

Mit 'Babysteps' in die XTEXT-XTEND Welt

Teil 1: Blitzerstellung eines 4GL Datenmodells dank DSL aus XTEXT

Anbei noch einmal die Code Listings wie sie der Editor zeigt, also mit Syntax Highlights. Passend zum Artikel im Eclipse Magazin.

von Ulrich Merkel

umecif1.xtext: die Grammatik

```
grammar de.ulrichmerkel.umecif1.UmeCif1 with
org.eclipse.xtext.common.Terminals
generate umecif1 "http://www.ulrichmerkel.de/umecif1/UmeCif1"
```

```
Model:
    datamodel=Datamodel
    entities+=Entity*
;

Entity:
    'entity' name=ID description=STRING?
    '{' fields += Field* primekey = Primekey? '}'
;

Primekey:
    'keyfields=' keyfields=STRING
;

Datamodel:
    'datamodel' modelName=ID description=STRING?
;

Field:
    'field' name=ID description=STRING?
    ('format=' fieldFormat=('DATE' | 'CHAR' | 'VARCHAR2')
(formatExtensions=FormatExtension)? )?
;

FormatExtension:
    '(' formatLength=INT ')'
```

umecif1Generator.xtend: wir bauen uns den Generator

```
package de.ulrichmerkel.umecif1.generator

import de.ulrichmerkel.umecif1.umeCif1.Entity
import de.ulrichmerkel.umecif1.umeCif1.Field
import de.ulrichmerkel.umecif1.umeCif1.Model
import org.eclipse.emf.ecore.resource.Resource
import org.eclipse.xtext.generator.IFileSystemAccess
import org.eclipse.xtext.generator.IGenerator

class UmeCif1Generator implements IGenerator {
    override void doGenerate(Resource resource, IFileSystemAccess
fsa) {
        var String scriptFileName =
resource.getURI().lastSegment.toString();
        var String outFileBase =
scriptFileName.substring(0, scriptFileName.lastIndexOf("."));
        fsa.generateFile( outFileBase + '.CIF',
makeTheCif(resource.contents.head as
Model))
    }
}
```

```

    }

def makeTheCif(Model sm) '''
<makeTheHeader()>
<makeTheDatamodel(sm)>
<<FOR Entity ent : sm.entities>>
    <makeTheEntity(ent)>
    <<FOR Field fld : ent.fields>>
    <makeTheField(fld, ent)>
    <<ENDFOR>>
    <makeThePrimekey(ent)>
<<ENDFOR>>
<makeTheFooter()>
'''

