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| Input contribution  Use case | |
| Use Case Title:\* | Use case for Manhole Cover Monitoring |
| Group Name:\* | WG1 |
| Source:\* | BOE |
| Contact: | Albert Zhao, [zhaojunjie111@boe.com.cn](mailto:zhaojunjie111@boe.com.cn) |
| Date:\* | 2018-11-19 |
| 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 of  document:\* | Decision  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: has function to detect if the manhole cover has been moved.
* Manage Server: has function to monitor if the manhole cover has been moved.
* Street Authority: has function to receive the manhole cover event and deal with event.
* District Authority: has function to receive the manhole cover event and monitor if the Street Authority has deal with in time.

### Pre-conditions

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

### Triggers

N/A

### Normal Flow



1. All of the Manhole Cover Monitoring Device, Street Authority and District Authority register to the Management Server;
2. The Street Authority subscribe the Manhole Cover Monitoring Device event, when event occur, send the notification to the Street Authority and District Authority;
3. When the Manhole Cover is moved, the Manhole Cover Monitoring Device update the state of Manhole Cover in the Management Server;
4. The Management Server decides that an event occurred based on the event notification criteria;
5. The Management Server send event to the Street Authority;
6. The Manhole Cover may be repaired or not by the Street Authority.
7. After some time, the Management Server check if met the event notification criteria? if yes, send event to the District Authority.

### Alternative flow

N/A

### Post-conditions

N/A

### High Level Illustration



### Potential requirements

1. The oneM2M system shall support setting multiple level of notification target and send the notification level by level.
2. The oneM2M system shall support check of event notification criteria before send notification to each level.