

Bluebird (Promises)

Tuesday, January 16, 2018 4:21 PM

Troubleshooting

A Promise doesn't seem to throw all the time (real cause: a promise is not returned properly which causes a race condition)

First, for some background, there's no difference between the two cases that follow:

```
// Case 1: no explicit catch
return someAsyncFunction();

// Case 2: explicit catch
return someAsyncFunction()
  .catch((error) => {
    throw error;
  });
```

The reason why this is worth pointing out is because if you *think* that adding a "catch" with a "throw" in it is changing your code, then it's very likely that you're running into a race condition with promises rather than somehow not throwing an error correctly. For example:

```
function badFunction() {
  return _.forEach(inputs, (input) => {
    this.someAsyncFunction(input);
  });
}

Promise.resolve()
  .then(() => {
    badFunction();
  })
  .then(() => {
    process.exit(0);
  })
```

As shown above, suppose there's a particular input that's causing an error to be thrown, but you're not seeing a unhandled promise rejection print out consistently. The reason why is because nothing is waiting for the promises to resolve, so we're immediately jumping to process.exit. We need to change the Lodash forEach to return all promises (and then wait for the promises with Promise.all):

```
function goodFunction() {
  return Promise.all(
    _.map(inputs, (input) => {
      return this.someAsyncFunction(input);
    })
  );
}

Promise.resolve()
  .then(() => {
```

```

    goodFunction();
  })
  .then(() => {
    process.exit(0); // there's no way this can happen now without all
    promises from goodFunction finishing
  })

```

There's an eslint rule to try to catch these cases ([reference](#)).

Bluebird promise not being returned

TL;DR: look at the highest method in the stack that is still your code (it's bolded/highlighted in the small text that follows to show that it's not necessarily in the bottom "block" of the stack); there is some path through that function that doesn't return a Promise (or explicitly return null to say that you wanted there to be no Promise).

```

Warning: a promise was created in a handler but was not returned from it
  at Request.Request.endAsync (webpack:///./node_modules/superagent-as-promised/index.js?:8:14)
  at Request.Request.then (webpack:///./node_modules/superagent-as-promised/index.js?:32:26)
  at AccountServerRestClient.fetchScript (webpack:///./public/javascripts/accountserverrestclient.js?:418:76)
  at request (webpack:///./public/javascripts/react_and_redux/actions/workbench.js?:243:44)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:91:37)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:265:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:511:28)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:485:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:461:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:437:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:413:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:385:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:337:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:361:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:313:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:289:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:245:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:221:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:197:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:176:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:152:24)
  at eval (webpack:///./node_modules/redux-thunk/lib/index.js?:14:16)
  at dispatch (webpack:///./node_modules/redux/lib/applyMiddleware.js?:45:18)
  at eval (webpack:///./public/javascripts/react_and_redux/actions/workbench.js?:246:16)
  at eval (webpack:///./node_modules/redux-thunk/lib/index.js?:11:18)
From previous event:
  at eval (webpack:///./public/javascripts/react_and_redux/actions/accountserver.js?:194:24)
From previous event:
  at requestSync (webpack:///./public/javascripts/react_and_redux/actions/accountserver.js?:176:16)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:516:30)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:485:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:461:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:437:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:413:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:385:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:337:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:361:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:313:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:289:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:245:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:221:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:197:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:176:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:152:24)
  at eval (webpack:///./node_modules/redux-thunk/lib/index.js?:14:16)
  at dispatch (webpack:///./node_modules/redux/lib/applyMiddleware.js?:45:18)
  at eval (webpack:///./public/javascripts/react_and_redux/actions/accountserver.js?:226:26)
  at eval (webpack:///./node_modules/redux-thunk/lib/index.js?:11:18)
  at dispatch (webpack:///./node_modules/redux/lib/applyMiddleware.js?:45:18)
  at eval (webpack:///./public/javascripts/react_and_redux/actions/myplayer.js?:393:24)
From previous event:
  at request (webpack:///./public/javascripts/react_and_redux/actions/myplayer.js?:372:16)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:91:37)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:265:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:511:28)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:485:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:461:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:437:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:413:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:385:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:337:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:361:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:313:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:289:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:245:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:221:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:197:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:176:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:152:24)
  at eval (webpack:///./node_modules/redux-thunk/lib/index.js?:14:16)
  at dispatch (webpack:///./node_modules/redux/lib/applyMiddleware.js?:45:18)
  at eval (webpack:///./public/javascripts/react_and_redux/actions/myplayer.js?:407:16)

```

```
at eval (webpack:///./node_modules/redux-thunk/lib/index.js?:11:18)
at Object.eval [as authenticateToAccountServer] (webpack:///./node_modules/redux/lib/bindActionCreators.js?:7:12)
at Login.readValuesFromLocalStorage (webpack:///./public/javascripts/react_and_redux/containers/login.js?:121:50)
at Login.componentDidMount (webpack:///./public/javascripts/react_and_redux/containers/login.js?:137:18)
```

