ECSEL Research and Innovation actions (RIA)

AMASS

Architecture-driven, Multi-concern and Seamless Assurance and Certification of Cyber-Physical Systems

AMASS Platform – Prototype Core Developers Guide

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V0.5				
V0.6				
V1.0		Final version		

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1 Executive Summary

This document is a developer guide of the OPENCERT client tool implementation. In this document the developers can find the source code installing instructions, step by step, in order to set up their workspaces to improve and implement new functionalities to the Opencert client part.

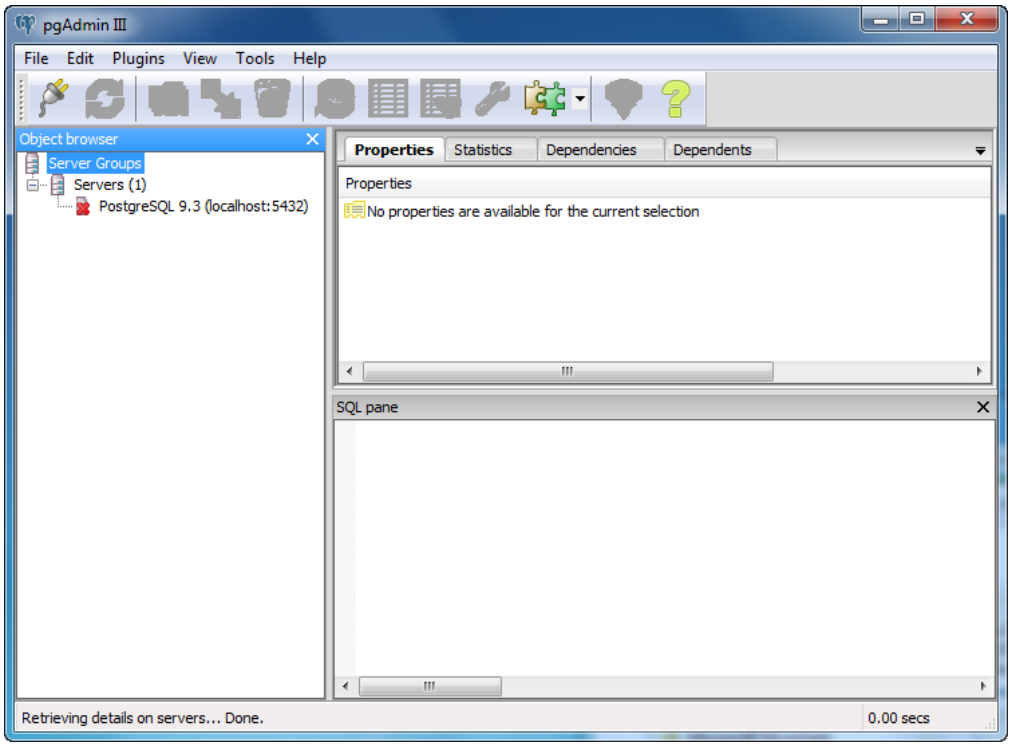
This document has been elaborated as a Fast Developer Guide. Further questions must be directed to the TECNALIA team.

2 Installation of PostgreSQL database for OpenCert

OPENCERT platform tools use PostgreSQL database and the first step is to install it.
For user convenience, PostgreSQL installation on Windows has been described in this chapter.

2.1 Installation of PostgreSQL database on Windows machine

1. Download PostgreSQL installer
    a. Go to the download section for Windows
    http://www.postgresql.org/download/windows/
    b. Click on download installer from EnterpriseDB
    c. Choose the 9.3.15 or 9.4.10 version and download it
2. Double click the installer file and follow the installation wizard.
3. Most important steps during the installation process are (among others):
    a. Definition of a password for the database super-user (his login is “postgres”).
    b. Definition of a port for PostgreSQL - the default 5432 is recommended.
    c. If the installation wizard asks you to launch Stack Builder to install additional tools, you may skip this step - no additional tools are needed.
    d. The installation may take a few minutes to complete.
4. Verify the database installation
    a. The quick way to verify the installation is to use pgAdmin application which has been installed together with PostgreSQL server.
    Please run “pgAdmin III”. The following GUI is displayed:

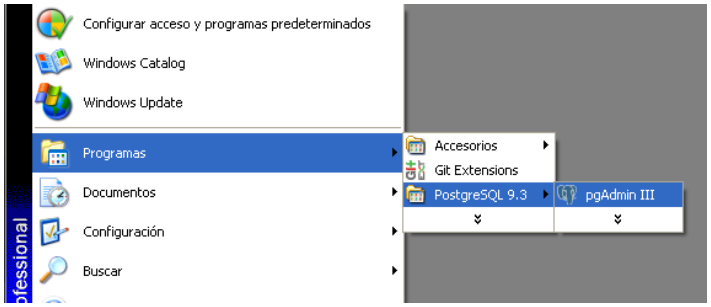


b. In the left panel, double click on **PostgreSQL 9.3** tree node. The application will ask to enter a database super-user password. Please enter the password which has been defined during PostgreSQL server installation.
c. When database objects are displayed, your database server has been installed correctly.

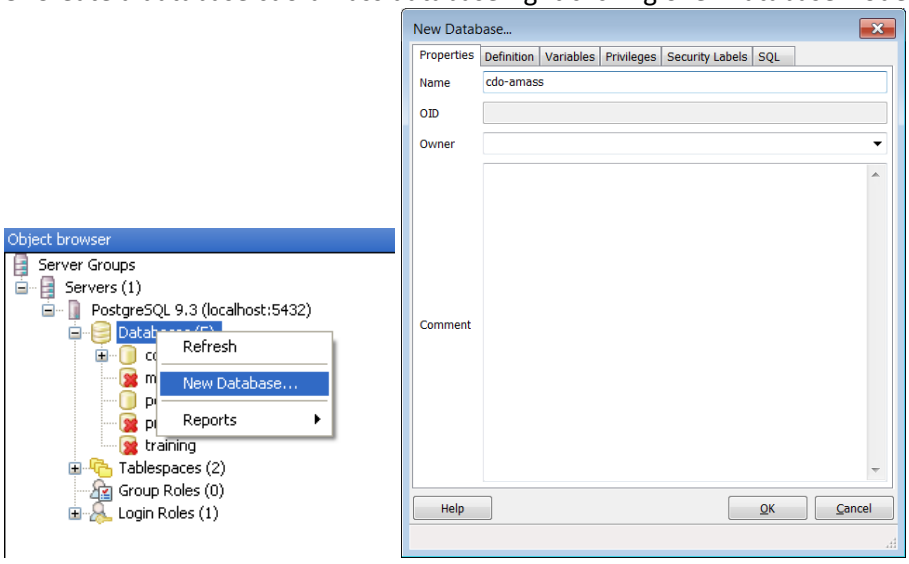
2.2 Restoring OPENCERT database in PostgreSQL

This step demonstrates how to restore a database in PostgreSQL which will store data tables used by AMASS platform tools.

