Apache Directory Studio, a new Open Source LDAP & Directory Tooling Platform

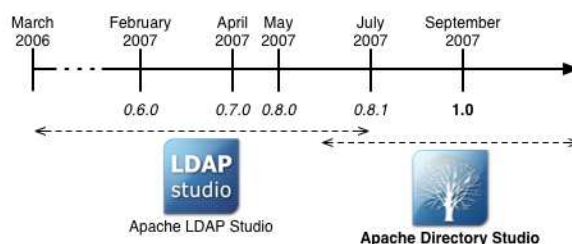by Stefan Seelmann and Pierre-Arnaud Marcelot

1 Introduction

Apache Directory Studio is a new Open Source LDAP & Directory related tooling platform intended to be used with any LDAP server however it is particularly designed for use with the Apache Directory Server (Apache DS).

Developed as a sub-project of the Apache Directory project at the Apache Software Foundation, Apache Directory Studio is an Eclipse RCP (Rich Client Platform) application that takes full advantage of the inherent benefits of the Eclipse platform.

Composed of several Eclipse (OSGi) plugins and an RCP base application, Apache Directory Studio can easily be upgraded with additional plugins. These plugins can also be run within a standard Eclipse installation.

2 History

The History of Apache Directory Studio starts in March of 2006. At this time, the project is called Apache LDAP Studio and its goal is to produce a multi-platform graphical editor for schema files in the OpenLDAP format that could be used to edit the schema for the Apache Directory Server. In November a second plugin is introduced in the Apache LDAP Studio platform, the LDAP Browser Plugin.

The first beta release of Apache LDAP Studio occurs in February 2007 with the release of the 0.6.0 version. This version includes the LDAP Browser and the Schemas Editor Plugins.
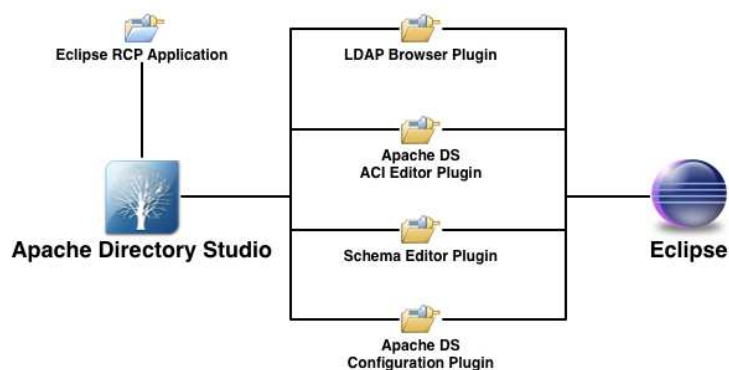
Still in development, a 0.7.0 version arrives in April 2007, followed by a 0.8.0 version in May 2007, released during ApacheCon Europe in Amsterdam. This 0.8.0 release introduces two new plugins related to Apache Directory Server, the Apache DS ACI Editor and the Apache DS

Configuration Plugins, as well as updated versions of the first two major plugins (the LDAP Browser and the Schemas Editor Plugins).

The Apache LDAP Studio platform is then renamed by a public vote as "Apache Directory Studio" and reaches its first official realease, Apache Directory Studio 1.0, in September 2007.

