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| Input contributionUse case |
| Use Case Title:\* | Use case for Manhole Cover Monitoring  |
| Group Name:\* | WG1 |
| Source:\* | BOE |
| Contact: | Albert Zhao, zhaojunjie111@boe.com.cn |
| Date:\* | 2018-12-03 |
| Abstract:\* | Propose a use case for manhole cover monitoring  |
| Agenda Item:\* | REQ #38 |
| Work item(s): | WI-0015 |
| Document(s) Impacted\* | TR-0001 |
| Intended purpose ofdocument:\* | [x]  Decision[x]  Discussion[ ]  Information[ ]  Other <specify> |
| Decision requested or recommendation:\* | Discuss and make a decision to agree this input contribution. |
| Template Version:23 February 2015 (Dot not modify) |

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## Title

Use case for Manhole Cover Monitoring

### Description

Manholes leading to underground supply systems are essential for their maintenance. Without these modern infrastructures our daily life as well as the economic system would collapse. In particular, this concerns: telecommunications networks, water supply networks, gas supply networks and electricity networks. This makes these systems vulnerable to sabotage and terror attacks. Every unsecured manhole represents an easy potential target. In supply networks a very small action at a single point can inflict a huge amount of damage to property and people.

In smart city, there are many sensors which are used to monitor the manholes cover. The Manhole Monitor sends alarms in real-time and it communicates status information daily whenever a manhole cover is opened or lifted. This can be used to alert the authorities and locate which manhole has been lifted immediately.

### Source

BOE Technology Group

###  Actors

* Manhole Cover Monitoring Device: function to detect if the manhole cover has been moved.
* Manage Server: function to monitor if the manhole cover has been moved.
* Street Authority Application: function to receive the manhole cover event and initiate event task.
* District Authority Application: function to receive the manhole cover event and monitor if the Street Authority has completed event task.

### Pre-conditions

Street manager has the ability to subscribe to the Manhole Cover related event.

Street manager and district manager has the ability to receive the Manhole Cover related event notification.

### Triggers

N/A

### Normal Flow



1. Manhole Cover Monitoring Device, Street Authority and District Authority register to the Management Server;
2. The Street Authority subscribe to the Manhole Cover Monitoring Device event notifications, where notification receiver includes the Street Authority and District Authority;
3. When the Manhole Cover is moved from stored/closed position, the Manhole Cover Monitoring Device updates the state of Manhole Cover in the Management Server;
4. The Management Server decides that a Manhole Cover event occurred based on the event notification criteria;
5. The Management Server sends event notification to the Street Authority immediately;
6. After a specified time frame, a check occurs, determining if the event notification criteria is met; if yes, the Management Server sends the notification to the District Authority Application.
7. The Management Server receives the notification response from the District Authority Application.

###  Alternative flow

N/A

### Post-conditions

N/A

### High Level Illustration



### Potential requirements

1. The oneM2M system shall support deferred notification for a specified time frame.
2. The oneM2M system shall support sending deferred notifications if based on event notification criteria (e.g. is met after the specified time frame).