

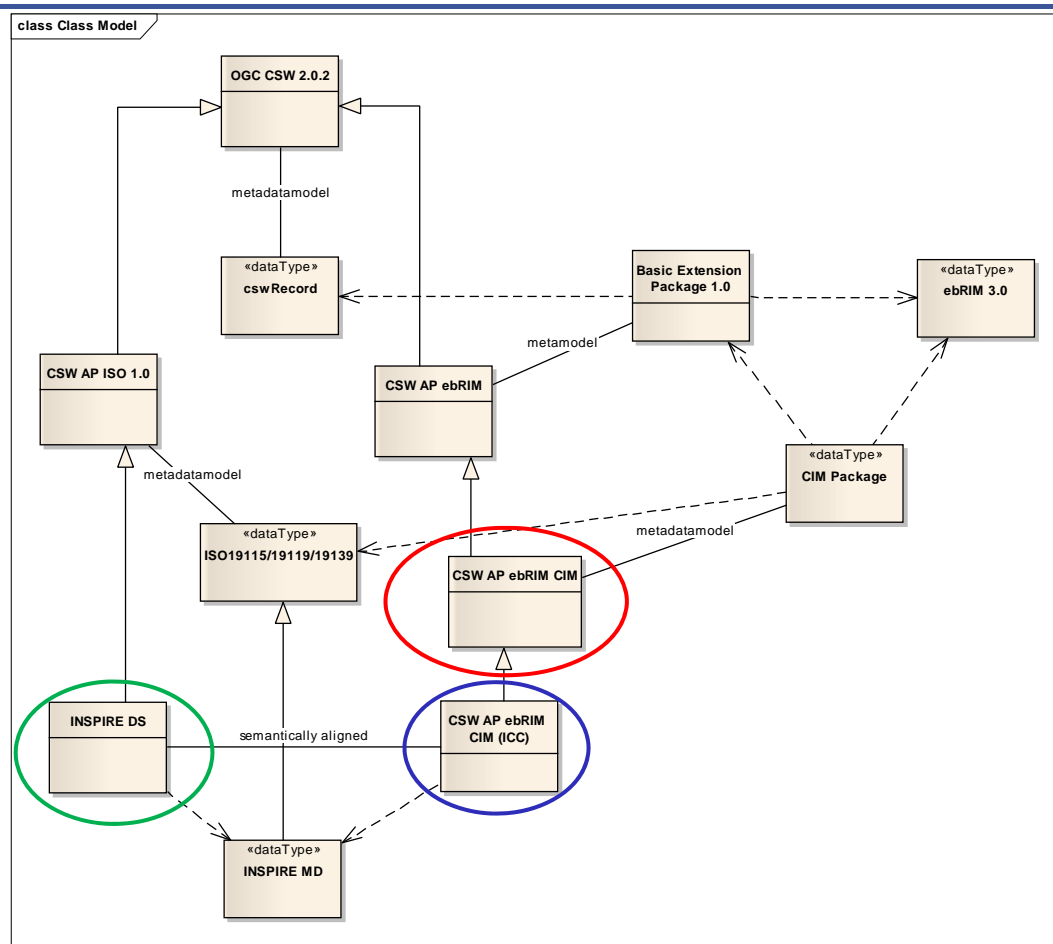
# ***HMA for Science Kickoff Meeting***

***Cataloguing of ISO Metadata (CIM) using the ebRIM  
profile of CS-W (ebRIM CIM)***

**KO Meeting  
24 January 2013, ESRIN Frascati**

**Uwe Voges, con terra GmbH**

- **CIM: EP of CSW ebRIM AP for cataloguing ISO 19115 / 19119 compliant metadata**
- **INSPIRE Discovery Services (INSPIRE\_DS): slightly extended version (profile) of OGC CSW AP ISO**
- **INSPIRE Conformance Class of CIM (CIM EP ICC): baseline for mapping CIM EP and INSPIRE\_DS:**
  - Type 1 profile (subset) of CIM EP which restricts optional RIM objects and makes some mandatory.