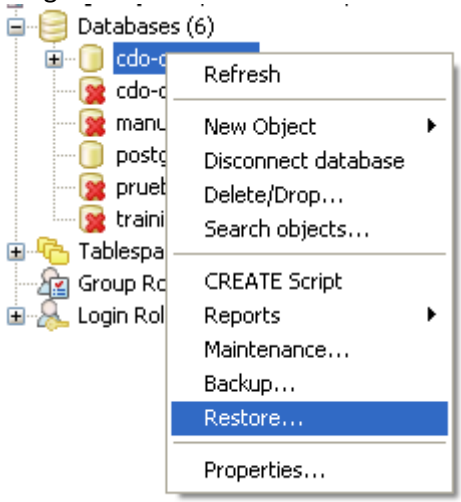
1. Launch the database administrator



3. Create a database cdo-amass database right clicking over Database Node.

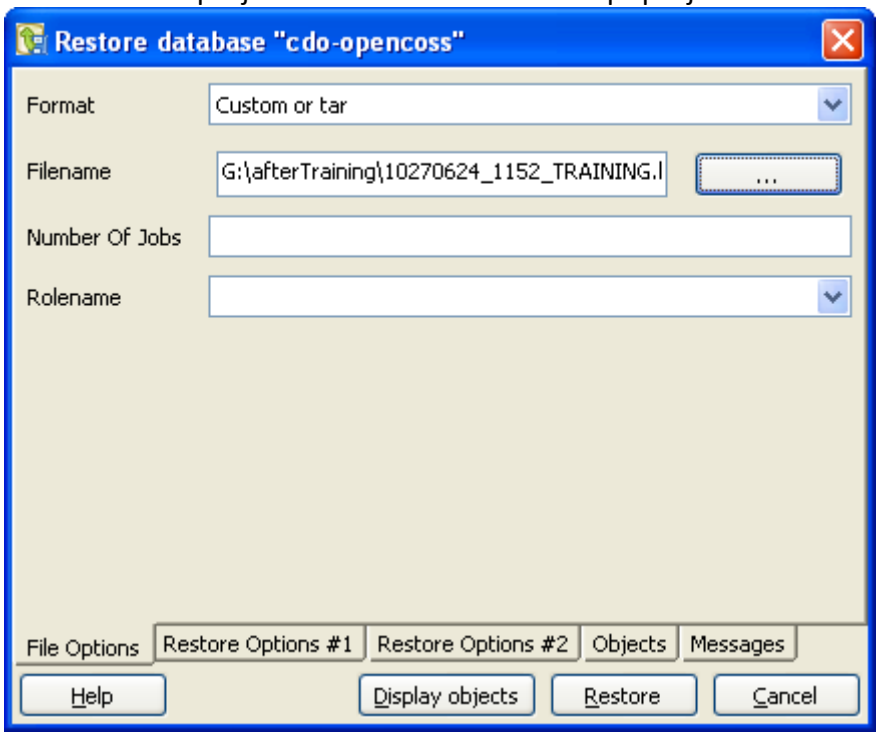


4. Right click over cdo-amass and select Restore

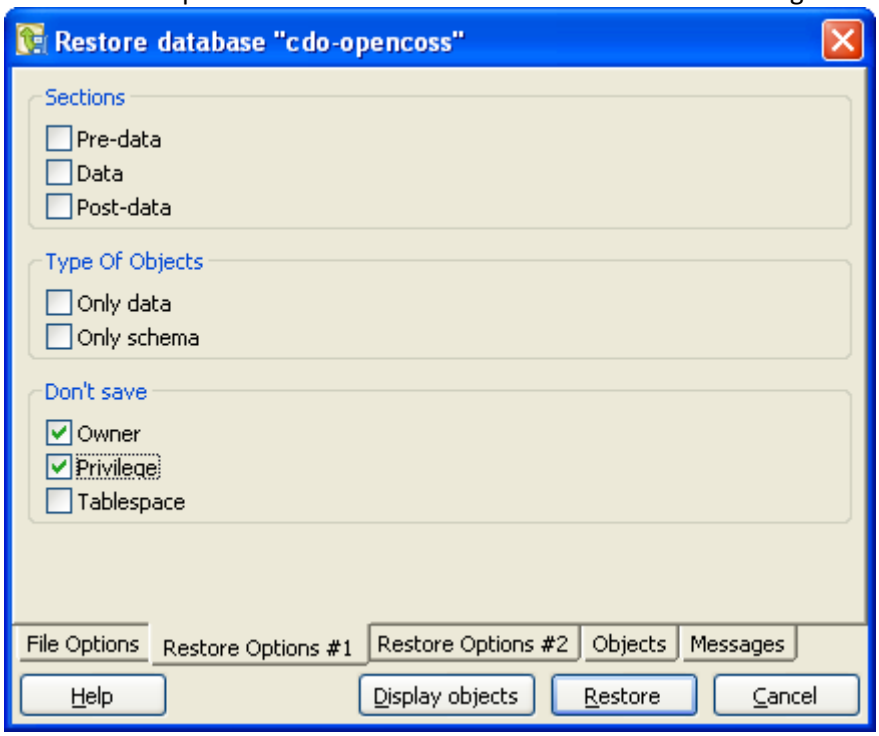


5. Select the downloaded backup file:

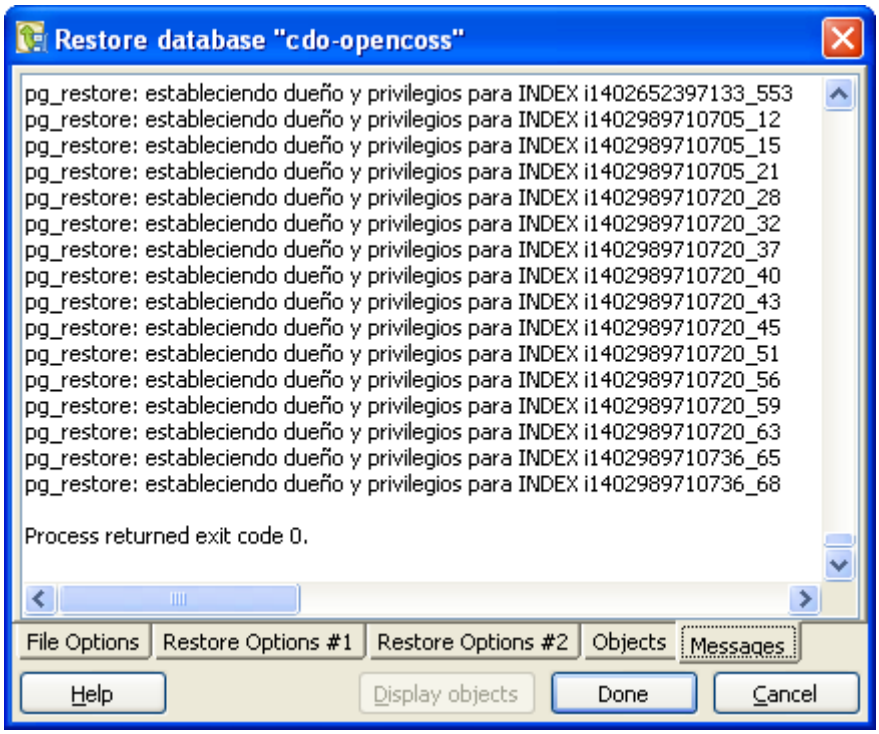
a. \WP-transversal\ImplementationTeam\PrototypeCore\Vaditation_Data\OpenCert\OpenCert1.backup →Only has ISO 26262 Standard modelled and some assurance projects created in the SafeAdapt project which can be used as examples



6. In Restore Option #1 tab check “Don’t save” owner and “Privilege” and click Restore



7. Check the process ends with the message “Process returned exit code 0” and click done.



Finally in pgAdmin application (or psql command line) execute query:

ALTER DATABASE "cdo-amass" set search_path=externaltools, public

3 Installation of the EPF composer

The installation instructions of EPF can be found in Section 1 of the EPF composer manual [1]. The last version of EPF is 1.5.18 and can be downloaded in the EPF download website[1]. The system requirements for this version are the following:

- Microsoft Windows XP SP3, 2003 SP2 (or later),Windows 7, Windows 10
- Red Hat Enteprise Linux Release 4 Update 5, Release 5 or later, (note: compat-libstdc++ is needed for RHEL5) SUSE Enterprise Linux v9 or v10
- Internet Explorer, Mozilla, or Firefox
- Java Runtime Environment 1.5, 1.6, 1.7, 1.8

EPF is a standalone Eclipse application, so once it is downloaded and unzipped, you do not need additional installation to start the work.

[1] https://eclipse.org/epf/downloads/tool/epf1.5.0_downloads.php

4 Installation Eclipse Development Environment

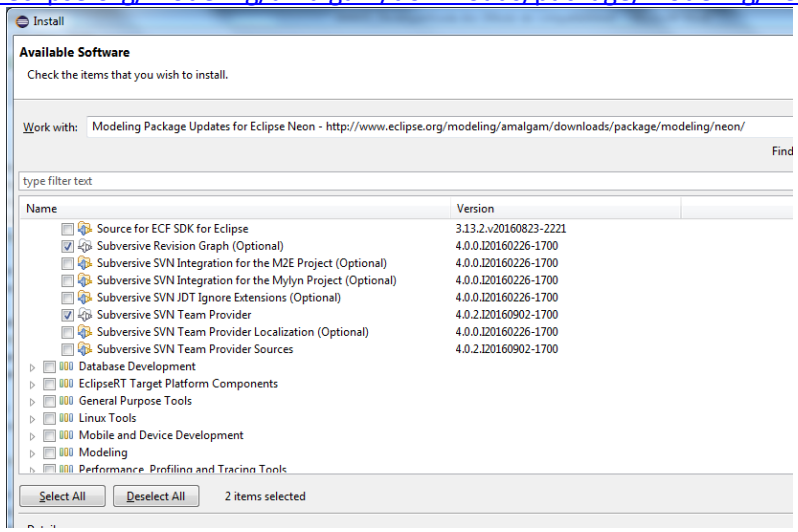
4.1 OpenCert

It is required to have installed (minimum) **Java Environment 1.8**.

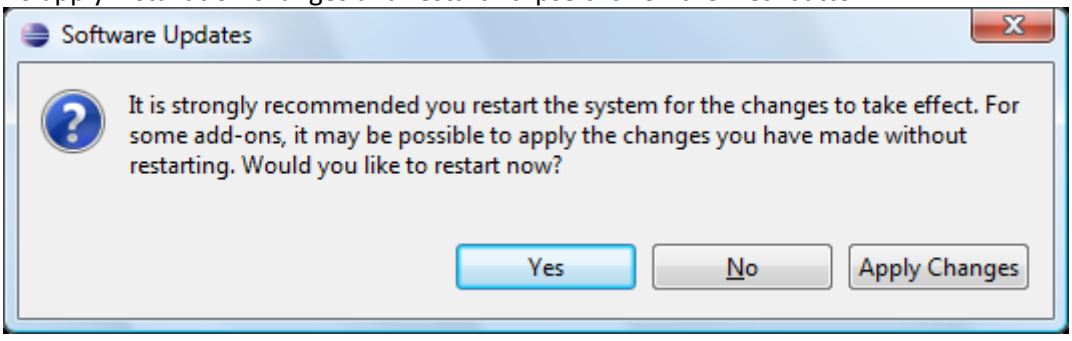
To install the full OPENCERT tool environment, follow the next steps:

1. Download Eclipse Neon from http://www.eclipse.org/downloads/packages/eclipse-modeling-tools/neon1a

2. Install Subversive (Collaboration category) from http://www.eclipse.org/modeling/amalgam/downloads/package/modeling/neon/.



