



XXVI FIG CONGRESS

6-11 May 2018, İstanbul



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Round Table: How to exchange Surveying Data with IFC?

Chair: Christian Clemen

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Questions:

1. For which purpose do you use IFC?

- stake out
- large scale facility management / maintaining (roads, airports,..)
- 3D cadastre / property /boundaries /
- geographical context for design (deliver ifc to planers)
- delivers as-built models as IFC + quality check

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Questions:

2. Which BIM Software are you working with

- Revit (design Company)
- Structural Software (Tekla)
- Infracore/Navisworks
- Agisoft for data capture
- ArchiCAD (good IFC export), Allplan, Sketchup
- BIMServer.org ifc-database / EDM Jotne
- FME / Dynamo

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Questions:

3. What should be improved?

- Main problem: more simplicity would be good
- Georeferencing for planning (link IFC directly)

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Level of Georeferencing (LoGeoRef) for BIM data drops

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- Using IFC (only) to georeference building models
- Pessimistic assumption: Building Models in IFC are not perfectly referenced in practice.
- The higher the LoGeoRef is the more quality of georeferencing
- higher levels do not automatically include information out of lower levels. Each level comprises their own IFC-schema attributes and is standing on its own.
- Decimal steps / intermediate steps possible e.g. for elevation, quality of attribute values, project-specific extensions...



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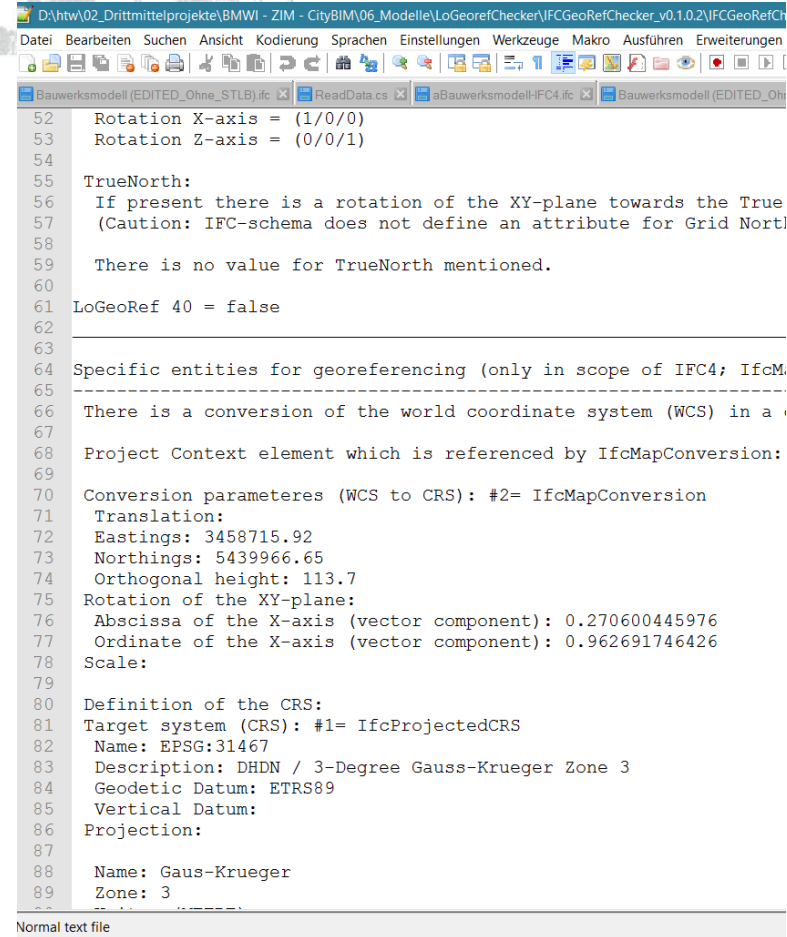
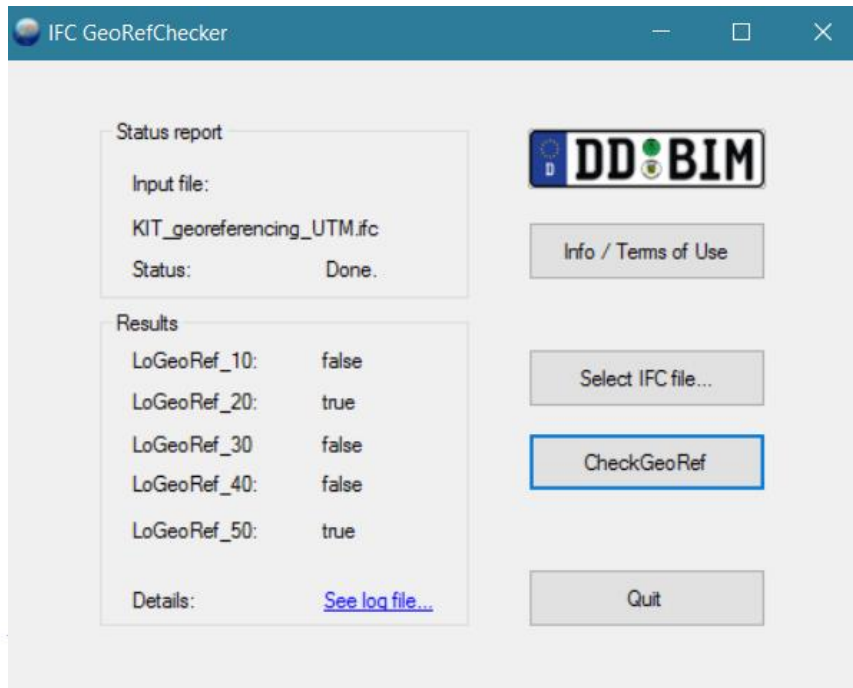
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Easy to use Checker