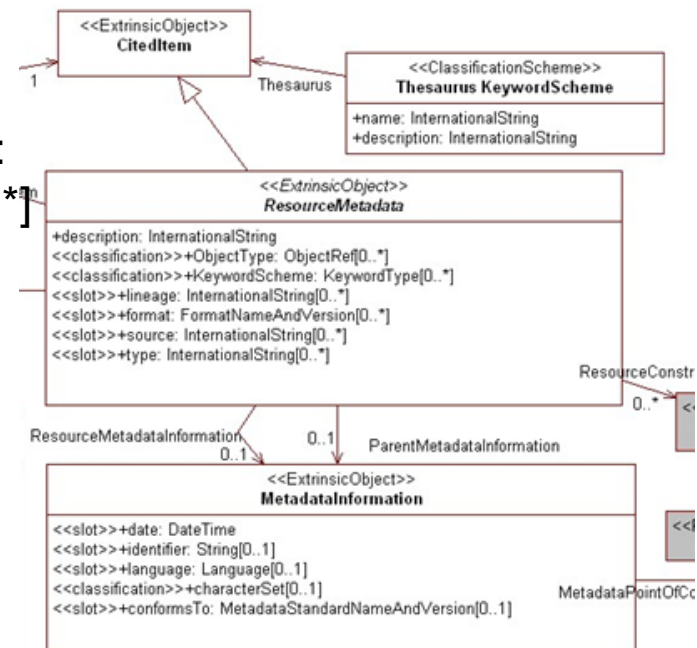
- developed in ESA HMA-T and updated in the ESA SMAAD.
- CIM EP Protocol Binding of INSPIRE\_DS.
- **INSPIRE Transformation Module**
  - bridges CIM EP Client/Server with INSPIRE\_DS Server/Client
  - developed by CON TERRA within ESA SMAAD

- SMAAD, HMA AWG and OWS-9 uncovered **problems in the CIM EP**:
  - Inconsistencies and missing elements in **ebRIM object definitions**
  - Inconsistencies in **UML models, tables and CIM/ISO mappings**

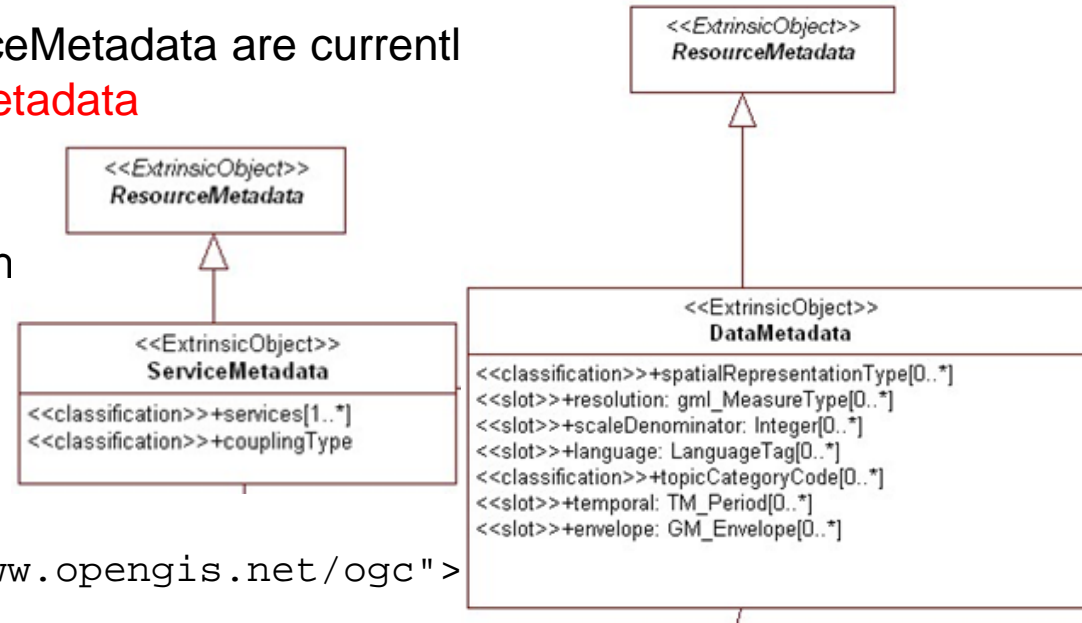
- **Example redundant ObjectType definition of ResourceMetadata ExtrinsicObject:**

- via "objectType" attribute of base class
- via a classification of EO ResourceMetadata: `<<classification>>+ObjectType: ObjectRef[0..*]`
- via specialization of EO DataMetadata by ElementaryDataset and DatasetCollection