3. To apply installation changes and restart Eclipse click on the 'Yes' button.

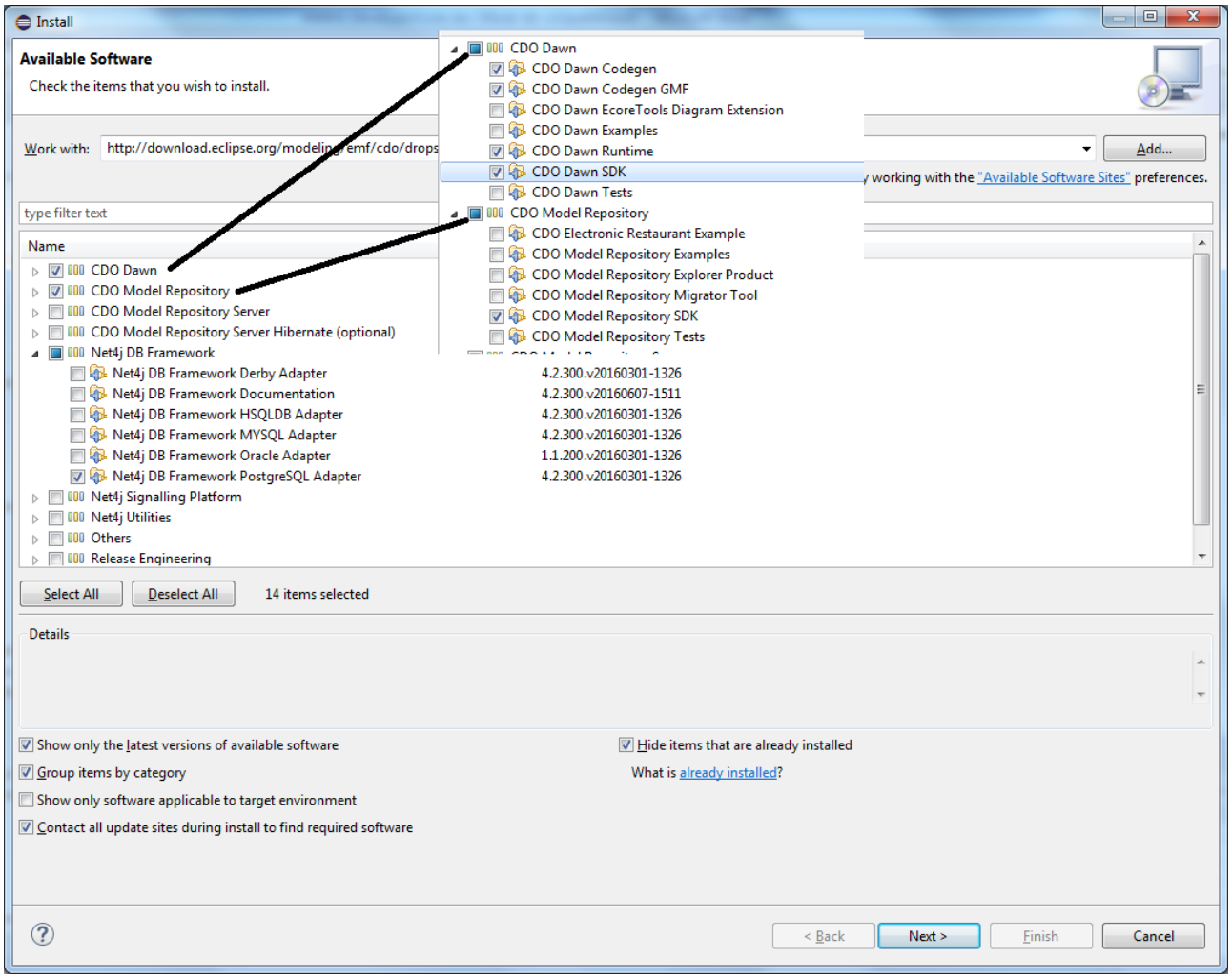


4. After Eclipse restart you'll see connectors discovery dialog which will allow you to install Subversive Connectors without registering connectors update site manually. Install the subversive Connector

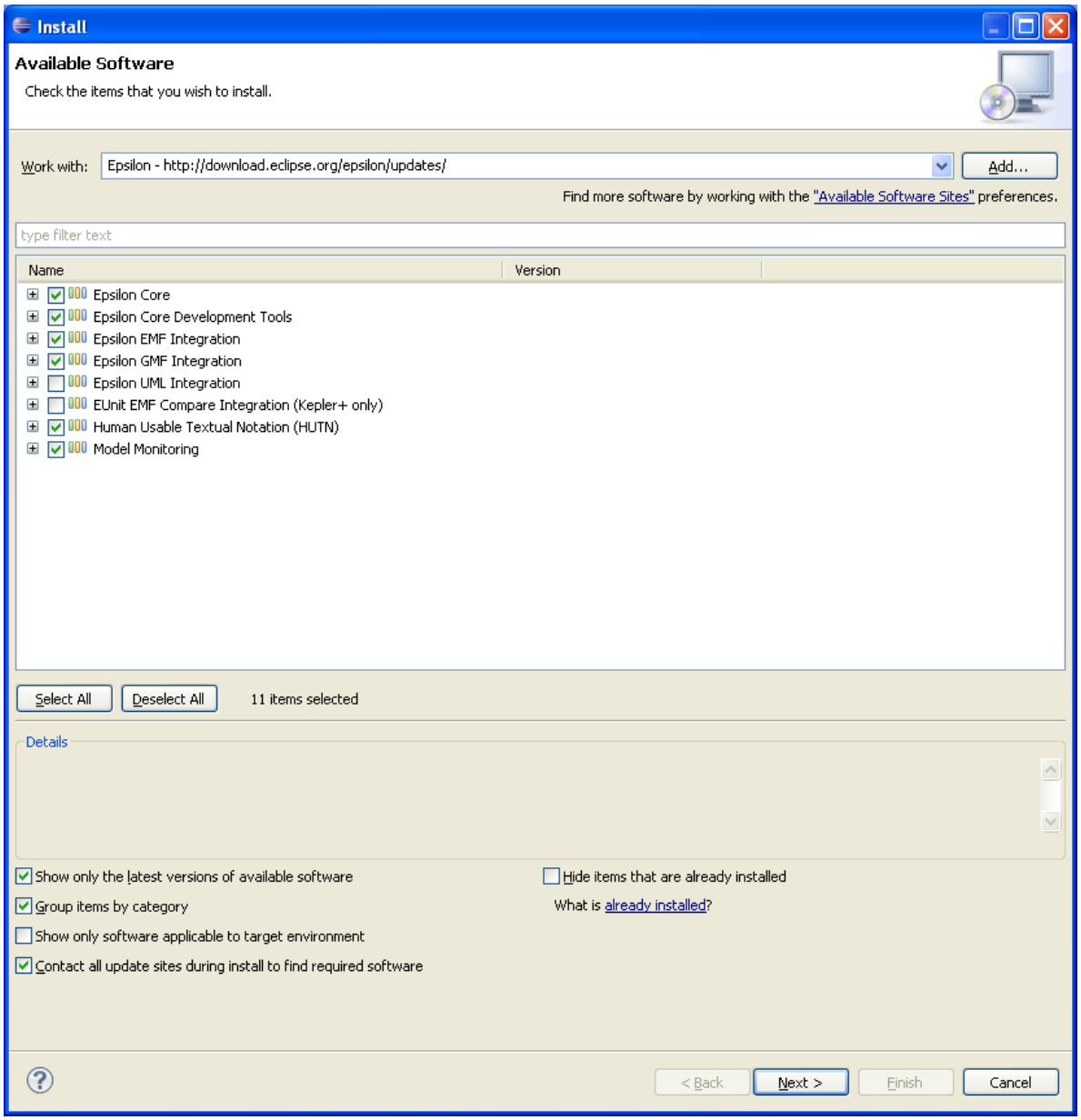
5. Open Subversive perspective and configure the data to connect with the AMASS SVN Repository (https://services.medini.eu/svn/AMASS_source) and check out all the source code.

6. Change the perspective to “Plugin Development” to see all the plugins in your workspace. Your workspace will have all the source code but with errors, now you have to install various eclipse Frameworks to solve them:

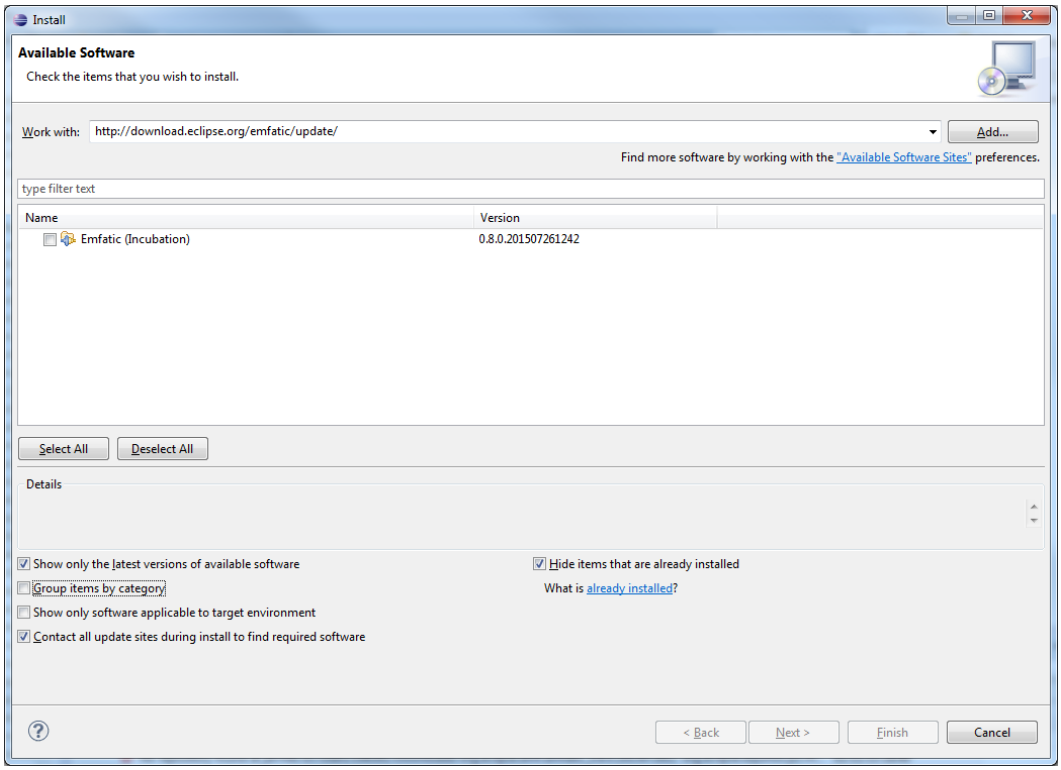
7. Install CDO from http://download.eclipse.org/modeling/emf/cdo/drops/R20160607-1209/ with the option selected in the screenshot below:



