Registration System’s Row Level Security

Overview
Row-level security is a level of security implemented above the standard Oracle roles. The purpose of using Roles in Chemical Registration is to restrict access to elements of the interface and data to certain users. For example, User A has access to one set of user-interface elements (such as buttons and menus) while User B is limited to a subset of those available to A. In addition, Roles limit what a user can do with the data; User A can register data and edit that data, while User B can only register.

On the other hand, Roles do not distinguish which rows a user has access to within a given table. In the pre-row-level-locking (RLS) system, User A sees all compounds in the registry, as does User B. With the implementation of RLS, the rows (records) of data are linked to projects and projects are linked to people. Thus, User A is assigned to a particular project, and will only be able to see compounds that are linked to that project.

How it is implemented
RLS is implemented through the use of Oracle’s Fine Grain Access Control. Tables are assigned policies. When a table is accessed, the policy is enforced. A policy is an additional piece of SQL that enforces a rule so a user can only select records that are linked to a project for which he has rights. Since policies are in Oracle, if there is an attempt to access data from any application (e.g. SQL Worksheet), the rule is enforced.

The Registration System User Interface
The number of registered compounds is displayed on the ChemReg homepage to the left of the search buttons. With RLS implemented, this value reflects the records a user can see, not the number in the registry. That is, User A may see 10, while User B sees 20.

If any screen that has a project drop-down is viewed, that drop-down will only show projects that the user is linked to, unlike before RLS, when all projects were listed. Thus users will only be able to add compounds or search compounds associated with projects for which they have rights.

ChemLoader
Since ChemLoader accesses data in ChemReg, it reflects the changes RLS implements. When a user logs into ChemLoader, the Projects drop-down shows the projects they are allowed to view - just like the user interface.

Differences in Applications that can Register Compounds in Chemical Registration
Applications with the ability to register compounds in Chemical Registration do not necessarily allow the user to specify a project. With RLS, if a post to ChemReg is performed and a project_id is not linked to the user found - the
record is dumped to the **Temporary Table** and the project is assigned to Unspecified.

### How are Projects linked to People

Users assigned the new privilege called “Manage_people_project” (currently assigned to role supervising_chemical_admin; default user T5_85) see a modified projects interface. The projects interface is accessed by clicking **Manage Registry Tables > Projects** from the ChemReg homepage. If the user clicks new or edit, from the Projects page, the page is modified to include an interface that allows linking people and projects.

### Removing a Project from a User

If a particular project is removed from a user, the user will no longer be able to view records in that project. The actual data doesn’t change, only who can see it.

### The Unspecified Project

Any record assigned to the unspecified project is dumped to the **Temporary Table**. The Unspecified project can be assigned to any user, but in general probably should be limited to an administrator. In this type of system, the unspecified project should only be used when the record is added from a registration attempt from another application that doesn’t have a valid project_id. In this case, the administrator assigned to the unspecified project can check the temporary table for these types of records, and assign a relevant project to each record.

### Duplicate Checking

If the PRIMARY_STRWHERE Cfservlet.ini file setting is as follows:

```
PRIMARY_STRWHERE=COMPOUND_PROJECT
```

ChemReg inspects both the compound and the project when deciding if a duplicate exists. If the compound being added is a duplicate in the entire system, but not a duplicate within a project an end user would see no duplicate window appear and the compound is registered as usual. However since the same compound is a system duplicate the record is placed in the **Duplicates Table**. If a compound is a duplicate within a project, the Duplicate Window appears.

### Viewing System Duplicates

A new button is displayed on the homepage called **View Duplicates** if a user with the privilege “manage_system_duplicates” (currently assigned to the supervising chemical admin role; default user T5_85) logs into the system. Clicking this button pulls and displays all of the duplicate records using the standard ChemOffice WebServer List/Display View. The Detail button yields - in red - the duplicate registration number.

Currently when duplicates are added they are added twice. That is, if compound A is being registered and Compound B is found to be a duplicate in the system, then the entries in the Duplicates Table will be:

- Compound A -> Compound B
- Compound B -> Compound A

Therefore, when duplicates are checked users see both sides of the picture: A is a duplicate of B and conversely B is a duplicate of A.

### Deleting a Duplicate

If a duplicate record is deleted, it is removed from the Duplicates Table.
**New Settings**

ADD_BATCH_FROM_REG_RESULTS

If the `ADD_BATCH_FROM_REG_RESULTS` Cfserv.ini setting is as follows:

```
ADD_BATCH_FROM_REG_RESULTS=1
```

a button is enabled in detail view called **Add Batch/Lot**. This button performs the same function as the button on the homepage with the same name performs, but the user does not have to enter a registration number. After adding a batch the user is returned to the record last viewed.