3   Concepts and architecture

The Apache Directory Studio platform is based on an Eclipse RCP application and several Eclipse plugins. This architecture allows it to be a complete multi-platform application that runs on Mac OS X, Linux and Windows, and can be used as a standalone application or within an Eclipse installation. Apache Directory Studio is composed of five major plugins :
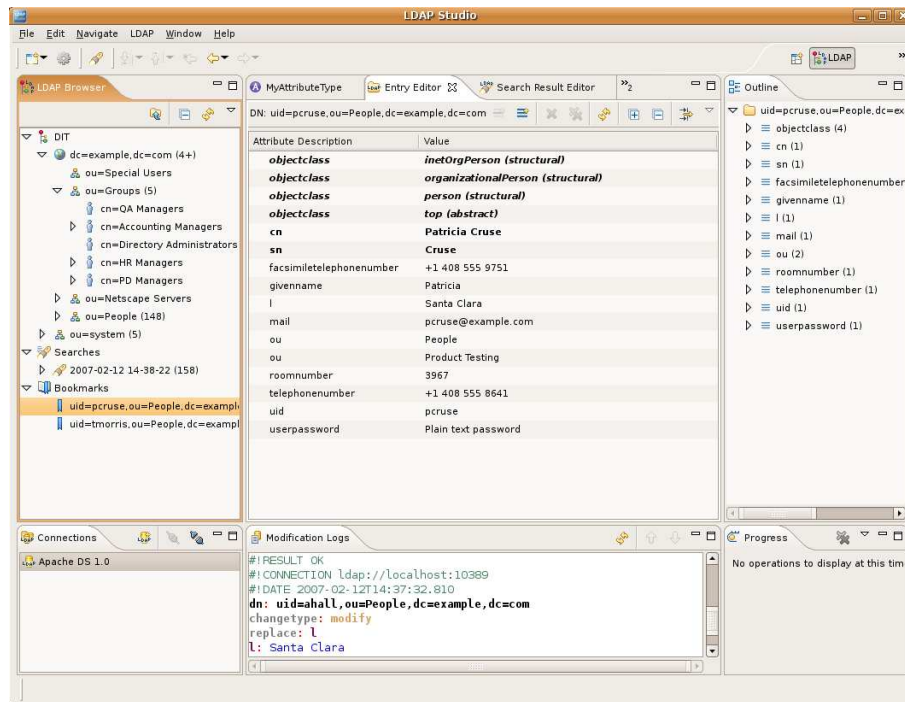

- The LDAP Browser Plugin is a tool for browsing, searching and editing entries on an LDAP Server. It works with any LDAP Server.

- The LDIF Editor Plugin can be used to edit LDIF files. It provides syntax highlighting and content assistance.

- The ACI Editor Plugin enables the user to configure Access Controls of the Apache DS.

- The Schema Editor Plugin is intended to edit the Schema of an LDAP Server (object classes and attribute types). The Plugin can dynamically edit the Schema of an Apache Directory Server and load/save schemas files from/to OpenLDAP schema format.

- The Configuration Plugin for Apache DS can be used to edit the configuration file of the Apache Directory Server.

4   Plugins and Features

4.1   LDAP Browser Plugin

The LDAP Browser Plugin has been designed to work with almost any LDAP server available. It sports a lot of features that makes it an excellent alternative compared to the others commercial or free products.

The LDAP Browser Plugin not only permits to read and display the tree of your LDAP Server but also allows you to modify it by creating, editing or removing entries.

Searching the DIT has been widely made easier with the plugin's powerful search wizard, as well as its ability to record a search, saving you a lot of time for your future works. The results of a search are presented in a table, that enables you to edit the attributes in a spreadsheet-like manner.

Entries can be bookmarked, which makes it very easy to find it back without having to expand the whole tree.
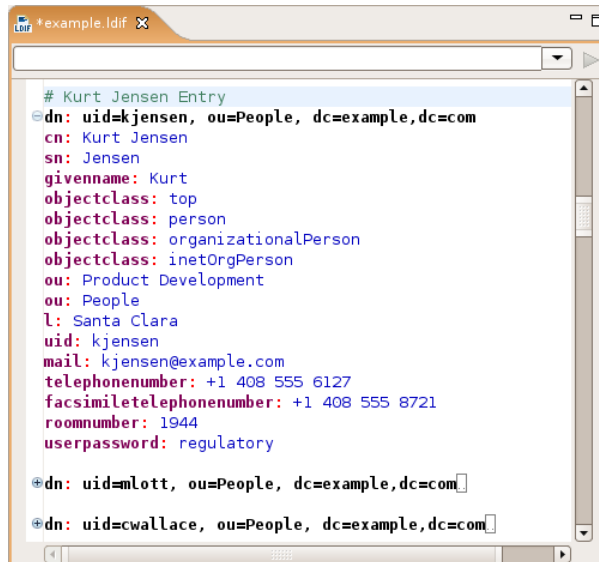
The plugin allows you to import data to the DIT from an LDIF or an DSML file. Further data could be exported to LDIF and DSML of course, but also CSV (Comma Separated Values) or Excel documents.

