

INTRODUCTION TO EMF

Creating Model using EMF

This is the basic method of creating the Model instance using EMF (Eclipse Modelling Framework).

In this tutorial we are going to explain the following,

1. Creation of Ecore Model, Generation of GenModel from Ecore
2. Running the Model Instance by generating the code from GenModel.

The EMF project is a modeling framework and code generation facility for building tools and other applications based on a structured data model. From a model specification described in XMI, EMF provides tools and runtime support to produce a set of Java classes for the model, along with a set of adapter classes that enable viewing and command-based editing of the model, and a basic editor.

Our Domain model used to showcase this use case is as shown below in fig.1

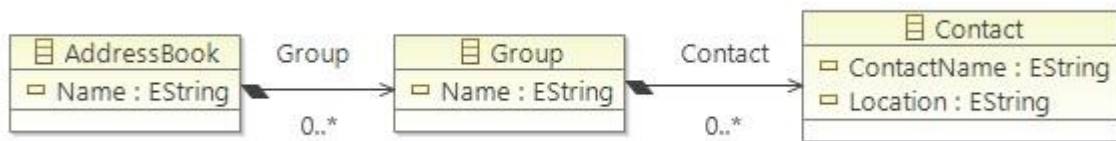
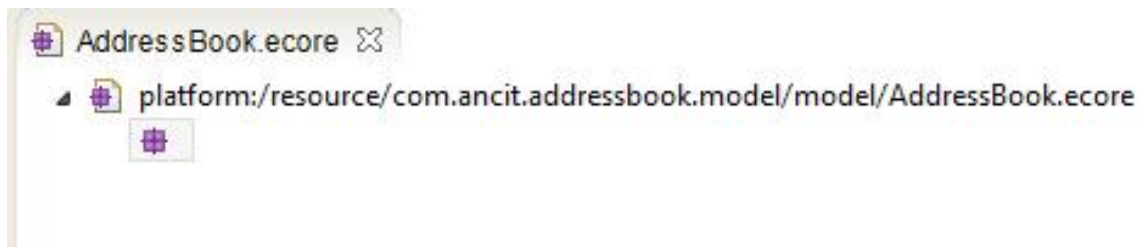


Fig 1: Model used in this Tutorial

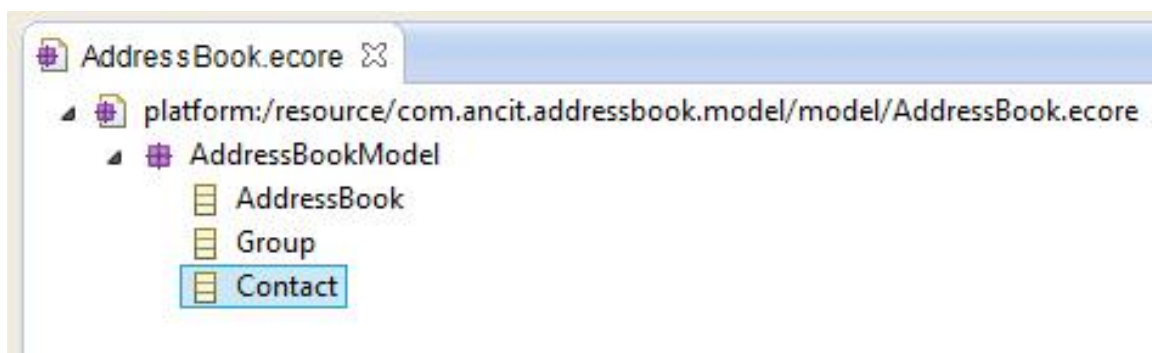
CREATION OF ECORE MODEL, GENERATION OF GENMODEL FROM ECORE:

1. Create a new Empty EMF Project by File->New-> Project -> Empty EMF Project (Under Eclipse Modelling Framework). Then click Next button, on the next page give the project name as “com.ancit.addressbook.model” and click Finish button.
2. Now right click model folder under the created project in package explorer and select New-> Other -> Ecore Model (under Eclipse Modelling Framework). Click Next, give file name as “AddressBook.ecore” and click Finish Button. An Ecore model is created under model folder of our project.
3. Now open the “AddressBook.ecore” it will display a tree as given below