I wasted a couple of hours looking into an issue where I got this Bluebird warning: "Warning: a promise was created in a handler but was not returned from it" ([reference](#))

This code demonstrates exactly how Bluebird performs this check and there's a very important conclusion afterward:

```
// set BLUEBIRD_DEBUG=1 before running this

const Promise = require('bluebird');

function asyncFunction() {
  return Promise.resolve()
    .then(() => {
      Promise.resolve(); // a Promise is made
    })
    .then(() => { // undefined is passed to this function, so
      Bluebird triggers a warning
    })
}

asyncFunction().then(() => {});
```

4:17 HiDeoo: You were returning return dispatch(push()) which return undefined and look at the check to warn

<https://github.com/petkaantonov/bluebird/blob/b7f21399816d02f979fe434585334ce901dcaf44/src/debuggability.js#L440>

Conclusion: the Promise that produces the warning may seem ENTIRELY unrelated to the code where you may think you have to return. In my case, instead of just "Promise.resolve()" not being returned, I had pushed to react-router-redux the "/news" page, and mounting the News page created a Promise (so Bluebird noted that a Promise had been created from the original Promise), but pushing to the News page doesn't return anything. I had ended my promise anyway for no good reason:

```
.then(() => {
  dispatch(push('/news'));
}) // no need to end the original "then" clause because we'll run
into the case where a Promise was created but undefined is sent to the
next "then" clause. Alternatively, you could return null so that
Bluebird won't see "undefined" in the next "then" clause.
.then(() => {
  // more code
})
```

In this case, all I had to do was consolidate the two "then" clauses.

Without realizing that this is the case, you may start adding "return" everywhere and double-checking seemingly related code when it wouldn't matter. So if this ever happens again, look for a "then" clause that's getting "undefined" returned to it. It's possible that you have a param to "then" and it's undefined or you just didn't specify a param at all.

Here's an example of solving this particular problem:

Warning: a promise was created in a handler but was not returned from it

```

    at <anonymous>
From previous event:
  at Request.Request.endAsync (webpack:///./~/superagent-as-promised/index.js?:8:14)
  at Request.Request.catch (webpack:///./~/superagent-as-promised/index.js?:36:26)
  at AccountServerRestClient.completedTutorialMission
(webpack:///./public/javascripts/accountserverrestclient.js?:911:127)
  at request (webpack:///./public/javascripts/react_and_redux/actions/tutorial.js?:84:44)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:99:37)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:265:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:511:28)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:485:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:461:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:437:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:413:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:385:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:337:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:361:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:313:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:289:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:245:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:221:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:197:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:176:24)
  at eval (webpack:///./public/javascripts/react_and_redux/store/apimiddleware.js?:152:24)
  at eval (webpack:///./~/redux-thunk/lib/index.js?:14:16)
  at dispatch (webpack:///./~/redux/lib/applyMiddleware.js?:45:18)
  at eval (webpack:///./public/javascripts/react_and_redux/actions/tutorial.js?:94:16)
  at eval (webpack:///./~/redux-thunk/lib/index.js?:11:18)
From previous event:
  at InGame.saveDefense
(webpack:///./public/javascripts/react_and_redux/containers/ingame.js?:1769:63)
  at Object.ReactErrorUtils.invokeGuardedCallback (webpack:///./~/react-
dom/lib/ReactErrorUtils.js?:70:16)
  at executeDispatch (webpack:///./~/react-dom/lib/EventPluginUtils.js?:85:21)
  at Object.executeDispatchesInOrder (webpack:///./~/react-dom/lib/EventPluginUtils.js?:108:5)
  at executeDispatchesAndRelease (webpack:///./~/react-dom/lib/EventPluginHub.js?:43:22)
  at executeDispatchesAndReleaseTopLevel (webpack:///./~/react-
dom/lib/EventPluginHub.js?:54:10)
  at Array.forEach (<anonymous>)
  at forEachAccumulated (webpack:///./~/react-dom/lib/forEachAccumulated.js?:24:9)
  at Object.processEventQueue (webpack:///./~/react-dom/lib/EventPluginHub.js?:257:7)
  at runEventQueueInBatch (webpack:///./~/react-dom/lib/ReactEventEmitterMixin.js?:17:18)
  at Object.handleTopLevel [as _handleTopLevel] (webpack:///./~/react-
dom/lib/ReactEventEmitterMixin.js?:28:5)
  at handleTopLevelImpl (webpack:///./~/react-dom/lib/ReactEventListener.js?:72:24)
  at ReactDefaultBatchingStrategyTransaction.perform (webpack:///./~/react-
dom/lib/Transaction.js?:140:20)
  at Object.batchedUpdates (webpack:///./~/react-
dom/lib/ReactDefaultBatchingStrategy.js?:62:26)
  at Object.batchedUpdates (webpack:///./~/react-dom/lib/ReactUpdates.js?:97:27)
  at dispatchEvent (webpack:///./~/react-dom/lib/ReactEventListener.js?:147:20)

```

I had to return null from "saveDefense"; that was pretty much it.