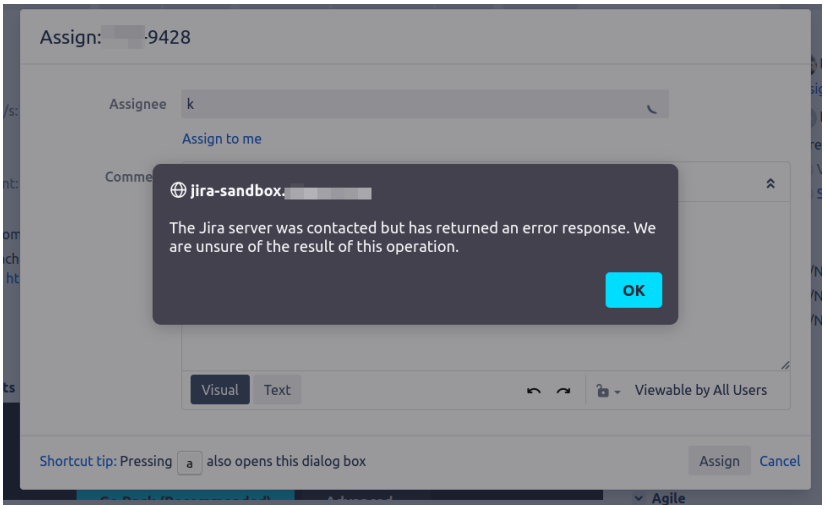
Jira 8.20.x autocomplete breaking with NullPointerException

What a barrel of laughs this Jira 8.20.1 upgrade is proving to be! After yesterday's Jira 8.20.x gotcha: lost notifications, today's problem is that autocomplete on the 'Assignee' field is breaking:



But only for some users on some projects, which is why the problem wasn't picked up in sandbox testing.

Lovely source code

There is at least a stacktrace in `atlassian-jira.log`:

```
Caused by: java.lang.NullPointerException
        at java.base/java.util.Comparator.lambda$comparing$77a9974f$1(Comparator.java:469)
        at java.base/java.util.Comparator.lambda$thenComparing$36697e65$1(Comparator.java:216)
        at java.base/java.util.TreeMap.put(TreeMap.java:550)
        at java.base/java.util.TreeSet.add(TreeSet.java:255)
        at java.base/java.util.AbstractCollection.addAll(AbstractCollection.java:352)
        at com.atlassian.jira.permission.DefaultIssueUserSearchManager.findTopUsersWithPermissionInIssue
(DefaultIssueUserSearchManager.java:253)
        at com.atlassian.jira.permission.DefaultIssueUserSearchManager.findTopUsersInternal
(DefaultIssueUserSearchManager.java:168)
        at com.atlassian.jira.permission.DefaultIssueUserSearchManager.findTopAssignableUsers
(DefaultIssueUserSearchManager.java:115)
        at com.atlassian.jira.bc.user.search.DefaultUserPickerSearchService.findTopAssignableUsers
(DefaultUserPickerSearchService.java:326)
        at java.base/jdk.internal.reflect.NativeMethodAccessorImpl.invoke0(Native Method)
```

This is the point where I'm glad I work with Atlassian products, because although they are sometimes buggy and broken, **the source code is available** to licensees. So we can debug this problem.

