















```
"identifiant": "Scenario23",  
"type": "consensus",  
"title":  
  "History of administrative building",  
"description": "Proposed hypothesis  
  of changes to Admin building",  
"tag": ["Administration"],  
"storetransactionstarttime":  
  "2018-05-10 12:55:46",  
"storetransactionendtime":  
  "2018-05-10 12:55:50",  
"versionid" : ["V1", "V2", "V3",  
  "V4", "V5"],  
"versiontransitionid" : ["VT1", "VT2",  
  "VT3", "VT4"],  
}
```

Code Block 3. Example Scenario in JSON format  
CityGML 2.0 has two attributes of dateOfCreation and dateOfDemolition, however it is limited to buildings and cannot represent the intermediate states like the example shown above. CityGML 3.0 (Kutzner and Kolbe, 2018) will be released by the end of the year 2018 which will introduce the necessary timestamps for representing the versionable features, versions and version transitions presented in (Chaturvedi et al., 2017). Two timestamps *validFrom* and *validTo* will be able to represent the lifespan of any city object and therefore make the model shareable and interoperable. Our proposed approach can be used in both these versions.

## 6. CONCLUSION

CityGML 3.0 will be released by the end of this year and the use of timestamps proposed in our proof of concept will soon become part of the versioning module. We demonstrated in our work, how these changes can be further enhanced to represent concurrent points of view of urban evolution. By developing our proof-of-work on GIT, it is also easy to share the evolution related changes. Our next course of actions is to understand and deal with scalability and performance issues for very large scale CityGML files.

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