- In SMAAD Telco (9.11.2011) we decided to use the **"objectType" attribute** with following values:
  - ISOAP dataset: `..-CIM::DataMetadata`
  - ISOAP service: `..-CIM::ServiceMetadata`
  - ISOAP collection: `..-CIM::DatasetCollection`
  - ISOAP application: `..-CIM::Application`



- For the conceptual CIM UML model this means that **DatasetCollection** and **Application** must be derived from **ExtrinsicObject** **DataMetadata**
- **DataMetadata** and **ServiceMetadata** are currently derived from **ResourceMetadata**
- For the filters this means that **filtering** has to be done as follows (**example**):



```

<Filter xmlns="http://www.opengis.net/ogc">
  <PropertyIsEqualTo>
    <PropertyName>/ExtrinsicObject/@objectType</PropertyName>
    <Literal>urn:ogc:def:objectType:OGC-CSW-ebRIM-
CIM::DatasetCollection</Literal>
  </PropertyIsEqualTo>
</Filter>
  
```

- **service-Discovery** in CIM ICC (and in INSPIRE Transformation Module) makes no sense, because of inconsistent “service” definitions
  - Example **ISO** allows arbitrary combinations of serviceType / -version like **WMS/1.1.1**, **WMS/1.3.0**, **WCS/1.0.0**, but **CIM** has only support (beside Catalogue) for the following types:

```
<rim:ClassificationNode objectType="urn:oasis:names:tc:ebxml-  
regrep:ObjectType:RegistryObject:ClassificationNode"  
  parent="urn:ogc:def:ebRIM-ClassificationNode:ISO-  
19119:2005:Service:Feature-Access "  
  code="WFS" id="urn:ogc:serviceType:WebFeatureService:1.1">  
  <rim:Name>  
    <rim:LocalizedString xml:lang="en" value="Web Feature Service  
(WFS), Version 1.1"/>  
  </rim:Name>  
</rim:ClassificationNode>
```

same for :

```
code="WMS" id="urn:ogc:serviceType:WebMapService:1.3">  
code="WCS" id="urn:ogc:serviceType:WebCoverageService:1.1.2">
```

- Consequence for Adapters: **ServiceType/Version cannot be mapped**
- Service classification schema to be **aligned with other OGC specs**

- Text / figures **do not consider new section on keywords and thesauri**: e.g. CIMThesaurusKeywordSchema and other ThesaurusKeywordSchemas
- OWS9: DataQuality mapping not sufficient
- **Wrong or missing slot assignments, e.g.:**
  - “References” must be added to **ResourceMetadata**
  - “Rights”: “description” must be replaced by slot “Abstract”.
  - **emailAdress** to be added to **organization** (7.2.8)
  - **citation information: url slot** not considered.
- The **urn’s used for the slot names** are not complete or incorrect.
- **No unique handling of associations keyword / keywordType possible:**
  - if filter references > 1 subject (classification node of Keyword schema) and > 1 keywordtype (classification node of KeywordType schema) it is not defined which subject is associated to which keywordtype.
- **not conform to recent OGC policies**: no Requirem.-/Conform.-Classes
- **not 100% aligned with latest ebRIM profile**
- **ATS not up to date**

- All problems prevent from having **stable** and **consistent implementations** of the **CIM EP** and **CIM EP ICC**
  - this also affected the ESA SMAAD project
- **CRs** for the problems and inconsistencies found are included as **comments within the CIM EP** specification document.
- latest **CIM EP ICC spec** was already specified (as far as possible) under the assumption that some CRs are solved and its results overtaken into the CIM EP.
- Another problem: CIM EP is **neither an OGC standard nor an OGC Best Practices Paper - only a OGC Discussion Paper**.
  - It is a real important task to update now the CIM EP specification and bring it through the OGC (RFC) process as OGC Standard or OGC Best Practice.

