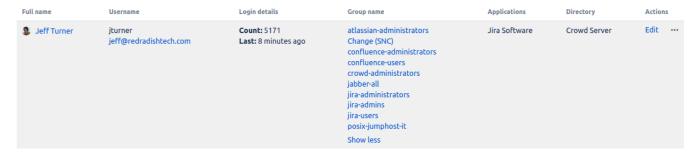
SQL to find a Jira user's group memberships, including nested groups

Question

A Jira user belongs to a set of groups:



How do we find that list of groups for user 'jturner' using SQL (Postgres)?

Answer

With this SQL:

```
WITH RECURSIVE members AS (
SELECT lower_parent_name
,lower_child_name
FROM cwd_membership
WHERE child_name='jturner'
UNION
select m.lower_parent_name
,m.lower_child_name
FROM cwd_membership m
INNER JOIN members ON members.lower_parent_name=m.lower_child_name
) SELECT DISTINCT lower_parent_name from members;
```

What's going on?

The headache here is **nested groups**.

You may know that group membership info is stored in the <code>cwd_membership</code> table. The following query would return all group memberships of a user if there weren't any nested groups:

```
jira=> select * from cwd_membership where child_name='jturner';
id parent_id child_id membership_type group_type parent_name lower_parent_name child_name
lower_child_name directory_id
68581 19488 18636 GROUP_USER
                                 Change (SNC) change (snc) jturner jturner 10000
69381 19259 18636 GROUP_USER
                                 confluence-administrators confluence-administrators jturner jturner
70007 19821 18636 GROUP_USER
                                 crowd-administrators crowd-administrators jturner jturner 10000
72833 18720 18636 GROUP_USER
                                 jabber-all jabber-all jturner jturner 10000
73448 19900 18636 GROUP_USER
                                 jira-administrators jira-administrators jturner jturner 10000
78561 19838 18636 GROUP_USER
                                 posix-jumphost-it posix-jumphost-it jturner jturner 10000
86486 19052 18636 GROUP_USER
                                 atlassian-administrators atlassian-administrators jturner jturner 10000
(7 rows)
```

But in this case there are nested groups (from LDAP), and our query hasn't returned the full set.

In cwd_membership a nested group is represented as a cwd_membership row with a membership_type of GROUP_GROUP . For instance, jira-administrators is a sub group of jira-admins:

```
jira=> select * from cwd_membership where membership_type='GROUP_GROUP' and lower_child_name='jira-
administrators';

id parent_id child_id membership_type group_type parent_name lower_parent_name child_name
lower_child_name directory_id

73472 18511 19900 GROUP_GROUP jira-admins jira-admins jira-administrators jira-administrators 10000
(1 row)
```

Membership of a sub-group (jira-administrators) implies membership of the parent (jira-admins).

We could find all parent groups of our groups with this query:

```
jira=> select
lower_parent_name
from cwd_membership
where membership_type='GROUP_GROUP' and lower_child_name IN (
select lower_parent_name from cwd_membership where lower_child_name='jturner'
);
lower_parent_name
confluence-administrators
jira-users
confluence-users
jira-admins
(4 rows)
```

but what about groups-of-groups?

Enter Postgres recusive queries. I won't provide a tutorial. It may help to see the parent/child relationships of every result:

```
jira=> WITH RECURSIVE members AS
 ( SELECT lower_parent_name ,lower_child_name
     FROM cwd_membership
     WHERE child_name='jturner' UNION
     select m.lower_parent_name ,m.lower_child_name FROM cwd_membership m INNER JOIN members ON members.
lower_parent_name=m.lower_child_name
SELECT DISTINCT lower_parent_name, lower_child_name from members;
lower_parent_name lower_child_name
jira-users jabber-all
crowd-administrators jturner
jira-administrators jturner
confluence-administrators atlassian-administrators
jabber-all jturner
atlassian-administrators jturner
confluence-users jabber-all
change (snc) jturner
posix-jumphost-it jturner
confluence-administrators jturner
jira-admins jira-administrators
(11 rows)
```