Simple Result: Logfile



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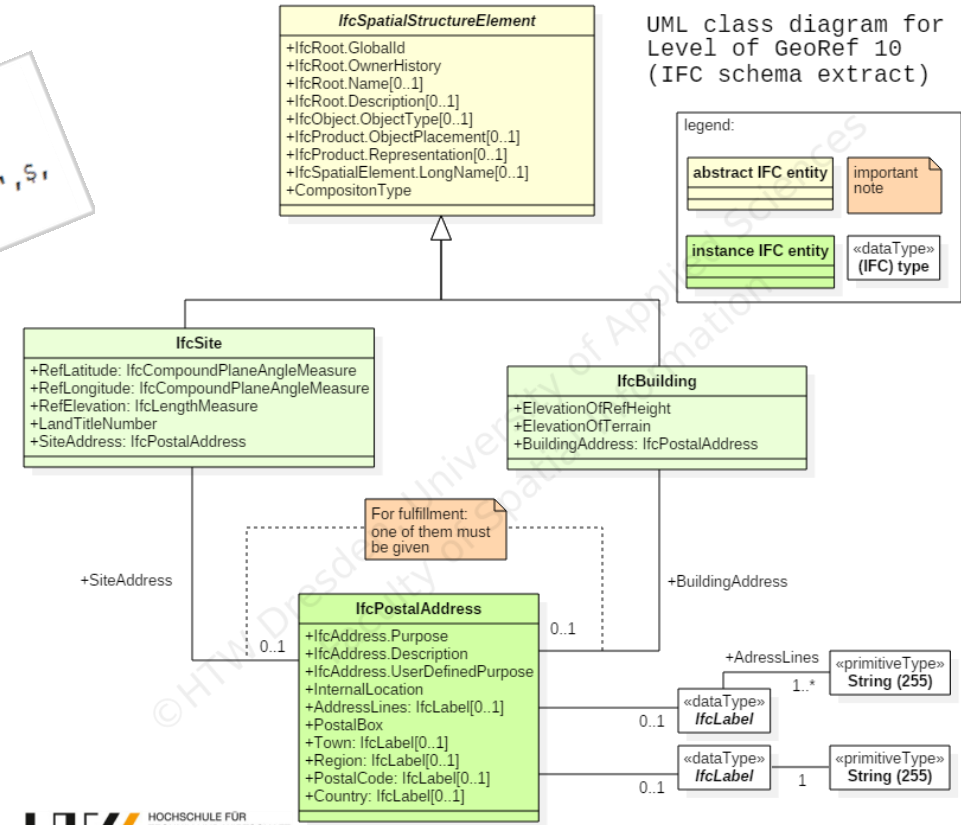
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```
#445= IFCSITE ('0x408ugOrDO9QL8HjLBpak', #41, 'SiteName', $, '', #444, #437, $, ..ELEMENT.,
(51, 2, 2, 346496), (13, 44, 2, 95184), 115.10, $, #106);
#110= IFCBUILDING ('2jdrbanYj5W8hjKAXSMLMz', #41, '', $, $, #32, $, '', ..ELEMENT., $, $, #106);
#106= IFCPOSTALADDRESS (.SITE., 'Address of HTW Dresden, Faculty of Spatial Information', '', $,