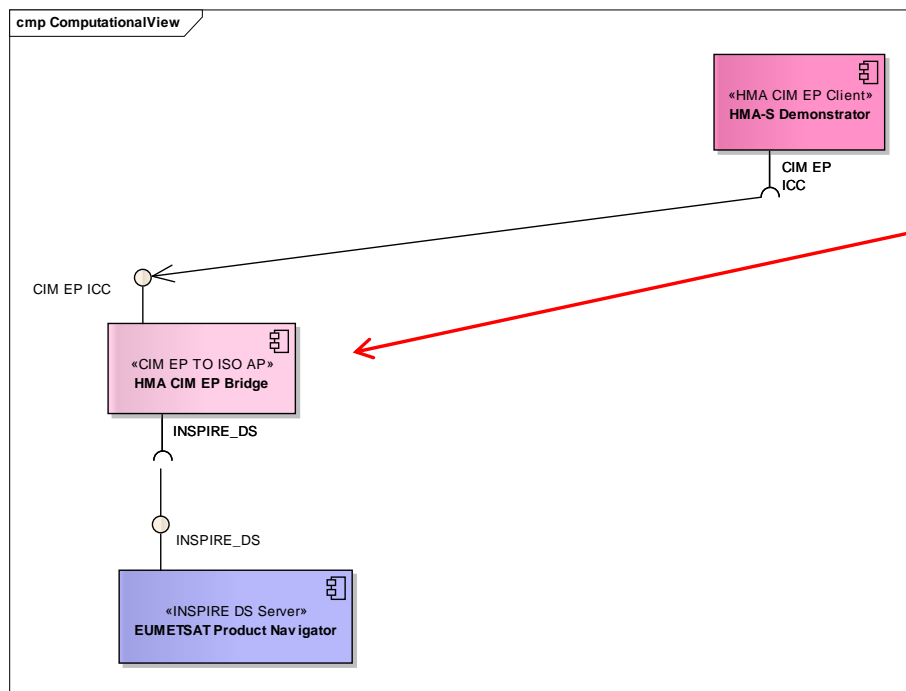
- **ToDo:**
  - Fix the problems and inconsistencies found in the CIM EP
  - CIM EP should be made **as independent as possible from the ebRIM profile** version so that it becomes easier to update it to a new version of the ebRIM profile.
  - CIM EP must **be aligned to latest OGC policies** (like inclusion of Conformance Classes and Abstract Test Suite)
  - Update **XML schemata**.
  - Align **CIM EP ICC** to changes done in the CIM EP (including adaptation of Abstract Test Suite).
  - Approve the CIM EP as OGC implementation specification or best practice document
    - Initiate **OGC RFC Process** - including the creation of a SWG Charter and the SWG initiation.



- Currently an **older version (0.1.7)** defined as **OGC discussion paper**:  
[http://portal.opengeospatial.org/files/?artifact\\_id=20596](http://portal.opengeospatial.org/files/?artifact_id=20596)
- **Latest Version (0.1.12)**:  
[https://portal.opengeospatial.org/index.php?m=projects&a=view&project\\_id=284&tab=2&artifact\\_id=51952](https://portal.opengeospatial.org/index.php?m=projects&a=view&project_id=284&tab=2&artifact_id=51952)
- Details on former SWG (chaired b Frederic Houbie):  
[https://portal.opengeospatial.org/index.php?m=projects&a=view&project\\_id=284&tab=0](https://portal.opengeospatial.org/index.php?m=projects&a=view&project_id=284&tab=0)
- I already **started to resume the OGC CSW ebRIM CIM SWG**:
  - **Sent out email to former / potential SWG members** to request membership
  - Did this **in accordance with Carl Reed** (talk on OGC TC in Redlands)
    - Note from Carl: "You may wish to change the TLA "CIM" to something else. The ... CIM acronym is very widely used in the IT industry as well as in other industries such as utilities.
    - [http://en.wikipedia.org/wiki/Common\\_Information\\_Model\\_%28computing%29](http://en.wikipedia.org/wiki/Common_Information_Model_%28computing%29)"

- **Following persons have already confirmed** to take part as voting member:
  - David Burggraf (Galdos, CN)
  - Michael Schick (EUMETSAT, EU)
  - Uwe Voges (con terra, D) - chair
- The following persons are **pending confirmation**:
  - Pier Giorgio Marchetti (ESA) ?
  - Marie-Lise Vautier (LGN, F)
  - Frederic Houbie (Geomatys, F)
  - Roger Brackin (envitia) ?
- I will do most of the work, I only expect from the SWG voting members:
  - to **review and comment** when I´m done
  - bring in **change requests or extensions** (optional)
    - David has already provided input which is a result of OWS9

