

Temporal ADE for CityGML

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CityGML, WP06
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Use cases:

- Open a CityGML file using the temporal ADE in the 3D-USE software
- Display a treeview of workspaces, versions in each workspace, and features in each version
- Toggle visibility of a given Workspace, Version or CityObject
- Display/hide objects dynamically to see the state of the model at a given date, using a temporal cursor

Limitations

- Only read files, no creation tool
- Version Transactions and Transitions (if present) are read by the software, but aren't used
 - Version members must be explicitly declared in the GML file
- xLink/xPath queries are provided minimal support
 - Direct xLink to id: `xlink:href="#id"`
 - XPath to a collection of features with the same major ID (identifier) :
`xlink:href="//identifier[text()='major_id']/.."`

CityGML file - dates

- Dates are still set to CityObjects using the creationDate and terminationDate elements

```
<cityObjectMember>
  <bldg:Building gml:id="0_Building">
    <core:creationDate>2021-01-01</core:creationDate>
    <core:terminationDate>2050-01-01</core:terminationDate>
    <bldg:boundedBy>
      ...
    </bldg:boundedBy>
  </bldg:Building>
</cityObjectMember>
```

CityGML file - Versions

- Versions and Transitions are present under the « CityModel » root element
- Workspaces are defined using the « tag » element of the Version
- CityObjects within a version can be referenced by xLink

```
<temp:Version gml:id="version_1">
  <temp:tag>WORKSPACE=Scenario_1</temp:tag>
  <temp:versionMember>
    <bldg:Building xlink:href="#17768_Building"/>
  </temp:versionMember>
  <temp:versionMember>
    <bldg:Building xlink:href="#17769_Building"/>
  </temp:versionMember>
</temp:Version>
```

```
<temp:VersionTransition gml:id="vTransition1">
  <temp:clonePredecessor>false</temp:clonePredecessor>
  <temp:from>
    <temp:Version xlink:href="#version1"/>
  </temp:from>
  <temp:to>
    <temp:Version xlink:href="#version2"/>
  </temp:to>
</temp:VersionTransition>
```