

Problem

How can I put definitions for dynamic components in multiple files?

Solution

This page discusses how to handle dynamic components outside the single `Components.xml` file.

DynamicComponents are described in the `Component.xml` file by entries whose name is `"*"`.

This works fine if we are happy to put all DynamicComponents in the same `Components.xml` file. But it is impossible to place their description in a separate, own file, because:

- We would have to create a directory called `"*"` containing a file called `*.xml`
- We would be in any case limited to just one component.

This is a problem when trying to factorize the CDB in a structured and hierarchical way.

See:

- Chapter 14 of the Configuration Database user manual.
- [FAQHierarchicalComponentsAndCDBStructure](#)
For a discussion about hierarchical components
- [NamingConventions](#)
For a discussion about to structure the CDB for the R.2 Integration

Starting from ACS 4.1.0, it is possible to use the recent [XInclude](#) and [XPointer](#) XML specification.

See [ZLegacy/ACS.CBDDynamicComponents](#) for a detailed discussion about usage and implementation of XInclude and Xpointer in xerces-2 java, our parser (and the patches we have implemented).

- We can put Dynamic Component specifications in separate files to be included in a main `Components.xml`
- These files are called by convention `XXX_IncludeDynamic.xml` and can be put anywhere in the hierarchical structure of the CDB. (1)
- Each of these external files must be a well formed `Components` description file=
- The Components described in such files are included in the main `Components.xml` using the following syntax: (2)

```
<xi:include href="<relative path>/XXX_IncludeDynamic.xml" xpointer="element(/1)" />
```

(1) Note:

Using this technique include XML files can be in principle generally used everywhere in the CDB.
The only hard constraint is that:

- **the name of the include file cannot be the `<directory>.xml`,**
because this is the file that the CDB engine will try to load directly when navigating the CDB structure.

Guidelines, conventions and other approved usages of the XInclude facility are not part of this discussion and will have to be addressed with HLA, SE and IT at a later time.

(2) Note:

The XPointer syntax is currently not fully implemented. Only the expression `"element(/1)"` is supported.

Example

- Using the current conventions in [NamingConventions](#), each subsystem will put his own dynamic components in the file `<subsystem>_IncludeDynamic.xml`
For example `CONTROL` might have the file `CONTROL_IncludeDynamic.xml` :

```
<?xml version="1.0" encoding="utf-8"?>
<Components xmlns="urn:schemas-cosylab-com:Components:1.0"
  xmlns:cdb="urn:schemas-cosylab-com:CDB:1.0"
  xmlns:baci="urn:schemas-cosylab-com:BACI:1.0"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <_ Name="*"
    Code="controlDynamic_1"
    Type="IDL:alma/PsDynamic_1:1.0"
    Container="Container"/>
  <_ Name="*"
    Code="controlPsDynamic_2"
    Type="IDL:alma/PsDynamic_2:1.0"
    Container="bilboContainer" />
</Components>
```

- Using the hierarchical CDB structure describe in [FAQHierarchicalComponentsAndCDBStructure](#), **CORRELATOR** might have the file **CORRELATOR/IncludeDynamic.xml** inside the CORRELATOR directory:

```
<?xml version="1.0" encoding="utf-8"?>
<Components xmlns="urn:schemas-cosylab-com:Components:1.0"
  xmlns:cdb="urn:schemas-cosylab-com:CDB:1.0"
  xmlns:baci="urn:schemas-cosylab-com:BACI:1.0"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <_ Name="*"
    Code="corrDynamic_1"
    Type="IDL:alma/MountDynamic_1:1.0"
    Container="Container"/>
  <_ Name="*"
    Code="corrDynamic_2"
    Type="IDL:alma/MountDynamic_2:1.0"
    Container="corrContainer" />
</Components>
```

- Both files will be included in the main **Components.xml** eventually together with other component specifications:

```
<?xml version="1.0" encoding="utf-8"?>
<Components xmlns="urn:schemas-cosylab-com:Components:1.0"
  xmlns:cdb="urn:schemas-cosylab-com:CDB:1.0"
  xmlns:baci="urn:schemas-cosylab-com:BACI:1.0"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:xi="http://www.w3.org/2001/XInclude">
  <_ Name="ALMA_DOOR"
    Code="acsexmplDoorImpl"
    Type="IDL:alma/acsexmplBuilding/Door:1.0"
    Container="Container" />
  <xi:include href="CONTROL_IncludeDynamic.xml" xpointer="element(/1)" />
  <xi:include href="CORRELATOR/IncludeDynamic.xml" xpointer="element(/1)" />
</Components>
```

A complete working example of CDB is here: [Main.FAQHierarchicalComponentsAndCDBStructure](#)

-- [GianlucaChiozzi](#) - 06 Sep 2005

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