def makeThePrimekey(Entity ent) '''
    <<IF ent.primekey != null>>
    KX 1 #Y P #F <ent.primekey.keyfields.toString.toUpperCase>
    <<ENDIF>>
'''

def makeTheHeader() '''
    * CIF:2.0
    ; generated with UmeCif1 DSL, see www.uli-merkel.de
'''

def makeTheFooter() '''
    ; generation completed
'''

def makeTheDatamodel(Model sm) '''
    SX <sm.datamodel.modelName.toUpperCase>
    <<IF sm.datamodel.description != null>>
    <makeTheDescription(sm.datamodel.description.toString)>
    <<ENDIF>>
'''

def makeTheEntity(Entity ent) '''
<<IF ent != null>>
    EX <ent.name.toString.toUpperCase>
    <<IF ent.description != null>>
    <makeTheDescription(ent.description.toString)>
    <<ENDIF>>
    -#U O
<<ENDIF>>
'''

/* Description max 20 char long, no TAB, CRNLs */
def makeTheDescription(String description) '''
    <<IF description.length < 21>>
    -#ED
<description.replace('#', '##').replace('\r\n', '').replace('\t', '
')>
    <<ELSE>>
    -#ED <description.replace('#', '##').replace('\r\n', '
').replace('\t', ' ').substring(0,20)>
    <<ENDIF>>
'''

def makeTheField(Field fld, Entity ent) '''
<<IF fld != null>>
    FX <fld.name.toString.toUpperCase>
    <<IF fld.description != null>>
        <makeTheDescription(fld.description.toString)>
    <<ENDIF>>
    <makeTheFieldFormat(fld, ent)>
<<ENDIF>>
'''

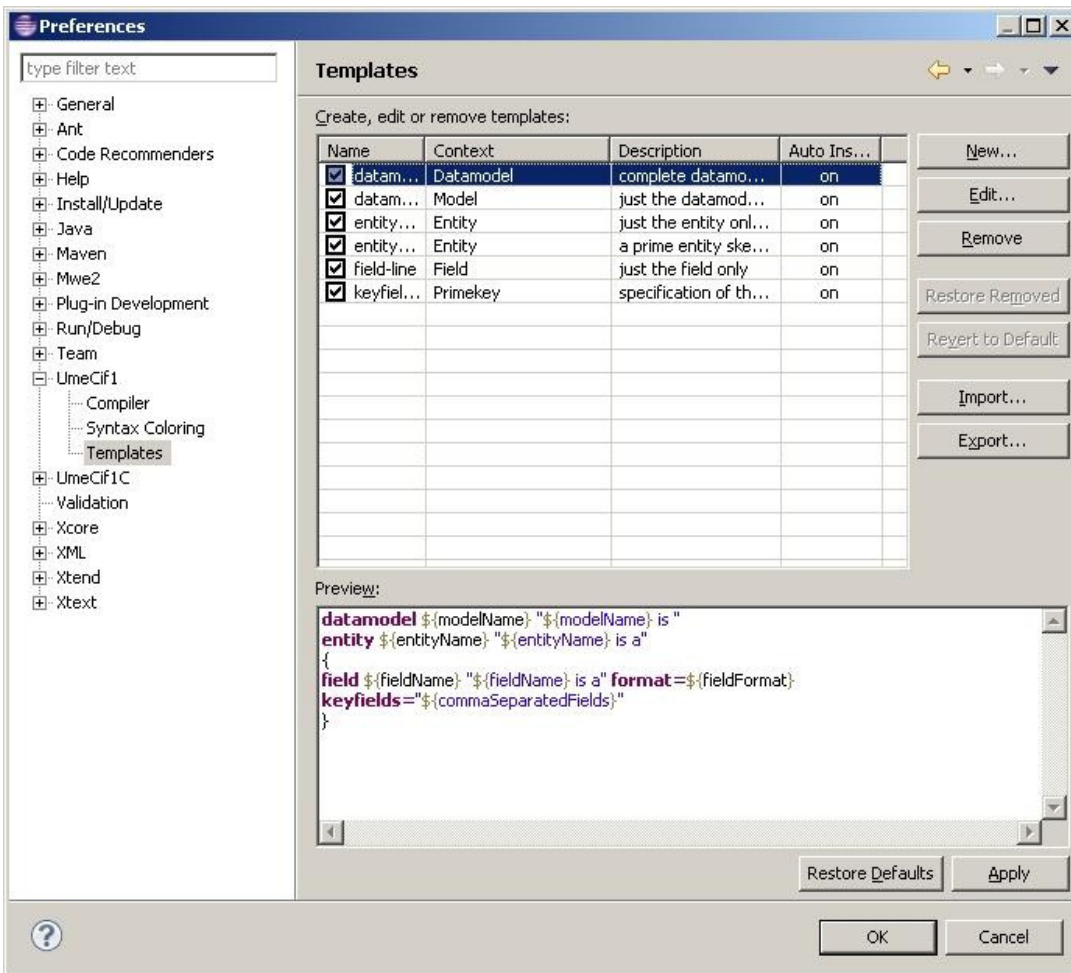
def makeTheFieldFormat(Field fld, Entity ent) '''
    <<IF fld.fieldFormat != null>>
        <<IF fld.fieldFormat.toString.toUpperCase == 'DATE'>>

```

```
        -#T D
    <<ELSEIF fld.fieldFormat.toString.toUpperCase == 'CHAR'>>
        -#T S
        -#I C<<makeTheFormatExtension(fld)>>
    <<ELSEIF fld.fieldFormat.toString.toUpperCase ==
'VARCHAR2'>>
        -#T S
        -#I C<<makeTheFormatExtension(fld)>>
    <<ENDIF>>
<<ENDIF>>
'''
def makeTheFormatExtension(Field fld) '''
    <<IF fld.formatExtensions != null>>
    <<fld.formatExtensions.formatLength.toString?:''>>
    <<ENDIF>>
    '''
}