('Reichenbachstrasse 1'), $, 'Dresden', 'Saxony', '01069', 'Germany');
```



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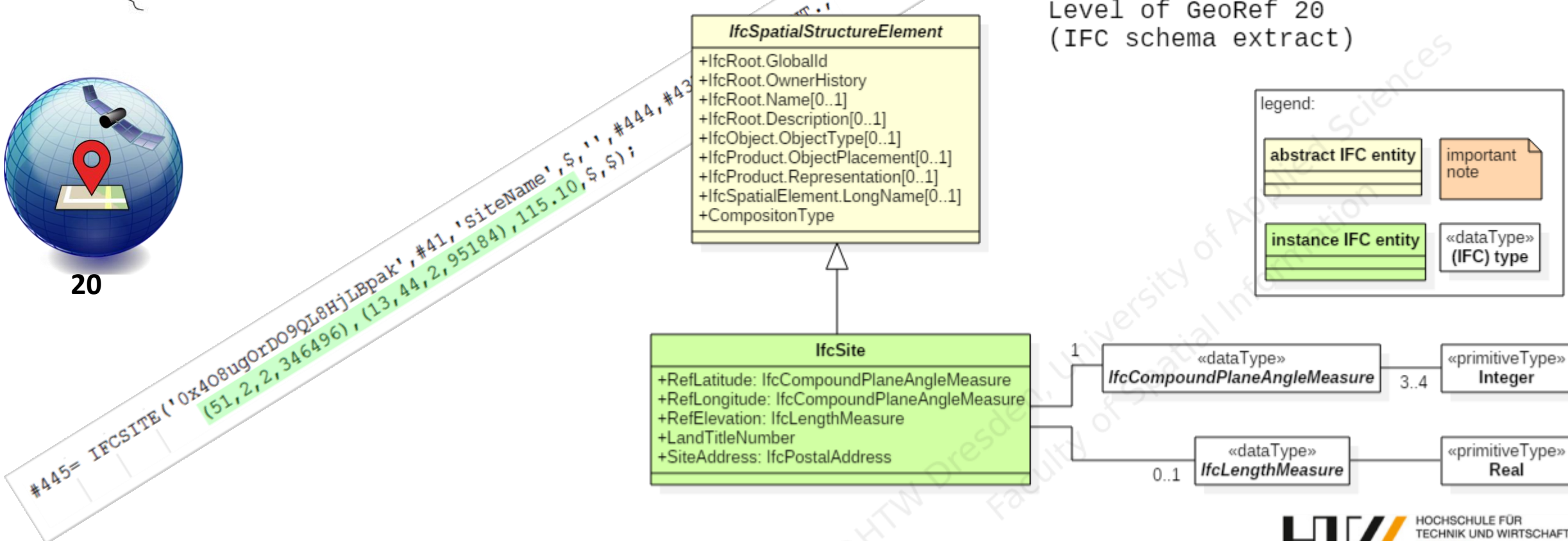


Level of Georeferencing (LoGeoRef) for BIM data drops

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UML class diagram for
Level of GeoRef 20
(IFC schema extract)



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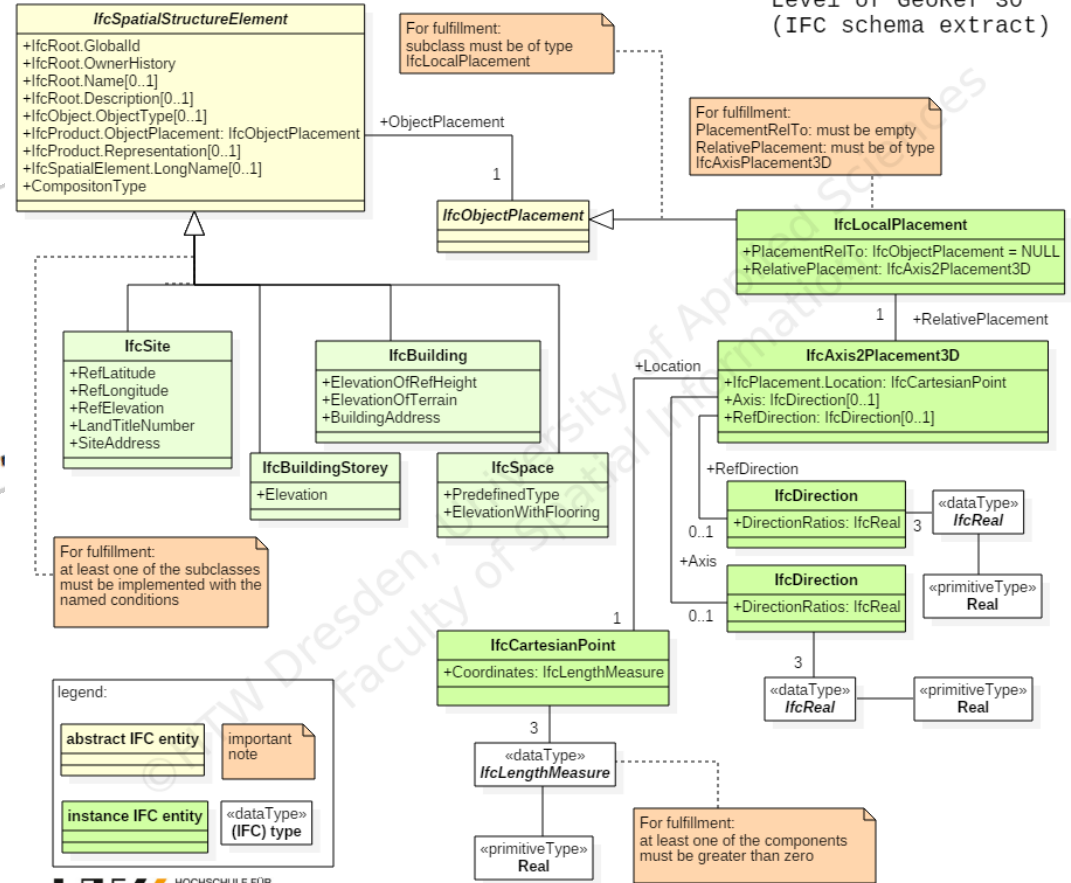


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Level of Georeferencing (LoGeoRef) for BIM data drops