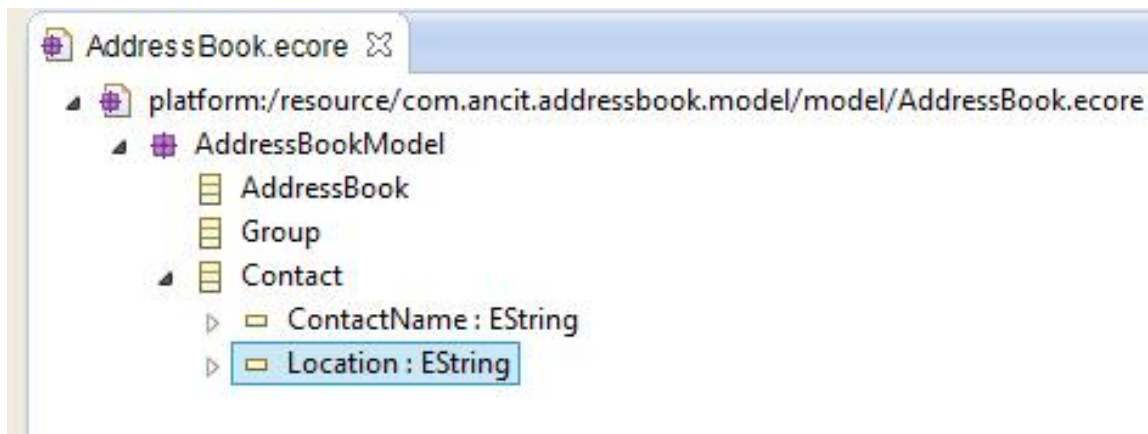
Double click the leaf node of the tree to open the properties view. Enter the name value as “AddressBookModel”, Ns Prefix value as “AddressBook” and NS URI value as “<http://www.ancit.org/addressbook>”.

4. Right Click the AddressBookModel node and select New Child -> Class. In the properties view give the class name as AddressBook.

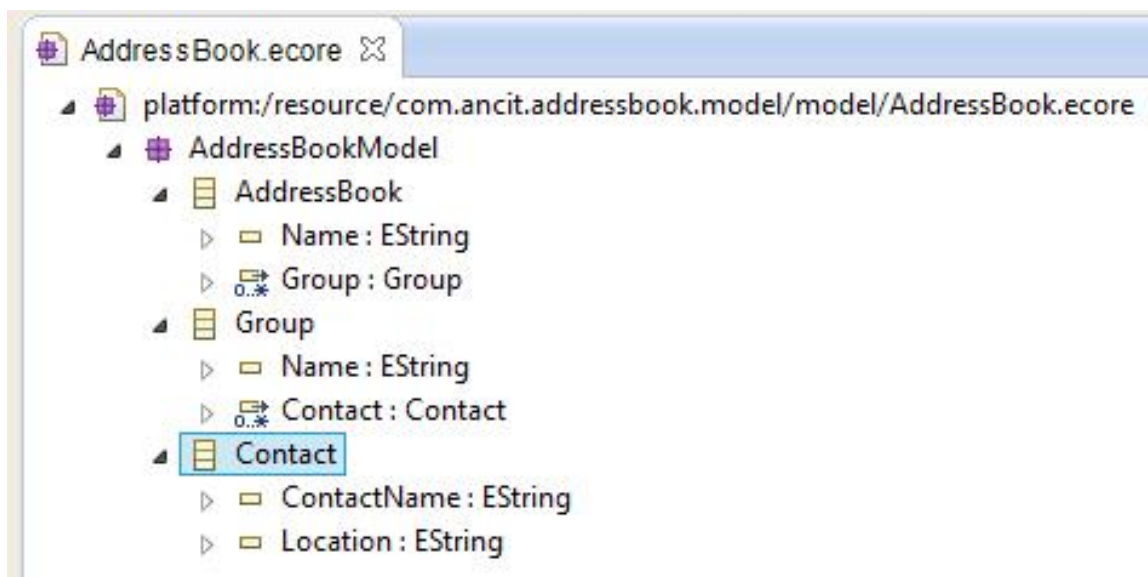


Similarly create two other classes namely Group and Contact. Now your AddressBook.ecore should look something like the above image.

5. Now right click the contact node and select new child- > EAttribute. On the properties view give the name value as ContactName and select the EType as EString [java.lang.String]. On selecting this EType value the EAttribute Type value also gets updated with the same value. Similarity create another EAttribute named Location. Now your AddressBook.ecore should look something like this.