To edit the different attribute types there are so-called value editors. Beside default editors for text and binary attributes there are advanced editors for passwords, images and DNs. New value edtiors for specific syntaxes and attribute types could be added by using the Eclipse extension mechanism. One example is the ACI Editor.
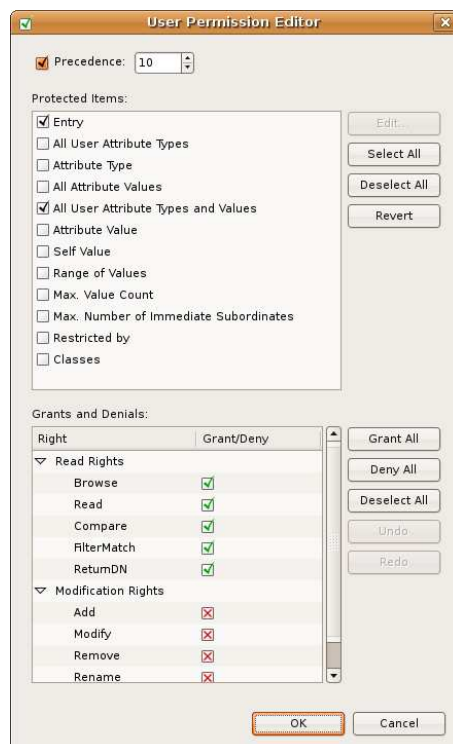
4.2 LDIF Editor Plugin

Especially when developing LDAP centric applications it is necessary to create test data by hand. LDIF is still the common format to define such reusable test data.

The LDIF Editor Plugin helps you with this task. It allows you to edit LDIF content files as well as LDIF changetype files. By leveraging the Eclipse text editor framework, it provides features like syntax highlighting, code completion and error markers.
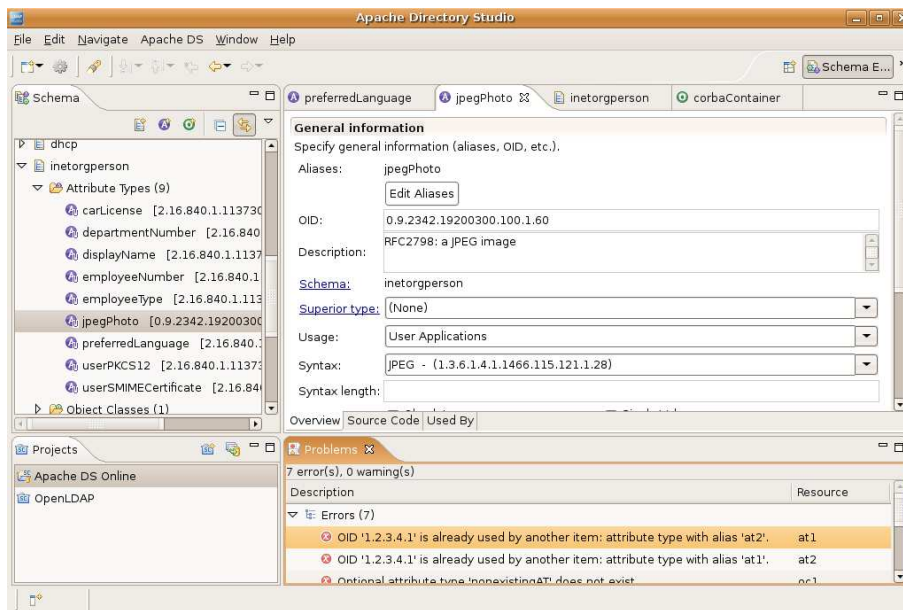
The LDIF Editor is very helpful when dealing with BASE-64 encoded values like text containing non-ascii characters or binary attribues. They could be edited using the value editors of the LDAP Browser Plugin.