```
#69182= IFCCARTESIANPOINT ((5656243.561,5411838.574,0.));
#69183= IFCDIRECTION ((0.,0.,1.));
#69184= IFCDIRECTION ((0.94640939062909,0.322969449529013,0.));
#69186= IFCLocalPLACEMENT ($, #69186);
#69187= IFCSITE ('1fhWSavqX4OwpLiY3_CNSn', #41, 'siteName', $, '', #69187, #69180, $, .ELEMENT., (48,8,20,852966), (11,34,48,669204), 0.);
#69188= IFCCARTESIANPOINT ((5656243.561,5411838.574,0.));
```



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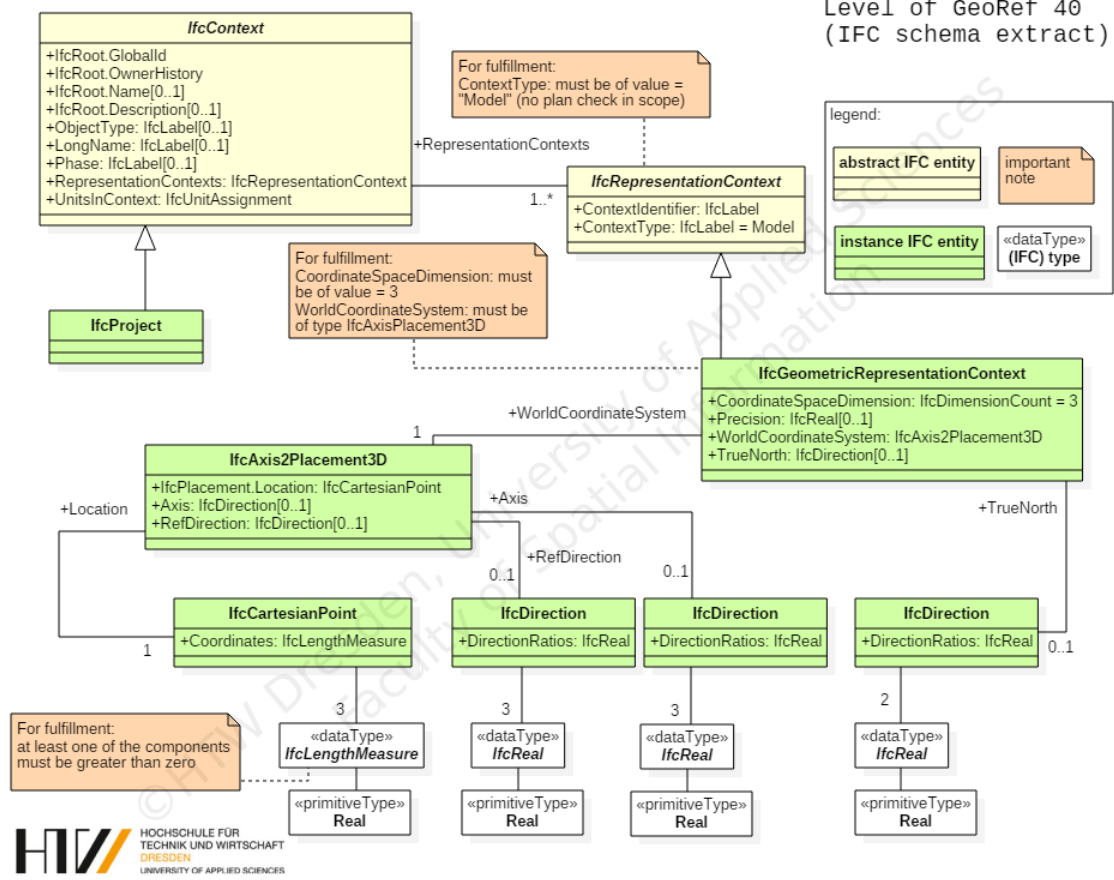
40



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```
#89= IFCARTESIANPOINT ((5656243.561,5411838.574,115.1));
#90= IFCAXIS2PLACEMENT3D (#89,$,$);
#91= IFCDIRECTION ((0.322969449529013,0.94640939062909));
#93= IFCGEOMETRICREPRESENTATIONCONTEXT ($,#41,'modelName',$,$,
#104= IFCPROJECT ('3IŞEzliEjENBTAsc55oSMB',#93,#101),#88);
'BIM project example', 'phase1', (#93,#101), #88);
```