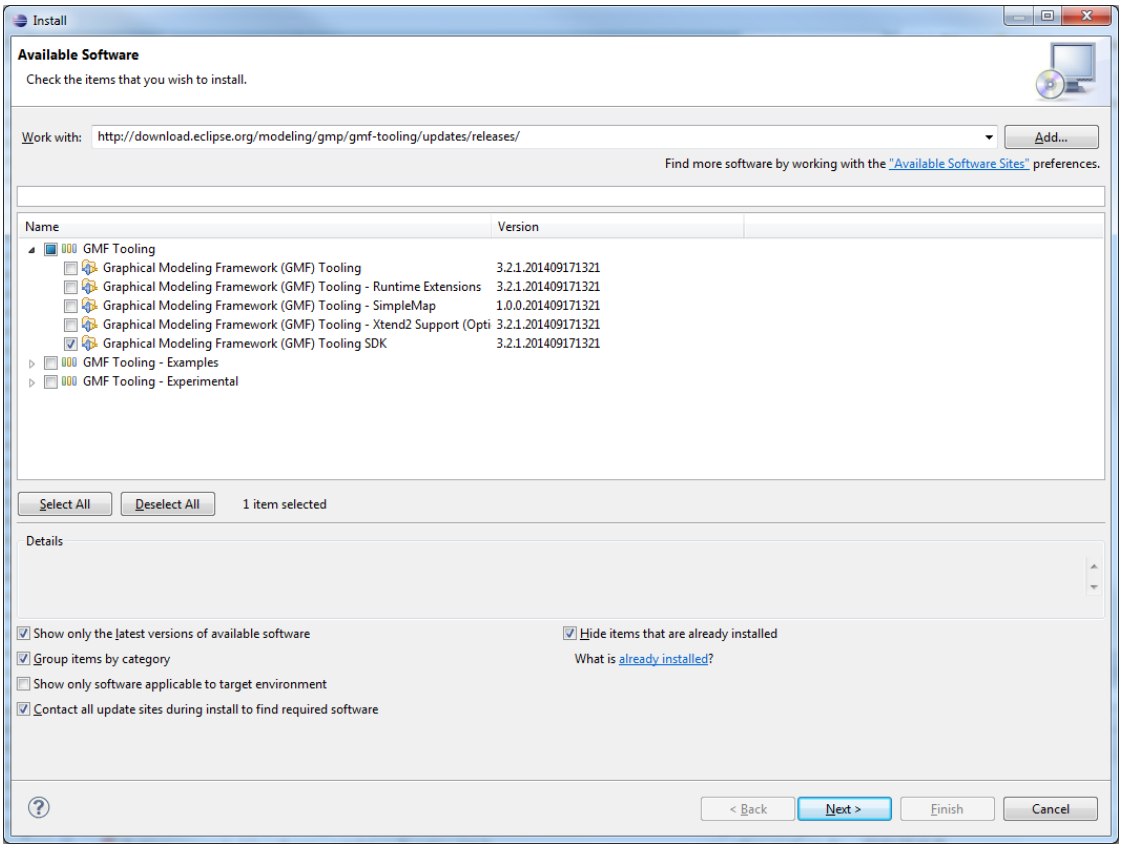
8. Install the Epsilon Framework from http://download.eclipse.org/epsilon/updates/



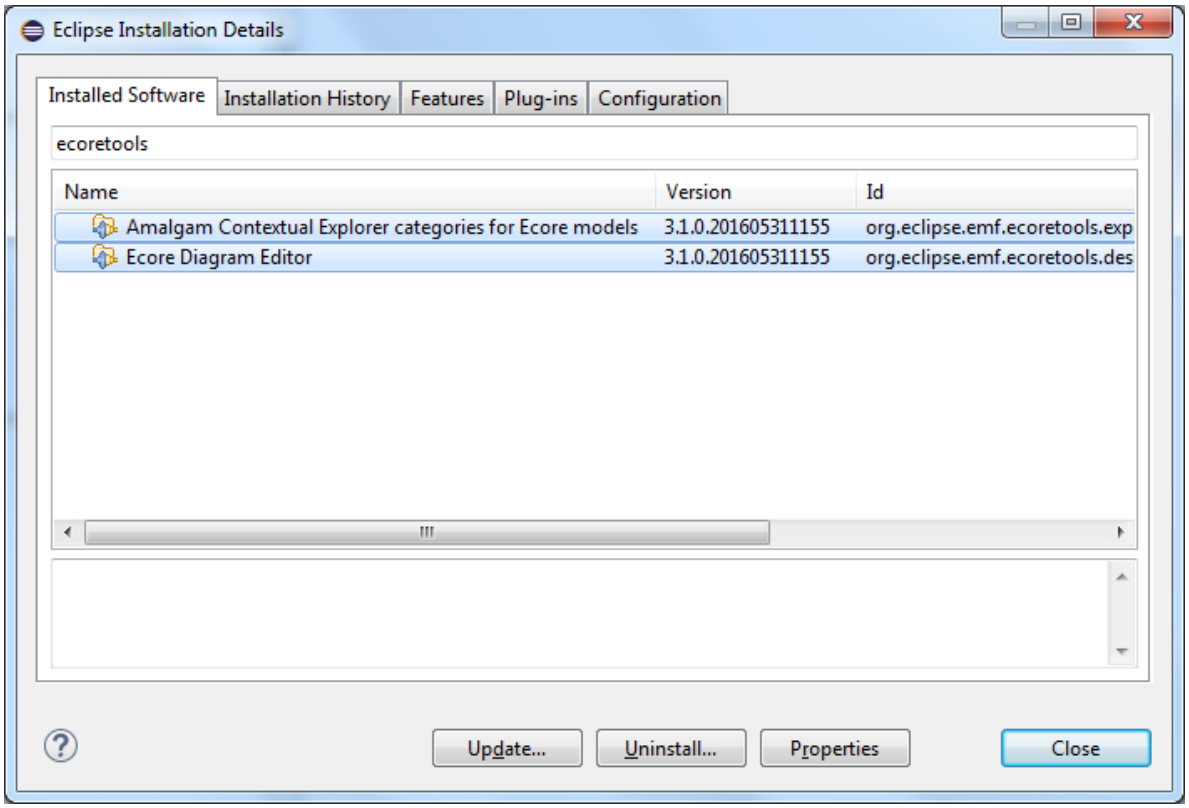
9. Install the Emfatic from Emfatic - http://download.eclipse.org/emfatic/update/ (Uncheck Group items by category option)



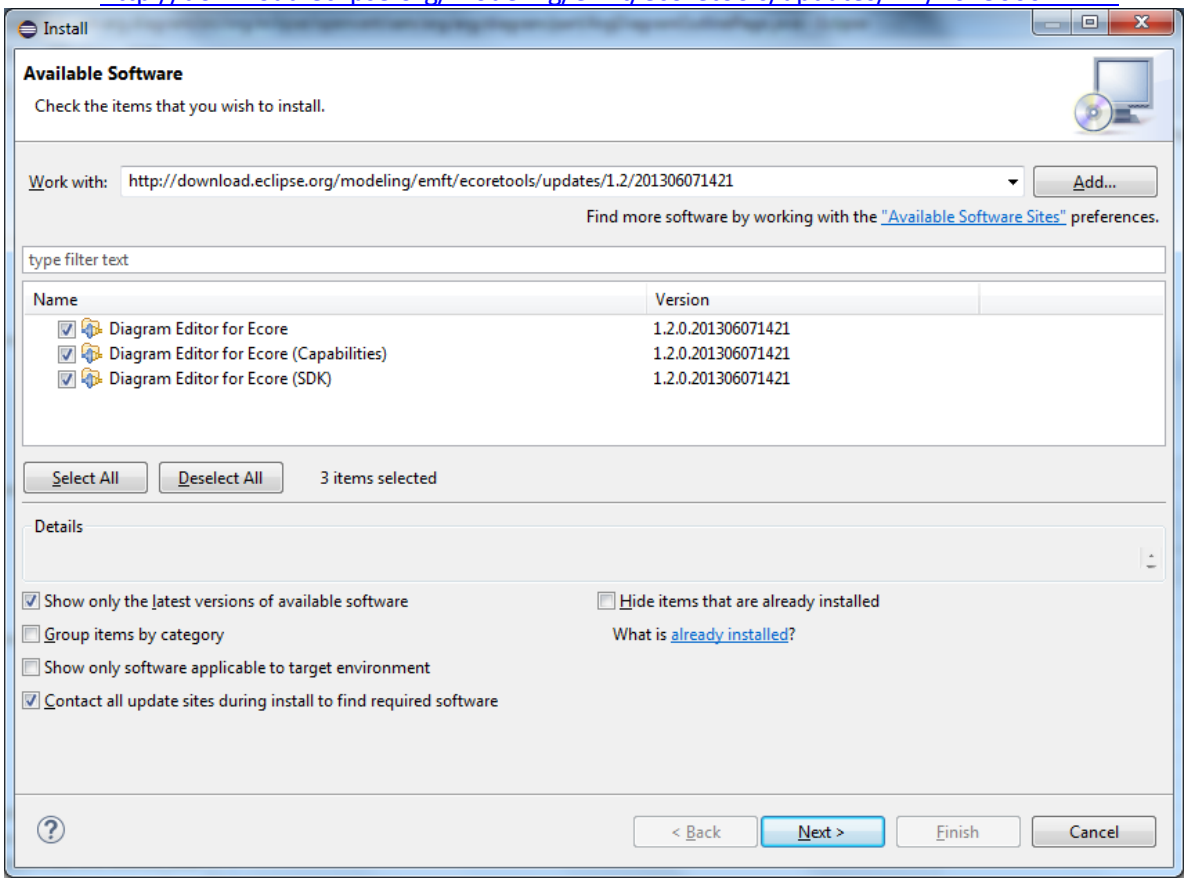
10. Now install the GMF tooling from http://download.eclipse.org/modeling/gmp/gmf-tooling/updates/releases/