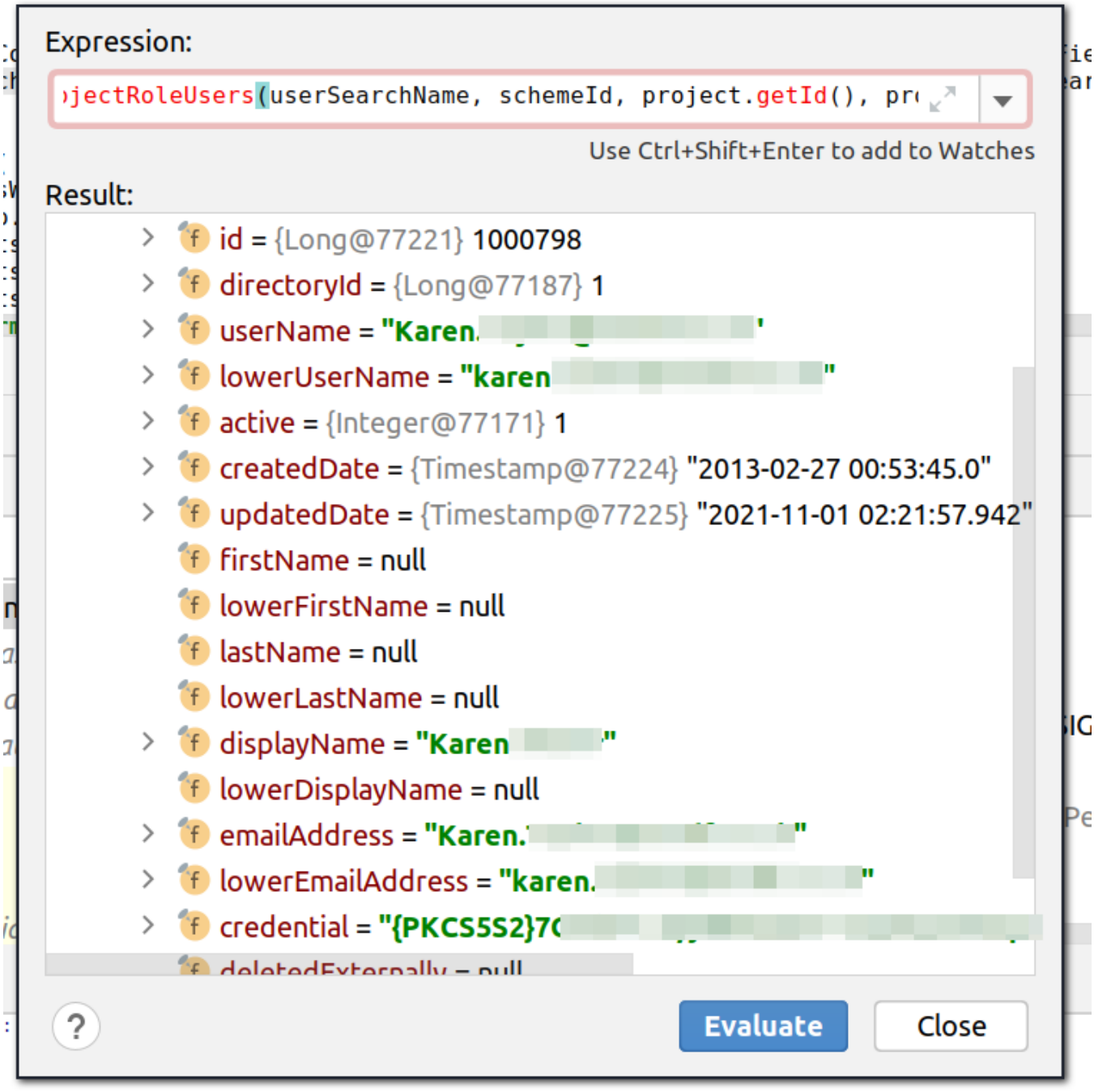
The code in question is adding a bunch of user objects to a collection object called `result`:

```
252         if (permissionSchemeLogic.isUserTypeProjectRole()) {
253             result.addAll(schemePermissionsDAO.findTopUsersFromTypeProjectRoleUsers(userSearchName, schemeId,
254             sqlCount++;
255         }
```

The `result` field is defined a bit higher, as a collection object of type TreeSet, and the constructor is passed a `Comparator` used to determine the sort order. Here we see the Comparator is using `getLowerDisplayName()` and `getLowerUserName()`:

```
242         final TreeSet<UserDTO> result = new TreeSet<>(Comparator
243                 .comparing(UserDTO::getLowerDisplayName)
244                 .thenComparing(UserDTO::getLowerUserName));
```

So we should be on the lookout of null values of those fields. Sure enough, if we hook up a debugger and inspect the UserDTOs starting with letter 'k', we have one object with a null `lowerDisplayName` field:



The class involved, DefaultIssueUserSearchManager, appears to be new in Jira 8.19.x, and clearly wasn't tested with much real-world data.

Why is the user data missing fields?

I don't know why those fields are null. It it only the case in a small subset of user accounts (80 of 3700 accounts), all created before May 2017.

If I find the user's account in the Jira administration section, click 'Edit Details' and simply save, then all the null fields suddenly get values:

Before	After

Fixing with SQL

So let's fix up the null fields. Here is some Postgres-flavoured SQL that makes use of the fact that `display_name` is generally of the form "`Firstname Lastname`", with fallback to just blatting `display_name` into `first_name` and `last_name`.

```
begin;
update cwd_user set lower_display_name=lower(display_name) where lower_display_name is null;
update cwd_user set first_name=split_part(display_name, ' ', 1) where first_name is null and display_name~'^[^ ]
+ [^ ]+$';
update cwd_user set last_name=split_part(display_name, ' ', 2)  where last_name is null and display_name~'^[^ ]
+ [^ ]+$';
update cwd_user set first_name=display_name  where first_name is null and display_name!~'^[^ ]+ [^ ]+$' ;
update cwd_user set last_name=display_name  where last_name is null and display_name!~'^[^ ]+ [^ ]+$' ;
update cwd_user set lower_first_name=lower(first_name) where lower_first_name is null;
update cwd_user set lower_last_name=lower(last_name) where lower_last_name is null;
commit;
```

The nice thing about `cwd_` tables is they aren't cached (AFAIK), so you don't need to restart. Commit the changes to the database, and your autocomplete should start working.