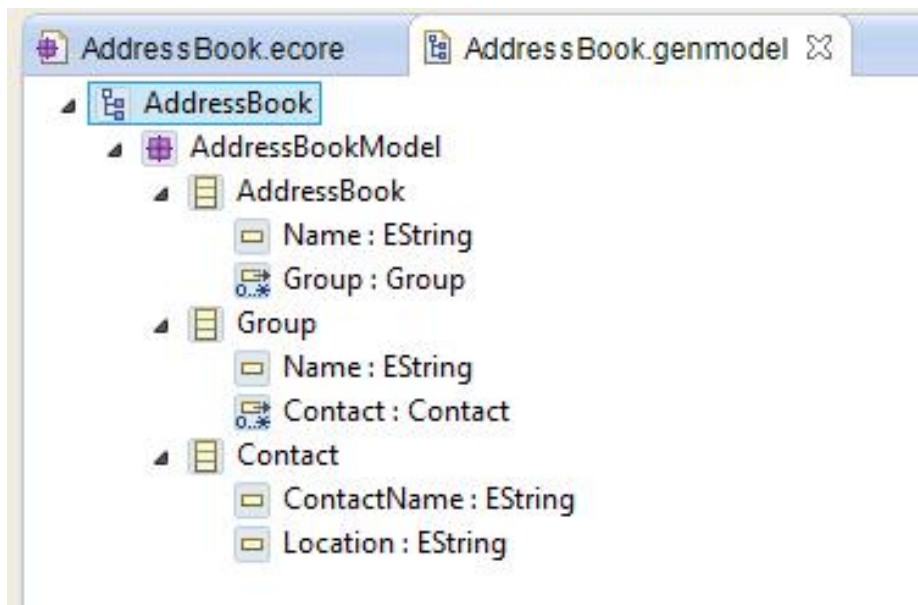


6. Now right click "Group" node and select New Child -> EReference. On the properties view enter the name value as "Contact", choose the Etype value as "Contact" and Containment value as "true".



Now set the Lower Bound value to 0 and Upper Bound value to -1. The value -1 indicates * in this case. Similarly create an EReference for AddressBook node named Group. Additionally create EAttribute for both AddressBook and Group node named Name. Now your AddressBook.ecore should look something like the above image.

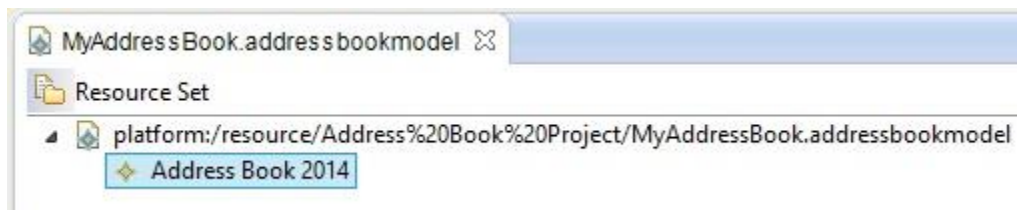
7. Let us now create EMF Generator Model for our Ecore. To do this right click the AddressBook.ecore select New->other -> EMF Generator Model (under Eclipse Modelling Framework). Click next and give the File name value as "AddressBook.genmodel" then click next and select "Ecore Model" now click next and browse for the AddressBook.ecore then click load button. With successful loading click next -> select our AddressBookModel and click finish button. An EMF genmodel gets created under model folder of our project. You can see the classes and its attributes same as in the AddressBook.ecore. The AddressBook.genmodel should look something like this



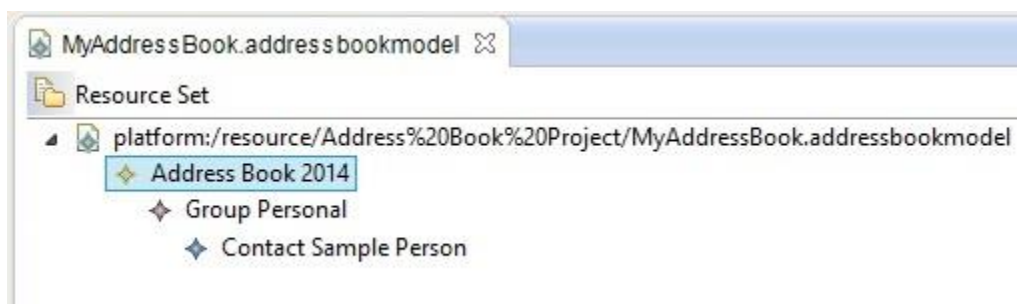
8. Now let us generate the code using the AddressBook.genmodel. To generate the source code, right click the root node of AddressBook.genmodel and select "Generate All". This will generate model, edit, editor and test code in the workspace.

RUNNING THE APPLICATION:

1. Right Click the “com.ancit.addressbook.model.editor” project and select Run as -> Eclipse Application. The new instance of Eclipse Application appears. There create a new project (under General category), give its name as “Address Book Project” and click Finish. The project gets created in the Package Explorer.
2. Now right click the created project and select New -> Other. Under the “Example EMF Model Creation Wizards” category select “AddressBookModel Model” and click next. Here give the file name as “MyAddressBook.addressbookmodel” and click next. Now choose the model object as “Address Book” and click Finish button. A model instance editor gets opened with the root model object as the one as chosen in the wizard. You can set its name in properties view. To open the properties view double click the root model object. Let us give the name as 2014 in properties view. It gets updated in the model instance editor. Your output should look something like this.



3. Similarly you can create Group and Contact model element by right clicking the root model object. At last you should get something like this.



REFERENCES:

<http://www.eclipse.org/modeling/emf/>

<http://eclipsesource.com/blogs/tutorials/emf-tutorial/>

ABOUT ANCIT:

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