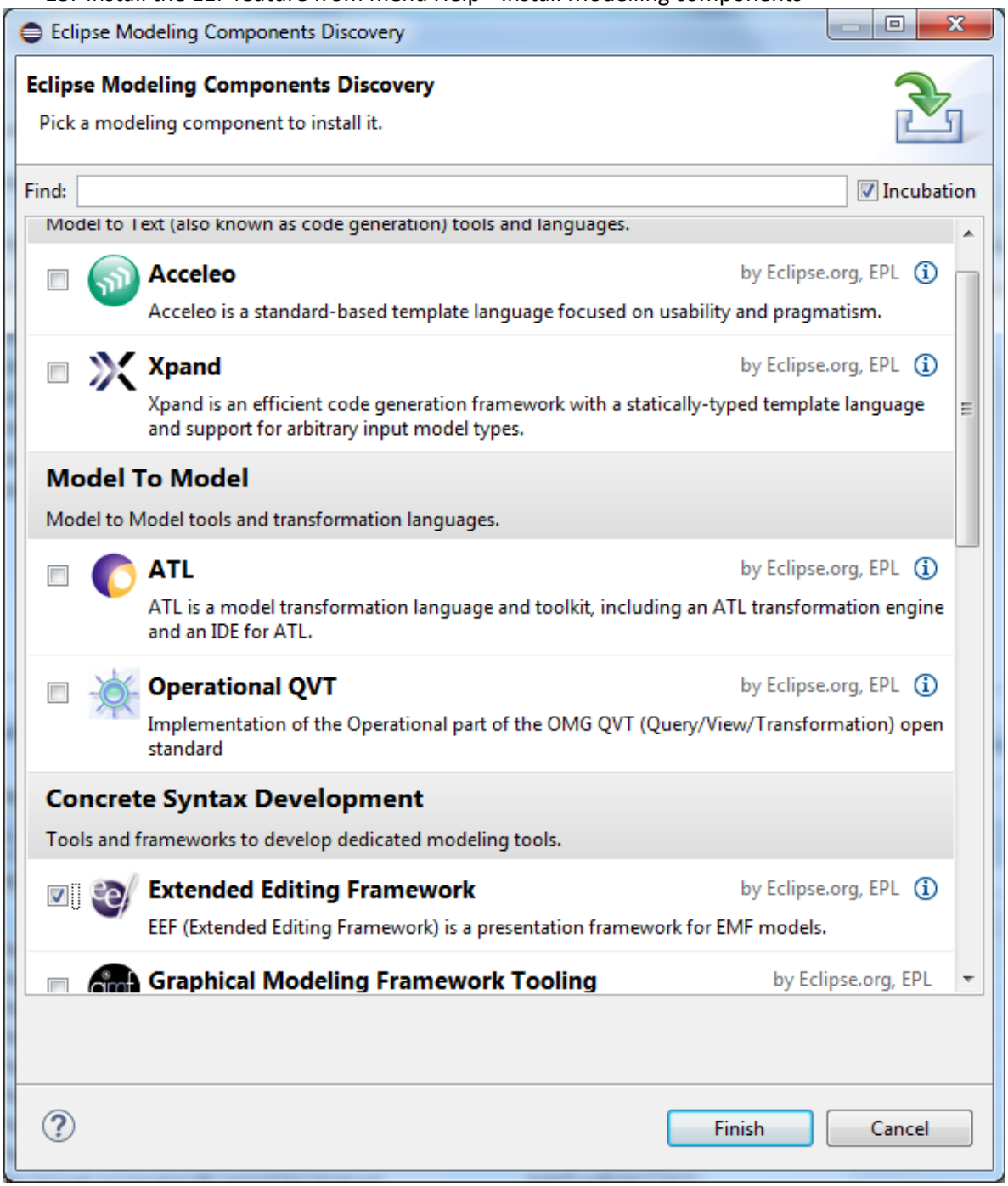
11. Uninstall the following features using menu Help->Installation Details



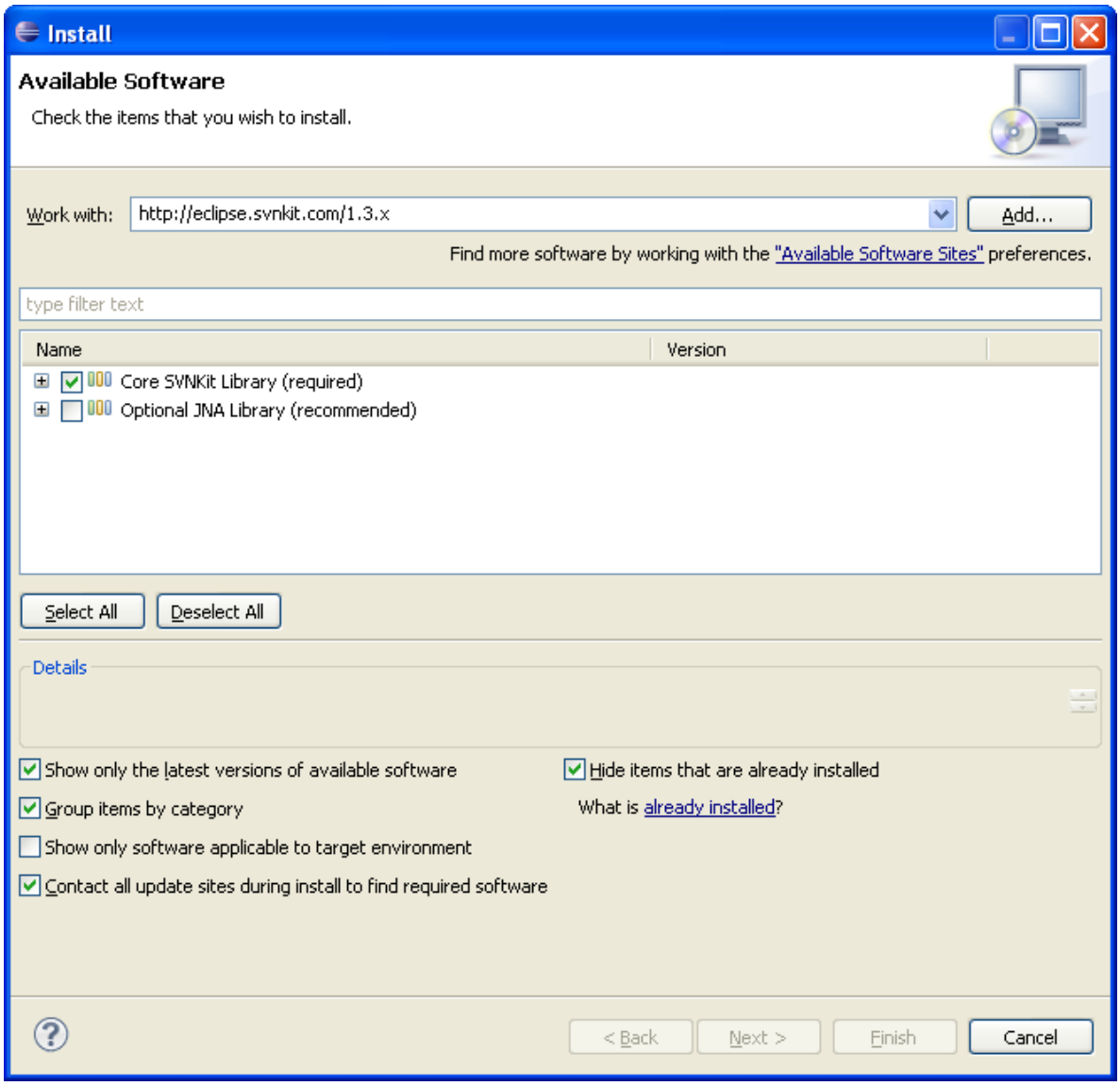
12. Install all the features from http://download.eclipse.org/modeling/emft/ecoretools/updates/1.2/201306071421



13. Install the EEF feature from menu Help->Install Modelling components



14. Install SVNKIT version 1.3.8, the newest versions has errors with SSL therefore we choosed this one, from http://eclipse.svnkit.com/1.3.x

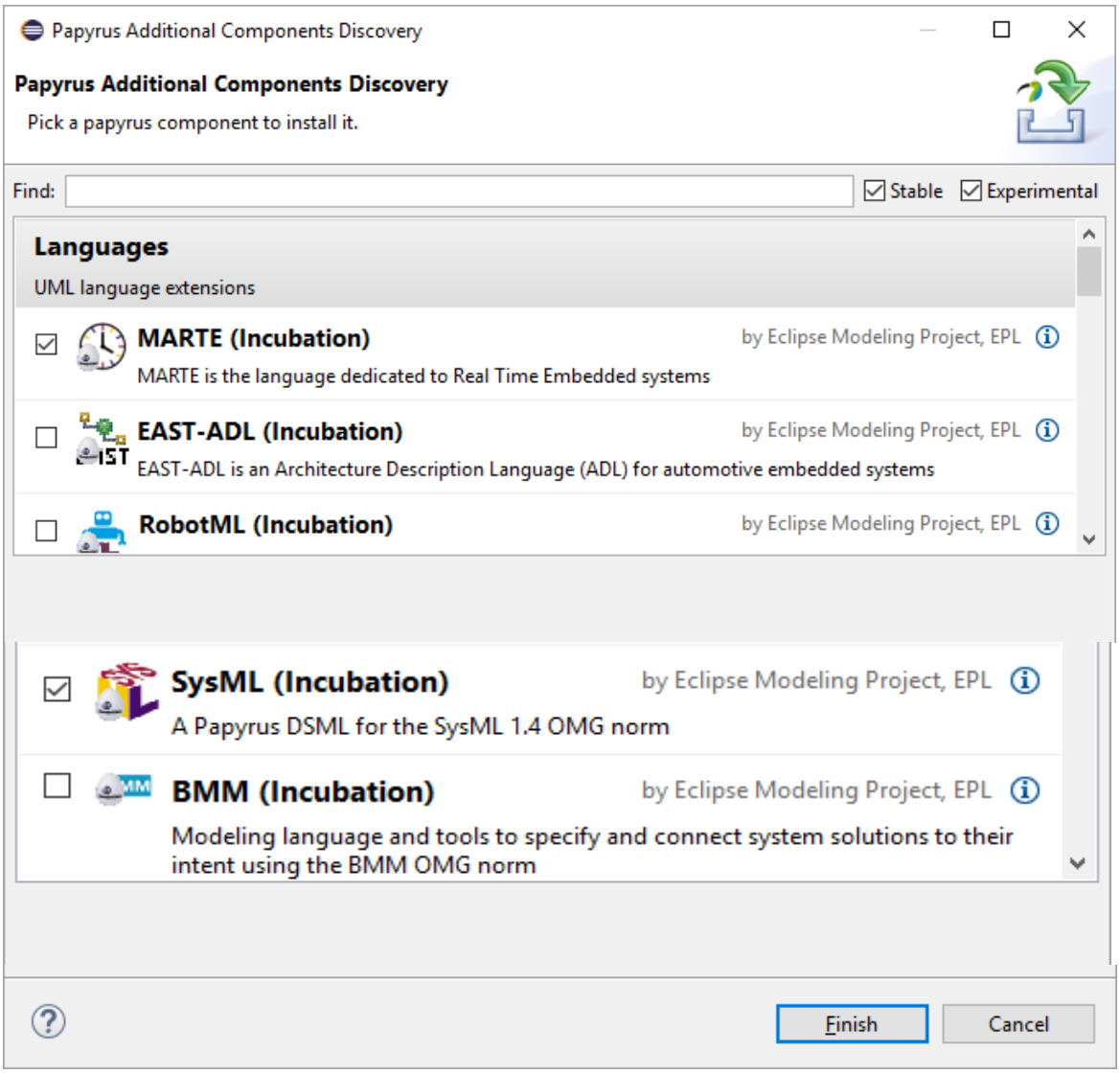


If the updatesite is down, try downloading from https://www.svnkit.com/org.tmatesoft.svn_1.3.8.eclipse.zip and using the downloaded local archive to install it.

