RETRO 2014 Developper's Guide

- Development Tools
- Architecture
- Clustering method & Descriptor

Mai 25, 2014

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The authors would like to thank all the members of the BVH-CESR for their collaboration. This work has been supported by the Google Digital Humanities research Awards given to the Computer Science Laboratory of Tours (RFAI team).

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Content

PART I
DEVELOPMENT TOOLS

Development constraints

- **IDE** : Visual Studio 2012
- **Language** : C# with .NET 4.5 Framework

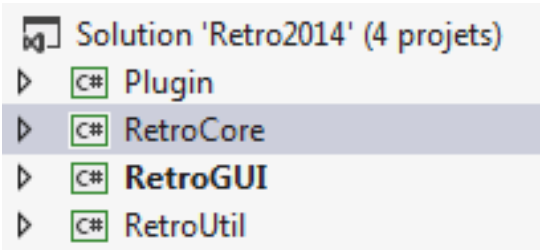
If the developer wants to modify the RETRO source code he has to develop in **C#** and use at least the **4.5 version of .NET** framework and the **2012 version of Visual Studio**.

In addition, RETRO has been developed according the **MVVM** (Model – View – ViewModel) design pattern. So it's important the developer respect this model in developing RETRO.

PART II
SOLUTION ARCHITECTURE

Projects

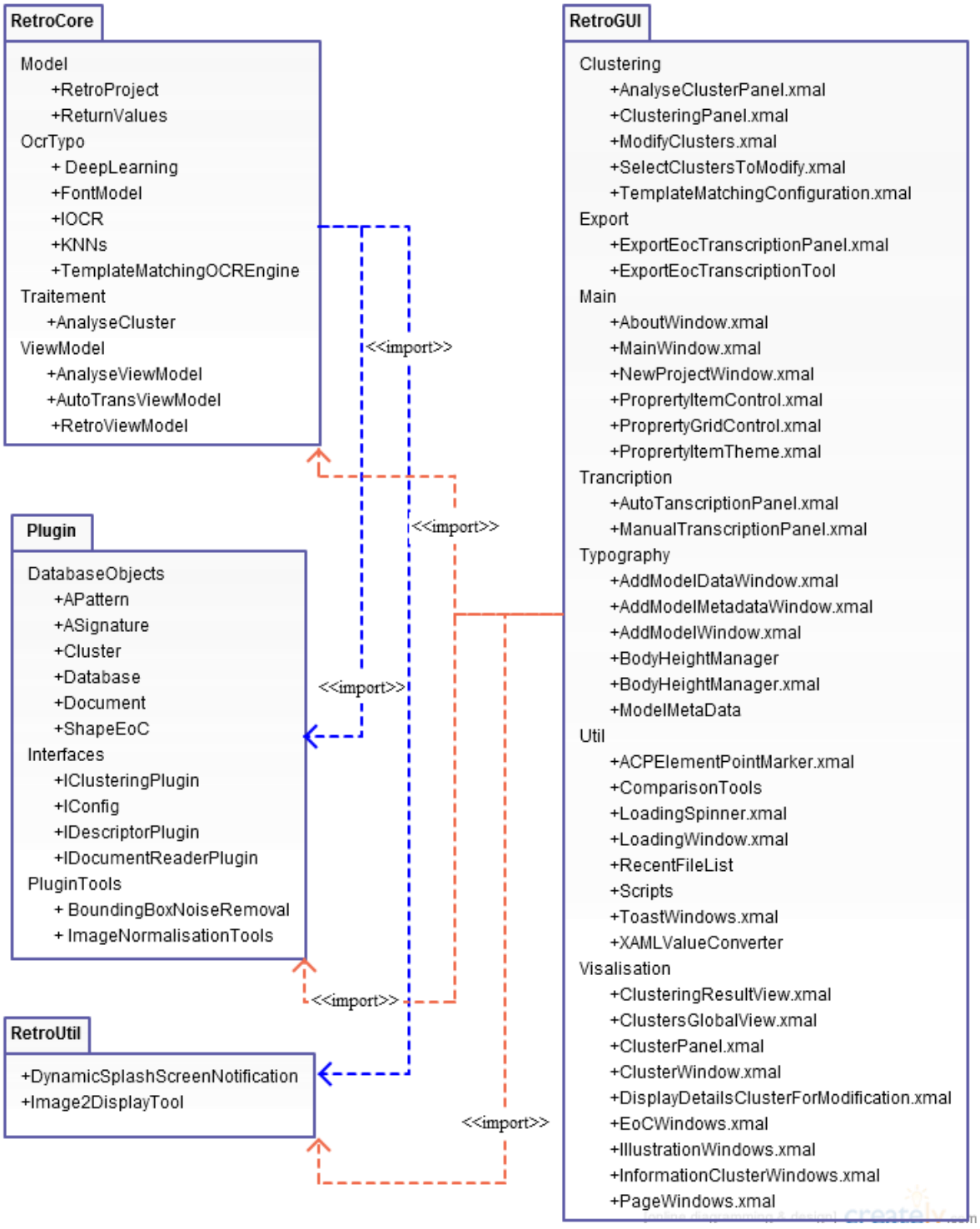
The RETRO solution comprised 4 projects :