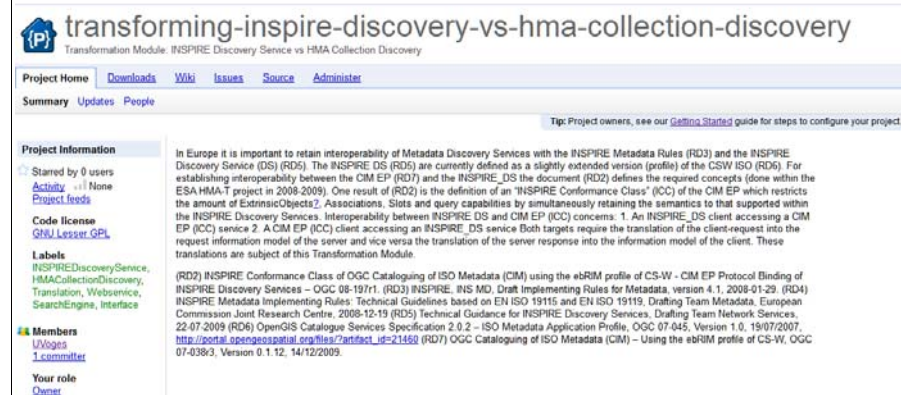
- **CIM to INSPIRE Bridge update**
  - Update the CIM to INSPIRE **bridge** which was developed in the **SMAAD** project
  - updated bridge has to **implement any changes** which were made in the INSPIRE Conformance Class (ICC) of **CIM EP (CIM EP ICC)** resulting from changes made in the **CIM EP**
  - The updated CIM to INSPIRE **bridge** will be **installed in front of the EUMETSAT ProductNavigator** which provides an INSPIRE\_DS Server



Available in a google code repository:

Project: <http://code.google.com/p/transforming-inspire-discovery-vs-hma-collection-discovery/>

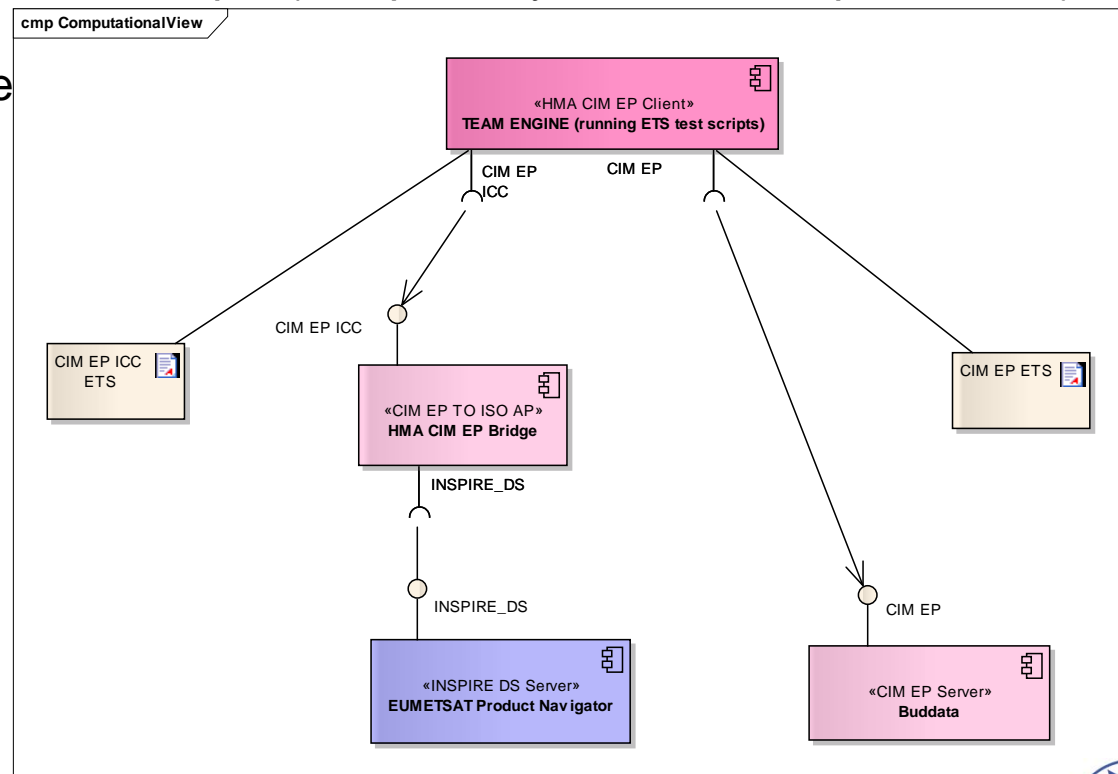
Subversion: <https://transforming-inspire-discovery-vs-hma-collection-discovery.googlecode.com/svn/trunk>



