# EMF Index

EMF Index is a technique for using EMF Annotations to determine how an instance of an EMF model should be indexed using Apache Lucene.

## Annotations

The annotations defined for EMF Index are as follows:

Source: http://www.cohesionforce.com/search

Details:

Key: tokenize Value: N/A

Key: recurse Value: N/A

Key: index Value: N/A

The annotations can be applied in three different places:

1. EClass – The index detail entry is used to indicate that instances of this class should be indexed as a unique document with Apache Lucene. The unique document will always include the following terms:

* URI of the containing Resource
* FragmentURI in the containing Resource to the class instance
* EClass name of the class instance

2. EAttribute – The tokenize detail entry is used for EString attributes to indicate that the value should be tokenized before indexing.

3. EReference (containment or non-containment) – The recurse detail entry is used to specify that the object referenced should also be folded into the same document as the class instance. This allows a hierarchical structure to be indexed in a flat document. An EReference marked with the index annotation will store the fragment URI of the referenced object.

EAttributes and EReferences with a non-zero Upper Bound will result in multiple indexes with the same key. This behavior is supported by Lucene.

## Application Programing Interface

The following API is provided to index EMF instances that have been annotated as described above:

**void** initialize(String directory)

Initializes the Lucene index in the given directory. Creates a new index if one does not currently exist in the directory.

**void** clearIndex()

Clears all documents from the index

**int** getDocumentCount()

Returns the count of documents in the index

**void** indexContents(EObject obj)

Iterates through the contents of the object (inclusive) and creates a document for each EObject marked with the “index” annotation

**void** createDocument(EObject obj)

Creates a document for the EObject if marked with the “index” annotation

**void** deleteDocument(EObject obj)

Deletes a document matching the EObject

The following API is provided to search for documents that have been indexed:

List<SearchResult> search(EClass eclass)

Returns a list of Search Results that match the class

List<SearchResult> search(EAttribute attr, String value)

Returns a list of Search Results that match the attribute and the value

List<SearchResult> search(EClass eclass, EAttribute attr, String value)

Returns a list of Search Results that match the class, attribute, and value