1. Plugin	This project contains the database object model. It contains the tools to read and use a clustering method (except the Template Matching method which is defined in the **Clustering** project), a descriptor or a document reader plugin. Normally, the developer don't have to modify it.
2. RetroCore	This project is the principal project of the solution. It permit also to define a RETRO model project and the returned values. It contains the clusters and shapes characteristics and all the Template matching clustering method features.
3. RetroGUI	This project contains the principals' views of the project and the principal methods too.
4. RetroUtil	This project contains various small tools, like dynamic splash for example.

Package diagram

Here is the package diagram of RETRO:

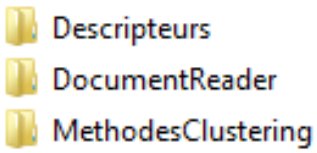


PART III
CLUSTERING METHODS & DESCRIPTORS

Plugins already implemented

RETRO contains already many clustering methods and descriptors in order to realize a clustering.

The plugins already implemented are in the directory:
ExternalLib\DLLs_MethodesClustering_Descripteurs

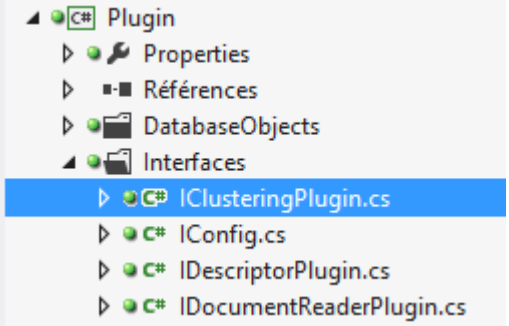


Each directory contains respectively:

- **Descriptors**: DirectionalDescriptorPlugin and ZernikeDescriptorPlugin
- **Document Reader**: AltoReaderPlugin
- **Clustering methods**: BIRCHClusteringPlugin and KMedoidClusteringPlugin plugins.

Develop a clustering method

If the developer wants to develop a new clustering method, he has to develop it according the *ICLusteringPlugin* Interface in the project **Plugin**.



This interface contains all the method prototypes that the developer has to develop to create a new clustering method.

Develop a descriptor

To develop a descriptor, the developer has to do the same thing that for a clustering method, except he has to follow the *IDescriptorPlugin* Interface to develop his own descriptor.

Develop a document reader

Actually RETRO permit to read only one type of files to realize the clustering: File ALTO + Pictures and a document reader for this file is already implemented.

However, if the developer wants to develop his own reader document, he had to consult the *IDocumentReader* Interface.

Add a clustering method

If the developer want to add his clustering method (which he has developed like it is explained in the “Develop a clustering method” part) he has to follow 2 steps:

1. Add his plugin (*.dll) in the right directory:
   ExternalLib\DLLs_MethodesClustering_Descripteurs\MethodClustering

2. Complete the Xml file ***ClusteringMethods*** presents in the ***XML_Files*** director according the given model :

```
<Method>
      <Name>Name of the clustering method to add</Name>
      <Description>Write here the description of the clustering
      method to add.
      </Description>
      <Path>
      ..\\..\\..\\ExternalLib\\DLLs_MethodesClustering_Descripteur
      s\\MethodesClustering\\PluginOfTheClusteringMethodToAdd.dll
      </Path>
</Method>
```

Then, the clustering method will be automatically added to RETRO and will be available for the user to realize a clustering.

Add a descriptor

If the developer want to add his clustering method (which he has developed like it’s explain in the “Develop a clustering method” part) he has to follow 2 steps:

1. Add his plugin (*.dll) in the right directory:
   ExternalLib\DLLs_MethodesClustering_Descripteurs\Descripteurs

2. Complete the Xml file ***Descriptors*** presents in the ***XML_Files*** director according the given model :

```
<Descriptor>
      <Name>Name of the descriptor to add</Name>
      <Description>Write here the description of the descriptor to
add.
      </Description>
      <Path>
      ..\\..\\..\\ExternalLib\\DLLs_MethodesClustering_Descripteur
      s\\MethodesClustering\\PluginOfTheDescriptorToAdd.dll
      </Path>
</Descriptor>
```