4.3 ACI Editor Plugin

ApacheDS uses an adaptation of the X.500 basic access control scheme in combination with X.500 subentries to control access to entries and attributes within the DIT. The ACI Editor Plugin gives you full control to create complex ACI (Access Control Information) using a graphical or a source code editor.

4.4 Schema Editor Plugin

The Schema Editor Plugin allows to edit the Schema of your LDAP Server. This plugin has been built particularly for Apache Directory Server since it permits to dynamically edit the Schema of an instance of Apache DS. However an offline mode allows to edit the Schema and be able to export each specific schema file as an OpenLDAP schema file (http://www.openldap.org/doc/admin23/schema.html), which makes it compatible to write any custom schema for OpenLDAP.

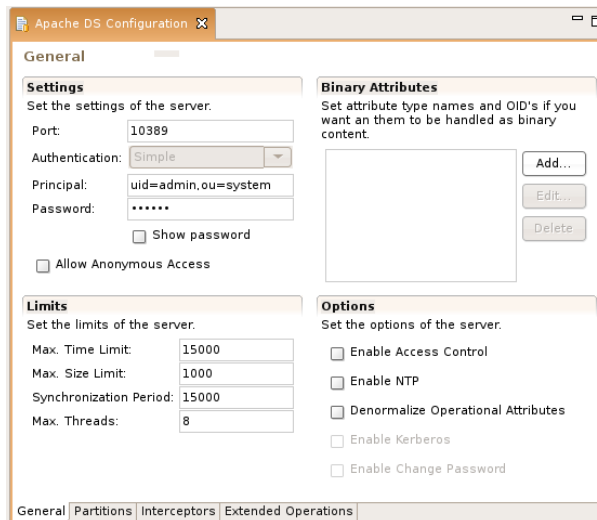Schema files are organized in projects, similar as Java Projects are organized in Eclipse.

While the Schema View displays all the defined schemas, with their associated attribute types and object classes, the Problems View alerts you of the potential problems in your Schema, such as duplicate of aliases or OID for example.

Built around flexible editors for attribute types and object classes, the Schema Editor allows you at a time to edit them graphically or in "source code" mode using OpenLDAP schema file format.

Last but not least, the Schema Editor features a powerful Search View that lets you instantly find the object you're looking for using an alias, oid, description, etc.

4.5 Apache DS Configuration Plugin

The Apache DS Configuration Plugin allows you to edit the configuration file of an Apache Directory Server. Opening the "server.xml" file of your Apache Directory Server in the Configuration Plugin allows you to specify all the settings of the server. From basic settings such as the port or the server's principal and password to more complex partition configuration, the plugin easily helps you to tweak your configuration.

5   Future

We would like to add more and more interaction between Apache Directory Server and Apache Directory Studio in the future. Adding a tooling solution for some of the most advanced features of Apache Directory Server, like triggers and stored procedures, is our new goal. We hope to be able to deliver soon new plugins to help our users to manage these rich features.

We really would love to see the duo Apache Directory Server/Apache Directory Studio helping the LDAP technology to enter a new age.

6   Apache Directory Community

The Apache Directory Community is very active and helpful. You can join us on our mailing lists, wiki or IRC channel.

- Apache Directory Studio hompage: http://directory.apache.org/studio

- Mailing lists and IRC: http://directory.apache.org/community%26resources/mailing-lists-and-irc.html

- Buglist and feature requests: http://issues.apache.org/jira/browse/DIRSTUDIO