tut	<input type="checkbox"/> Li, Mingzhou <input type="checkbox"/> Adrian Tut	refreshRoute on MapView	<div>  ANDROID-245 - [MapView] Automatically refresh traffic on route CLOSED </div>

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Introduction

To make it easy to use, the traffic should be automatically refreshed on the route by MapView.

Requirements

The refresh traffic on the route is done by the client like (QtARP ...), and it needs a lot of knowledge/work for the client to refresh successfully.

So, we manage to refresh route traffic automatically from the user perspective.

Added in 26 Jun 2021

There are 5 traffic refresh causes

TrafficRefreshCause

```
enum class TrafficRefreshCause
{
    SCHEDULED_REFRESH = 0x01,    /**< regular cache updated by timing */
    SOURCE_SWITCHED = 0x02,      /**< regular cache updated by traffic source switched */
    SETTING_CHANGED = 0x03,      /**< regular cache updated by setting changed */
    FORCE_REFRESH = 0x04,         /**< regular cache updated by force request */
    URGENT_REFRESH = 0x05        /**< urgent cache updated */                // Used for urgent incident
};
```

When coming to

SCHEDULED_REFRESH
SOURCE_SWITCHED
SETTING_CHANGED
FORCE_REFRESH

the traffic flow display on the map will be refreshed, which implemented in <https://bitbucket.telenav.com/projects/NAV/repos/navcore/browse/mapdisplay2/src/DataAccess/DataAccessImpl.cpp#80>.

In order to be consistent with the traffic flow display on the map, we also need to monitor SCHEDULED_REFRESH , SOURCE_SWITCHED , SETTING_CHANGED , FORCE_REFRESH to refresh route.

Two ways:

Solution A: trigger the route traffic refresh in **JNI layer**, use the public function **queryTrafficByEdges** https://bitbucket.telenav.com/projects/NAV/repos/navcore/browse/mapcontent/MapContentService/src/map_content/Traffic/traffic_content_impl.cpp

it may be faster to implement, just change the upper layer(**MapView**) code, no need to change the core code of Map Engine.

Solution B: trigger the route traffic refresh internally, automatically in **Map Engine**, no more external operations asked for the user. It is more friendly for the user, but need to deeply change the code of Map Engine, it may be improved further.

Currently, for the NEO project, we choose **Solution A** to trigger the route traffic refresh in **JNI layer**, and it will be done in **android-sdk-map-atlas**.

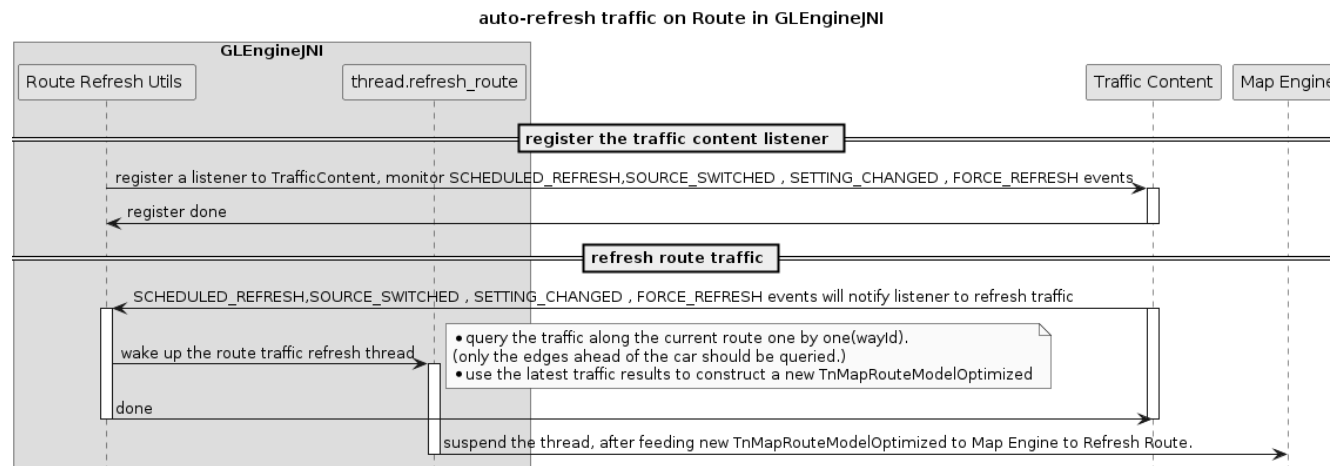
Limitations and Constraints

Limitations

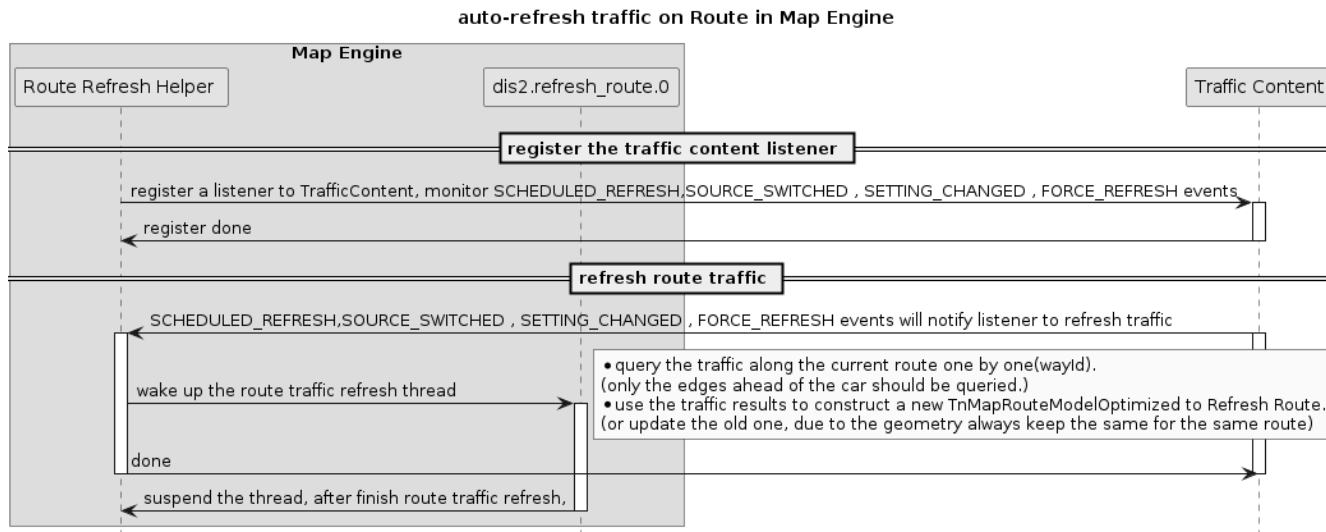
- Only consider the flow condition,
- During the refresh, only the edges ahead of the car should be queried. the query number of the edges should be configurable, the maximum size of query traffic is limited as 100 by default.
- Only the route is on navigation, will refresh route.

Design

Solution A



Solution B



User Interfaces

Public API

List the added/modified API(s) here, including Android Java API.

Configuration

List the added/modified configuration here.

Change Impact

Performance and Memory Impact

Elaborate the expectation of performance and memory impact if any. Please use rough number or percentage to describe the impact.

Backward Compatibility Impact

Any impact on backward compatibility should be specified. For example, a breaking change in data format, or an in-compatible API change.

Others (FAQ, References, ...)