NOW all the should work. If not, please contacte me (angel.lopez@tecnalia.com) for support.

4.2 Papyrus

1. Install *Papyrus* features from menu Help->Install Modelling components
2. Restart Eclipse
3. Install *MARTE and SysML* from menu Help->Install Papyrus Additional Componenst (see figure below)



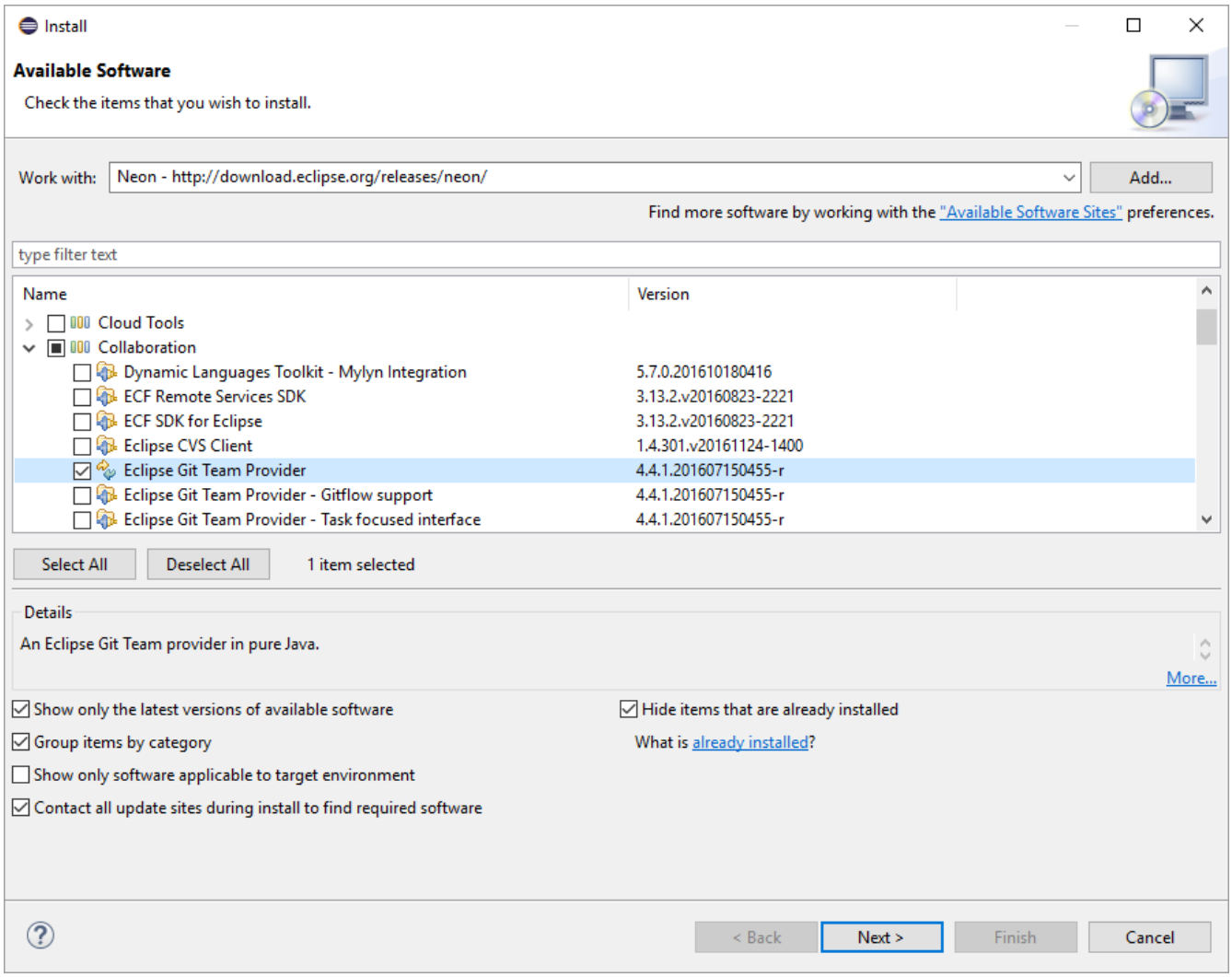
4.3 CHESS

CHESS plugins are currently available at the Polarsys GIT server:

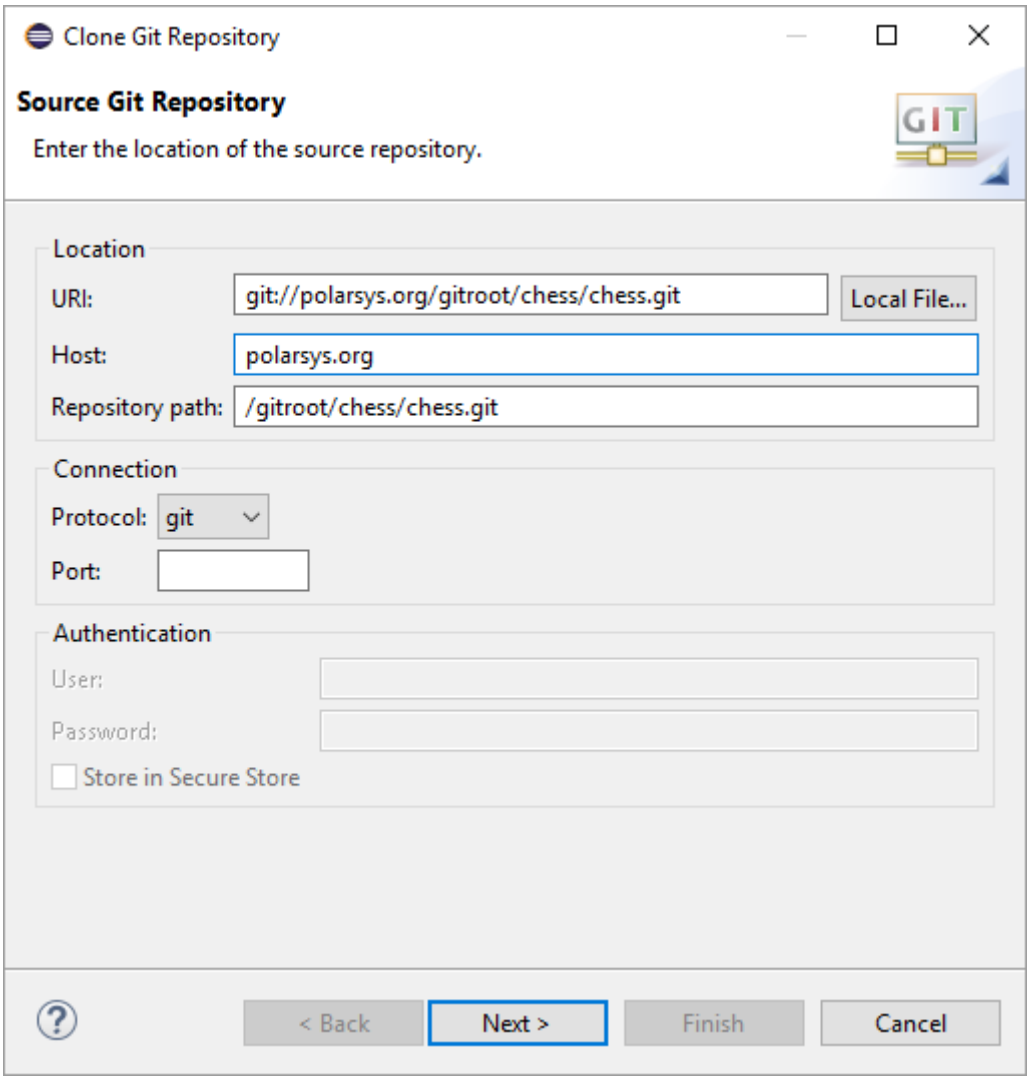
git://polarsys.org/gitroot/chess/chess.git

To import the CHESS plugins in the workspace the CHESS git repository has to be cloned first:

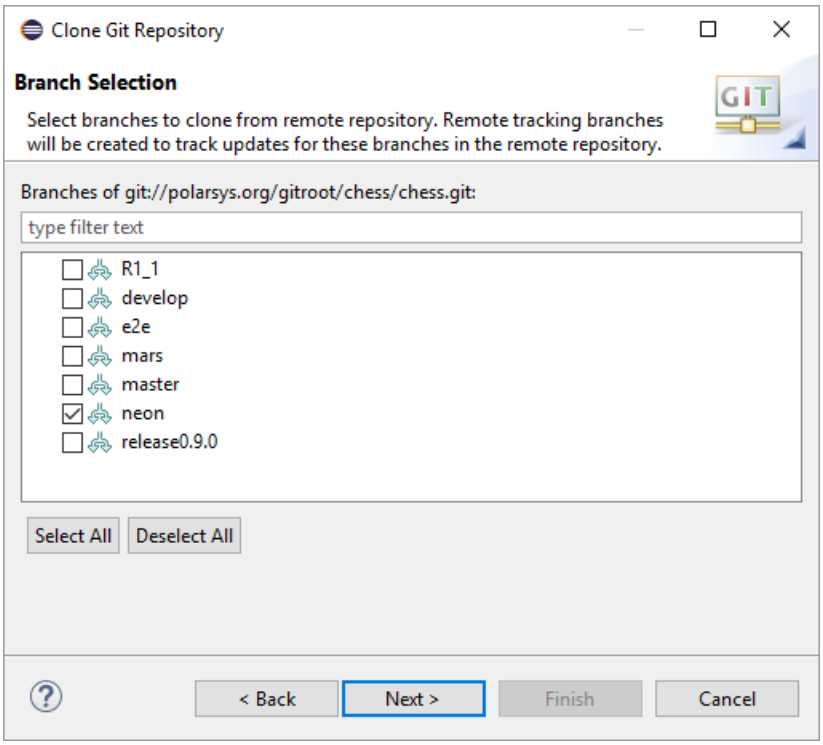
1. install Git client for Eclipse



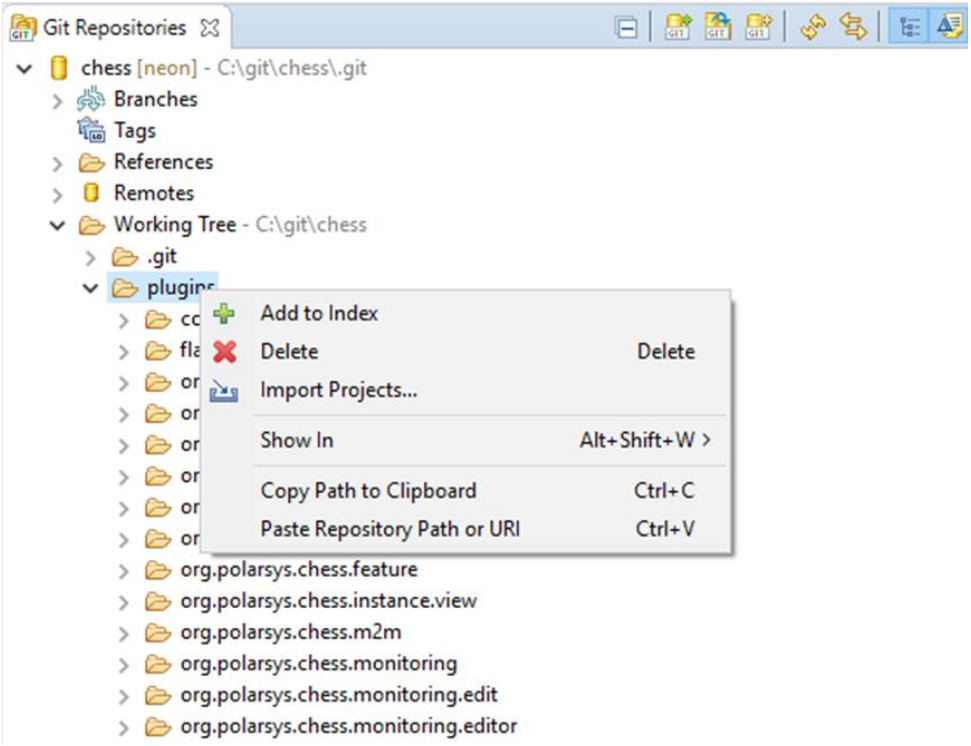
2. restart Eclipse
3. open the Git Repoitories View
4. select “Clone a Git Repository…” and fill the fields as in the figure below



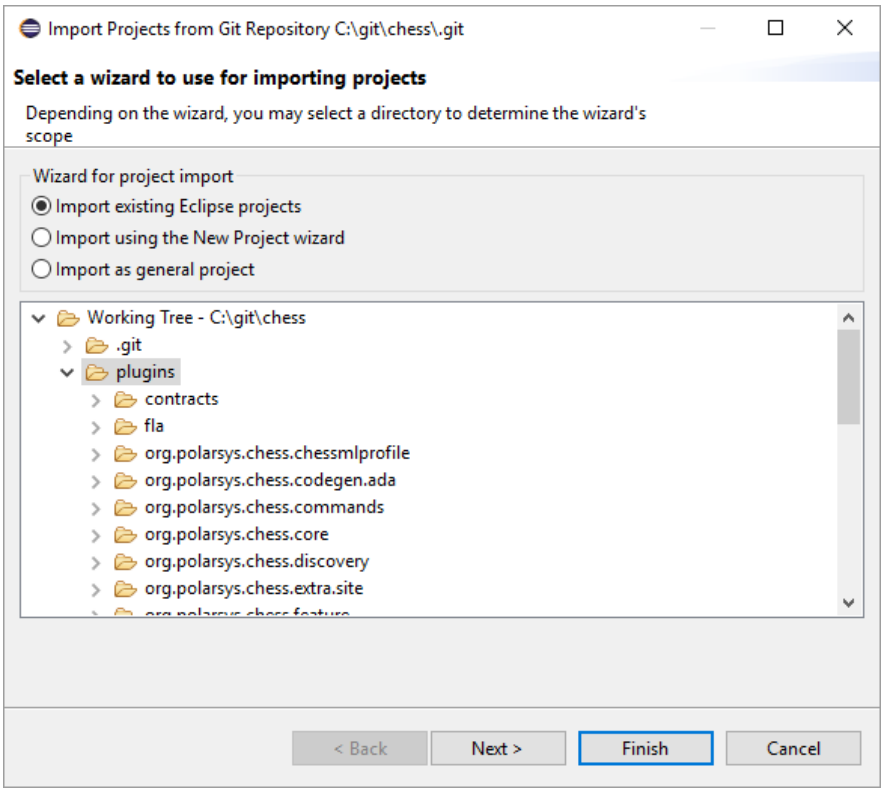
5. select *neon* branch



6. Choose a local destination and press *Finish*
7. Open the chess repositoy and Right click on the *WorkingTree\plugin* folder and select *Import Projects…*



8. Select *plugins* folder and then click *Next*



9. Select the following plugins and then click *Finish* to import them in the workspace
    a. org.polarsys.chess.chessmlprofile
    b. org.polarsys.chess.core
    c. org.polarsys.chess.service
    d. org.polarsys.chess.validator
    e. org.polarsys.chess.wizard
10. Install *Acceleo* features from menu Help->Install Modelling components
11. Restart Eclipse.

In addition, the following CHESS plugins enabling contract-based design and its integration with Opencert can be retrieved from https://services.medini.eu/svn/AMASS_source/CHESS/contracts (see description above about svn connection in Eclipse):

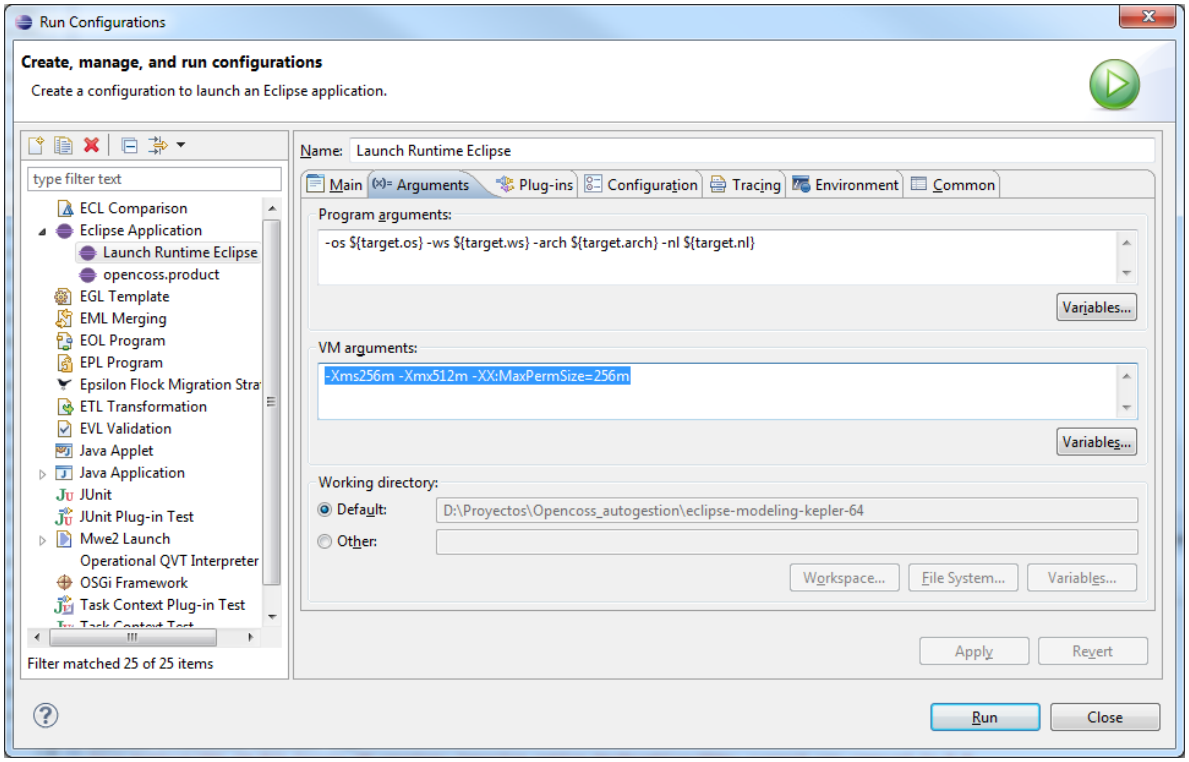
    a. org.polarsys.chess.contracts.chessextension
    b. org.polarsys.chess.contracts.integration
    c. org.polarsys.chess.contracts.profile
    d. org.polarsys.chess.contracts.transformations
    e. org.polarsys.chess.contracts.validation

CHESS plugins can then be executed as Eclipse application, together with the other plugins available in the workspace (see next section).