```

BILDÜBERSICHT



UMerkel_Babysteps1_1.JPG



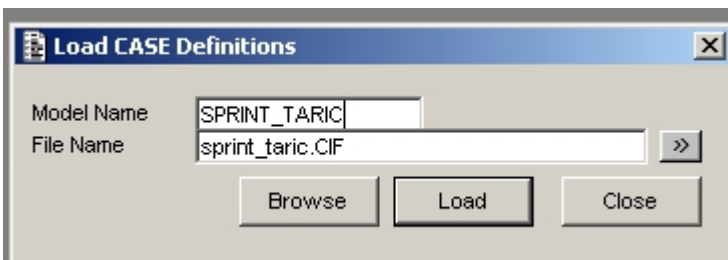
UMerkel_Babysteps1_2_SMALL.JPG

```

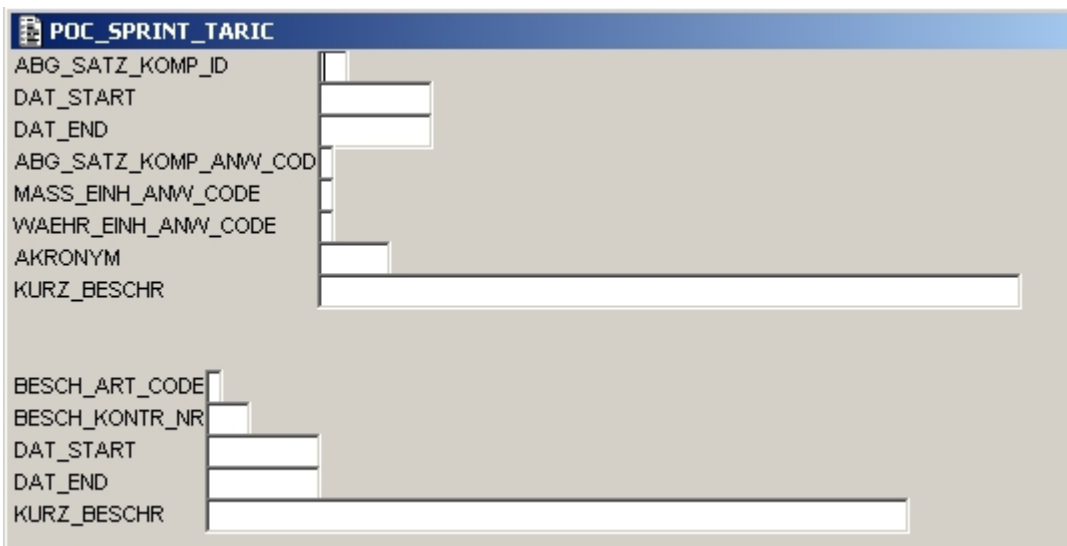
sprint_taric.umecef1
datamodel sprint_taric "sprint_taric is "
entity TBL_Abg_Art "TBL_Abg_Art is a"
(
field ABG_SATZ_KOMP_ID "Abgabensatz-Id (TARIC2)" format=CHAR(2)
field DAT_START "Datum Gültigkeitsbeginn (TARIC2)" format=DATE
field DAT_END "Datum Gültigkeitsende (TARIC2)" format=DATE
field ABG_SATZ_KOMP_ANW_CODE "Code der Anwendbarkeit eines Abgabensatzes (TARIC2)" format=CHAR(1)
field MASS_EINH_ANW_CODE "Anwendbarer Code der Maßeinheit (TARIC2)" format=CHAR(1)
field WAEHR_EINH_ANW_CODE "Anwendbarer Code der Währungseinheit (TARIC2)" format=CHAR(1)
field AKRONYM "Abkürzung (TARIC2)" format=CHAR(5)
field KURZ_BESCHR "Kurztext (TARIC2)" format=VARCHAR2(100)
keyfields="ABG_SATZ_KOMP_ID"
)
entity TBL_Besch "TBL_Besch is a"
(
field BESCH_ART_CODE "Bescheinigungsartcode (TARIC2)" format=CHAR(1)
field BESCH_KONTR_NR "Bescheinigungsreferenznummer (TARIC2)" format=CHAR(3)
field DAT_START "Datum Gültigkeitsbeginn (TARIC2)" format=DATE
field DAT_END "Datum Gültigkeitsende (TARIC2)" format=DATE
field KURZ_BESCHR "Kurztext (TARIC2)" format=VARCHAR2(100)
keyfields="BESCH_ART_CODE, BESCH_KONTR_NR"
)