- Work here comprises the **update of the existing OGC compliance test package for the CIM EP** including:
  - Update of the **Abstract Test Suite (ATS)**:
    - Updates in the CIM EP specification may require updates of the CIM EP ATS as well.
    - Definition has to be done as defined in the **OGC policies**
  - Update of the **Executable Test Suite (ETS)**:
    - provides the abstract test cases of the ATS in a machine executable format defined as **CTL-scripts**.
    - Syntax of the CTL-scripts will be based on the **latest OGC CITE TEAM ENGINE** made available by Task 8 (I51)
- Changes in the CIM EP that affect the CIM EP ICC as well – will possibly lead to **changes in the ATS and/or ETS of the CIM EP ICC**

- After updating the **CIM EP ETS** (CTL scripts), those will be **executed with the TEAM Engine** against an updated version of the **Buddata CIM EP** reference implementation.
  - test results will be reported
  - If problems occur the CTL scripts (and possibly the CIM EP specification) will be updated or demonstrator will be informed to change the implementation.

- **CIM EP ICC ETS** executed by TEAM Engine against HMA CIM EP Bridge
  - Test results will be reported.
  - If problems occur in CTL scripts the CIM EP ICC spec and/or bridge implementation will be adjusted.



WP Title:	<b>ebRIM CIM Specification and OGC Adoption</b>		
Contractor:	CON TERRA		
WP Manager	<b>Uwe Voges</b>	WP Ref.:	<b>5100</b>
Start Event	KO T0	Issue Ref.	1.0
End Event	FP T0 + 18 months	Effort	108 hours
<b>Objectives of the Work Package</b>			
The objectives of this WP are:			
<ul style="list-style-type: none"> <li>Review and update of the latest CIM EP specification [AD06] addressing open issues collected within the SMAAD project and HMA AWG initiatives</li> <li>Getting approved [AD06] as OGC implementation specification or best practice document</li> <li>Adaptation of the CIM EP ICC [AD07] (if required).</li> </ul>			
<b>Items required to start WP</b>			
<ul style="list-style-type: none"> <li>Outcomes collected within SMAAD project (see in [AD06][AD07])</li> <li>Open issues collected within HMA AWG initiatives</li> </ul>			
<b>Tasks performed in WP</b>			
<ul style="list-style-type: none"> <li>Collect Open issues for CIM EP [AD06] from HMA AWG and SMAAD initiatives</li> <li>Specification / Adaptation of the CIM EP to the requirements including Conformance Classes, document alignment with OGC Policies, XML schema updates</li> <li>Creation of comprehensive examples for CIM EP</li> <li>Adaptation of the CIM EP ICC [AD07] to changes of the CIM EP which are not already considered</li> <li>RFC Process including SWG Charter, Documents, OGC communications</li> <li>Required OGC collaboration work for RFC process: participation in SWG (teleconferences &amp; emails), teleconferences notes, documents</li> <li>1 OGC Meeting in physical presence</li> </ul>			
<b>Outputs from WP</b>			
<ul style="list-style-type: none"> <li>HMA-S.CTR.D5000.1: Cataloguing of ISO Metadata (CIM) using the ebRIM profile of CS-W including             <ul style="list-style-type: none"> <li>Updated version of [AD07] (if required)</li> <li>HMA-S.CTR.D5000.1.1: Related schemas</li> <li>HMA-S.CTR.D5000.1.2: Comprehensive Examples</li> </ul> </li> </ul>			