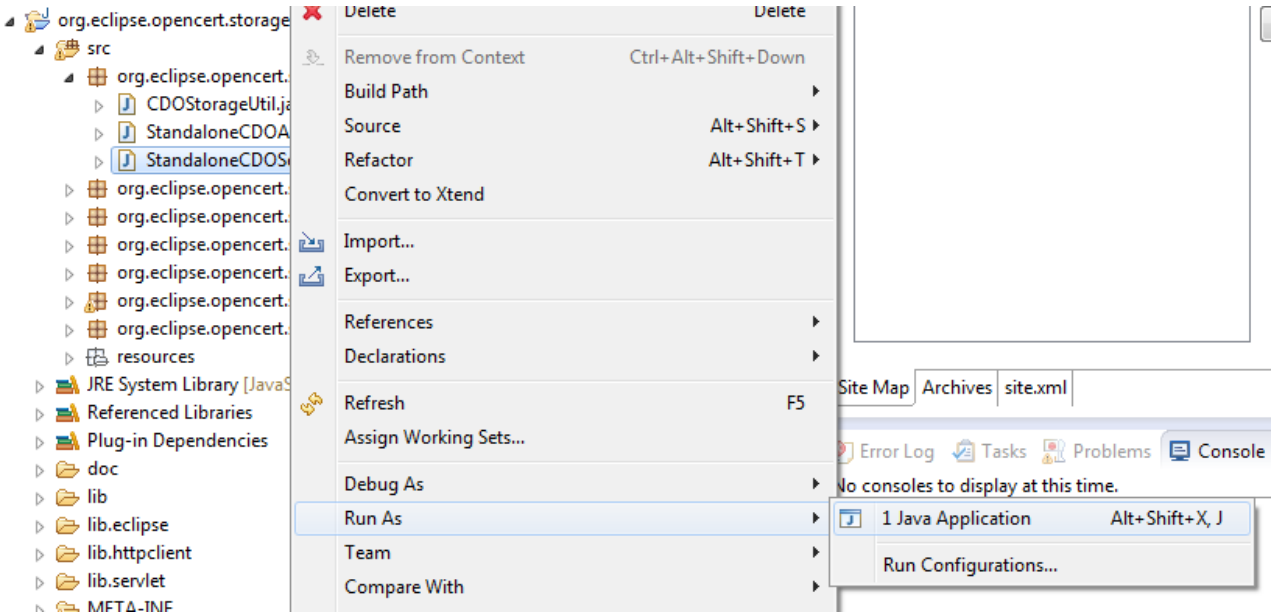
For any problem please contact stefano.puri@intecs.it

5 Debug the OpenCert code.

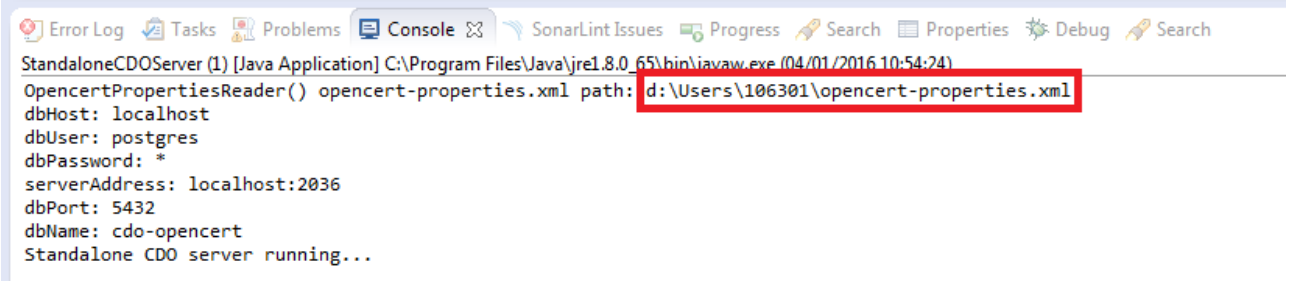
1. Set more memory for running the code in option Run>Run Configurations



2. Run the CDO server from the code, for that, right click over the org.eclipse.opencert.storage.cdo > src > StandaloneCDOServer.java class an select Run As > Java Application option.



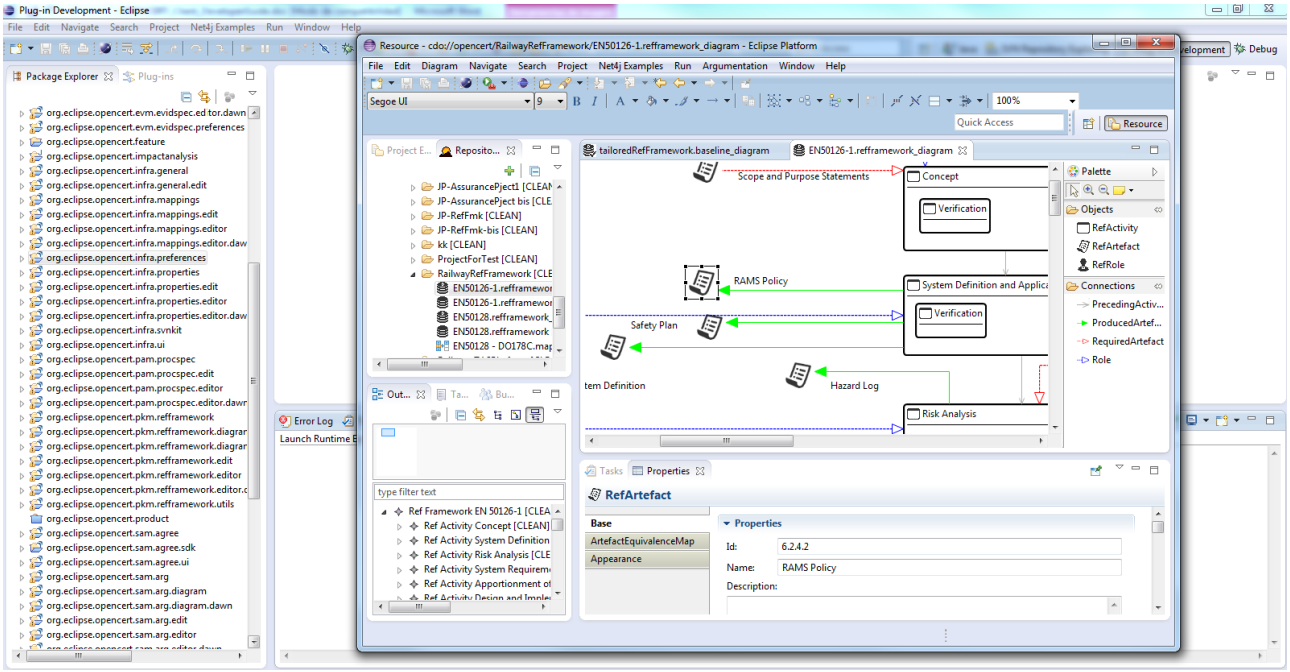
3. Check the Console messages to control the CDO server start process. If you get and error terminate the execution and modify the opencoss-properties.xml content according to your installation.



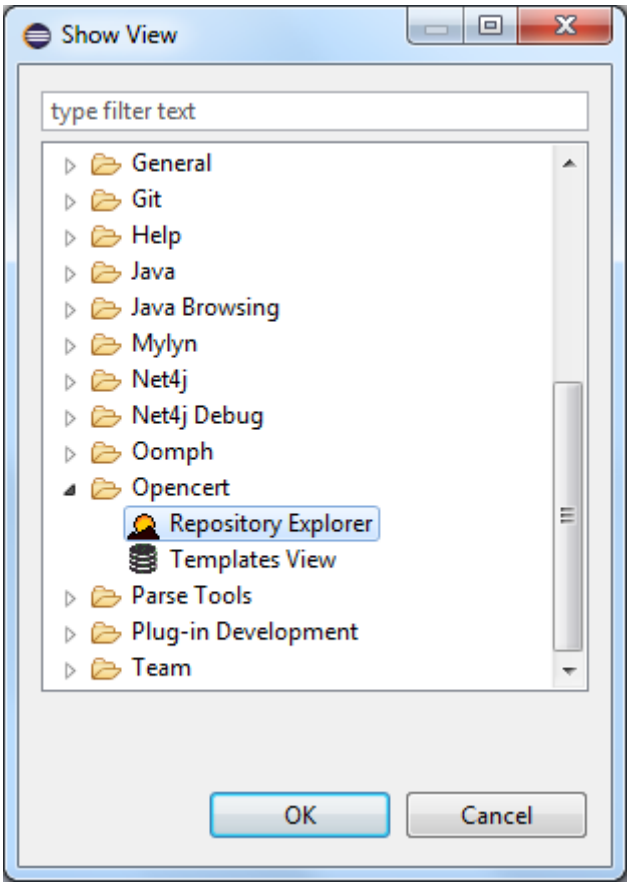
Configure properly the generated file in for windows user directory.

<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE properties SYSTEM "http://java.sun.com/dtd/properties.dtd">
<properties>
<entry key="dbHost">localhost</entry> → PostgreSQL host name or IP
<entry key="dbPort">5432</entry> → PostgreSQL Port
<entry key="dbName">cdo_amass</entry> → PostgreSQL database name
<entry key="dbUser">postgres</entry> → PostgreSQL database user name
<entry key="dbPassword">postgres</entry> → PostgreSQL database user password
<entry key="serverAddress">localhost:2036</entry>→ CDO Server Host and Port
</properties>

4. Right click over any plugin and select Debug As > Eclipse Application. The Target platform will be loaded with all the code deployed.



5. Open the Repository Explorer view to see the CDO server contents and open models double clicking over them



If in the view you see the image below, something is wrong. Be sure the CDO server is running and it is well configured.

References

[1] Tuft, B.: Eclipse Process Framework (EPF) Composer Installation, Introduction, Tutorial and Manual (2010), https://eclipse.org/epf/general/EPF_Installation_Tutorial_User_Manual.pdf