```

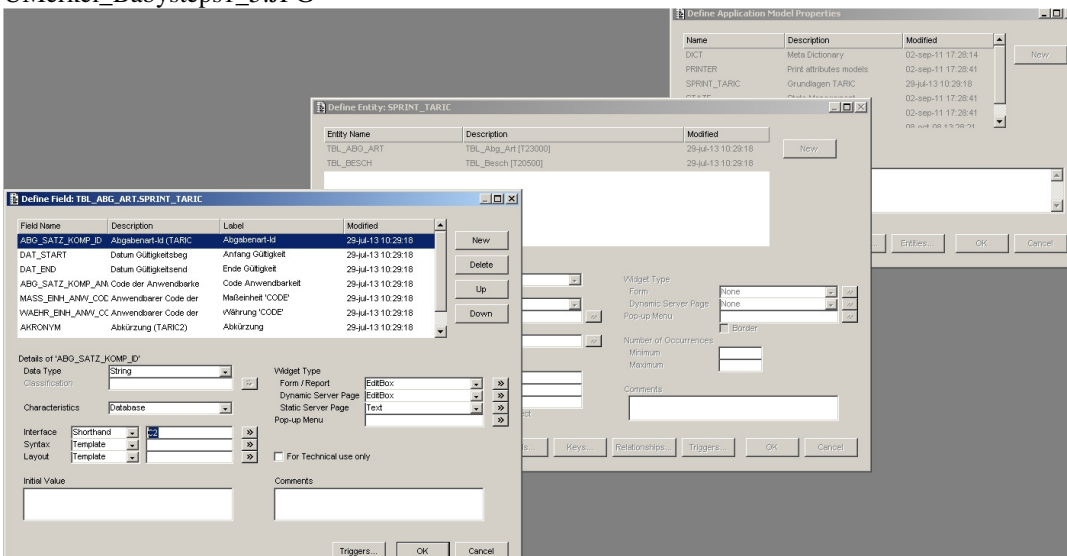
UMerkel_Babysteps1_3.JPG



UMerkel_Babysteps1_4.JPG



UMerkel_Babysteps1_5.JPG



UMerkel_Babysteps1_7.JPG

sprint_taric.umecif1

```
datamodel sprint_taric "sprint_taric.is"
entity TBL_Abg_Art "TBL_Abg_Art.is.a"
{
  field ABG_SATZ_KOMP_ID "Abgabenart-Id (TARIC2)" format=CHAR(2)
  field DAT_START "Datum Gültigkeitsbeginn (TARIC2)" format=DATE
  field DAT_END "Datum Gültigkeitsende (TARIC2)" format=DATE
  field ABG_SATZ_KOMP_ANW_CODE "Code der Anwendbarkeit eines Abgabensatzes (TARIC2)" format=CHAR(1)
  field MASS_EINH_ANW_CODE "Anwendbarer Code der Maßeinheit (TARIC2)" format=CHAR(1)
  field WAHR_EINH_ANW_CODE "Anwendbarer Code der Währungseinheit (TARIC2)" format=CHAR(1)
  field AKRONYM "Abkürzung (TARIC2)" format=CHAR(5)
  field KURZ_BESCHR "Kurztext (TARIC2)" format=VARCHAR2(100)
  keyfields="ABG_SATZ_KOMP_ID"
}
entity TBL_Besch "TBL_Besch.is.a"
{
  field BESCH_ART_CODE "Bescheinigungsartcode (TARIC2)" format=CHAR(1)
  field BESCH_KONTR_NR "Bescheinigungsreferenznummer (TARIC2)" format=CHAR(3)
  field DAT_START "Datum Gültigkeitsbeginn (TARIC2)" format=DATE
  field DAT_END "Datum Gültigkeitsende (TARIC2)" format=DATE
  field KURZ_BESCHR "Kurztext (TARIC2)" format=VARCHAR2(100)
  keyfields="BESCH_ART_CODE, BESCH_KONTR_NR"
}
```

UMerkel_Babysteps1_8.JPG