Contractor:	CON TERRA		
WP Manager	<b>Uwe Voges</b>	WP Ref.:	<b>5200</b>
Start Event	KO T0	Issue Ref.	1.0
End Event	FP T0 + 18 months	Effort	84 hours
<b>Objectives of the Work Package</b>			
The objectives of this WP are to define an Abstract Test Suite and an Executable Test Scripts to be executed via the OGC TEAM engine for the CIM EP [AD06] and CIM EP ICC [AD07]			
<b>Items required to start WP</b>			
<ul style="list-style-type: none"> <li>HMA-S.CTR.D5000.1: Cataloguing of ISO Metadata (CIM) using the ebRIM profile of CS-W including an updated version of [AD07] (if required)</li> <li>HMA-S.SPB.D5000.1: OpenSource Demonstrator</li> <li>TEAM Engine</li> </ul>			
<b>Tasks performed in WP</b>			
<ul style="list-style-type: none"> <li>Update of CIM EP Abstract Test Suite (10-15 test cases)</li> <li>Update of CIM EP ICC Abstract Test Suite (if required)</li> <li>Adaptation of CIM EP CTL scripts from IGN-F/ERDAS from HMA-T Phase 2 to latest CIM EP specification (10-15 test cases)</li> <li>Adaptation of CIM EP ICC CTL scripts from SMAAD to latest CIM EP ICC specification (if required)</li> <li>Configuring the TEAM Engine and running the tests for CIM EP / CIM EP ICC with ETS:</li> <li>Testing the CIM EP with the CIM EP reference server</li> <li>Testing the CIM EP ICC with the CIMEP2ISO-Bridge</li> </ul>			
<b>Outputs from WP</b>			
<ul style="list-style-type: none"> <li>HMA-S.CTR.D5000.1.3: Abstract Test Suite for CIM EP [AD06] including <ul style="list-style-type: none"> <li>ATS update of CIM EP ICC [AD07] (if required)</li> </ul> </li> <li>HMA-S.CTR.D5000.2: Executable Test Scripts for CIM EP [AD06] including <ul style="list-style-type: none"> <li>ETS update of CIM EP ICC (if required)</li> </ul> </li> <li>HMA-S.CTR.D5000.2.1: ETS Execution Test Report with OGC TEAM Engine</li> </ul>			

WP Title:	<b>Demonstrator Contribution</b>		
Contractor:	CON TERRA		
WP Manager	<b>Uwe Voges</b>	WP Ref.:	<b>5310</b>
Start Event	KO T0	Issue Ref.	1.0
End Event	FP T0 + 18 months	Effort	44 hours
<b>Objectives of the Work Package</b>			
The objectives of this WP are to support SPACEBEL in setting up the demonstrator and the Test-Environment			
<b>Items required to start WP</b>			
<ul style="list-style-type: none"> <li>• HMA-S.CTR.D5000.2: Executable Test Scripts for CIM EP [AD06] including             <ul style="list-style-type: none"> <li>○ ETS update of CIM EP ICC (if required)</li> </ul> </li> </ul>			
<b>Tasks performed in WP</b>			
<ul style="list-style-type: none"> <li>• Adaptation of CIMEP2INSPIRE bridge (developed within the ESA SMAAD project) to new version of CIM EP ICC [RD2] (if required).</li> <li>• Deployment and setup of CIMEP2INSPIRE bridge on top of EUMETSAT PN 2.1 Catalogue. This Bridge is used by "demonstrator client" and TEAMEngine (for testing with CIM EP ICC ETS)</li> </ul>			
<b>Tasks excluded from WP</b>			
<ul style="list-style-type: none"> <li>• Responsibility of CON TERRA is only related to the provision of an updated CIMEP2INSPIRE bridge and for running the tests.</li> <li>• CON TERRA will not provide any paper work in this context</li> <li>• Update and setup of "Demonstrator client" (including Technical Note for Demonstrator Client with a description of the native interfaces and a user manual) has to be done by SPACEBEL</li> <li>• Adaptation of Buddata catalogue as CIM EP reference server to latest CIM EP specification has to be done by SPACEBEL/INTECS</li> </ul>			
<b>Outputs from WP</b>			
<ul style="list-style-type: none"> <li>• Updated CIMEP2INSPIRE bridge</li> <li>• New CIMEP2INSPIRE bridge deployed / running on top of EUMETSAT ProductNavigator</li> </ul>			



- Limited interest in OGC because of very specific specification
  - May become hard to get quorum...
- Baseline specs under revision:
  - CSW 3.0 nearly finished
  - Currently no ebRIM profile update planned
    - If update: direct consequence for CIM
  - ISO19115/19119 on the way...
    - New ISO19115 will come with 4 parts (-1, -2, -3, -4):
- If we align lots of implementations need bigger updates...including bridges..