UML class diagram for Level of GeoRef 40 (IFC schema extract)



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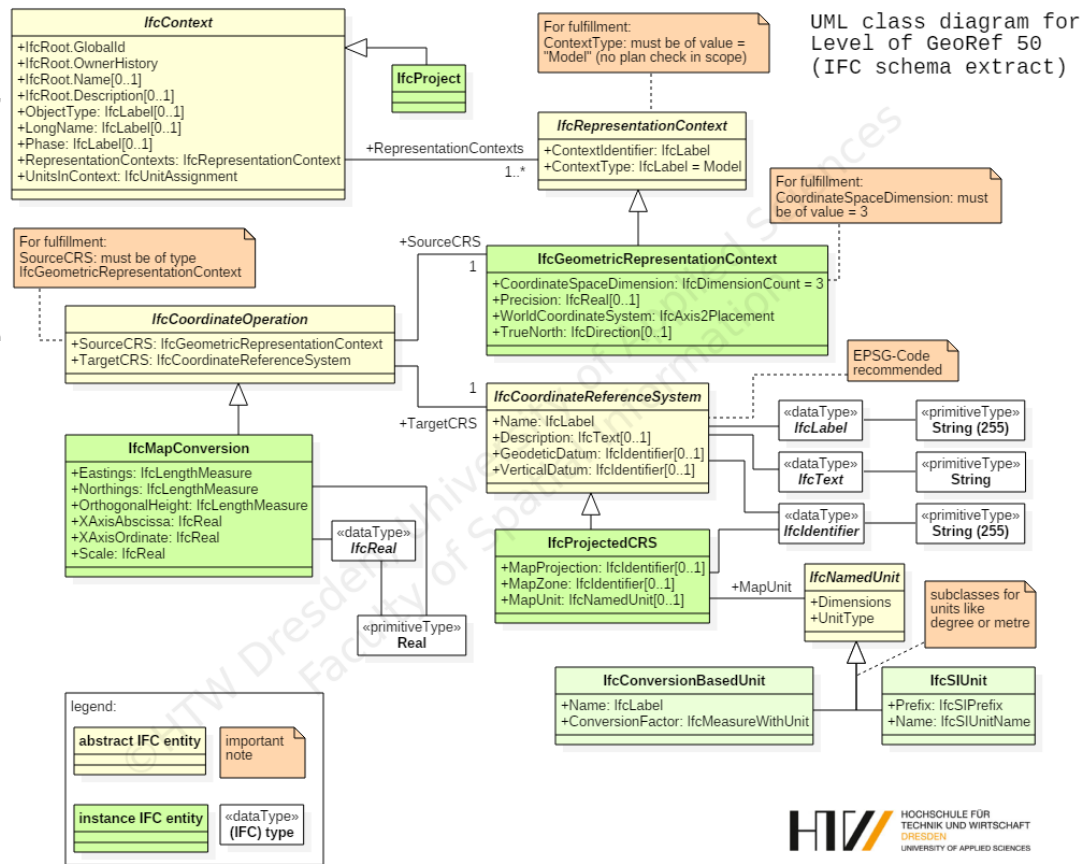


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```
#101= IFCPROJECT ('01JwSt5ycUHVkF1MZuleKS', #105, 'GeoRef50Example', $, $, $, $, $, (#111), #160);
#102= IFCMAPCONVERSION (#111, #112, 3458715.92, 5439966.65, 113.7, 0.270600, 0.962691, $);
#111= IFCGEOMETRICREPRESENTATIONCONTEXT ($, 'Model', 3, 1.0E-5, #140, $);
#112= IFCPROJECTEDCRS ('EPSG:31467', 'DHDN / 3-Degree Gauss-Krueger Zone 3',
  'ETRS89', $, 'Gaus-Krueger', '3', #120);
#120= IFCSIUNIT (*, .LENGTHUNIT., $, .METRE.);
```



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