

Real-time visualization of analyzed industrial communication network traffic

Testing Report

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1 Testing

1.1 Introduction

This testing report covers changes and bugfixes from the one described in the implementation phase and describes the current state of the project.

1.2 Issues Resolved

1.2.1 Tooltip on Node-Link diagram not working

See GitHub issue [#69](#).

- Symptom
Tooltips don't show up somehow.
- Solution
Heavily modified tooltips code, and applied correct CSS styles to correctly render the tooltips.

1.2.2 Data Store updates break everything

Also see GitHub issue [#69](#).

- Symptom
Calling myNetwork.updateData within the callback passed to MobX autorun function crashed everything.
- Solution
The reason was that hidden deep inside the update() function of the nodelink diagram, there were some "functions" that mutate the passed in parameters themselves, adding in D3 positioning info and modifying other stuff - so in our case it's the data object inside datastore gets mutated and it becomes useless when it gets passed inside myNetwork.updateData(), which is why it all chokes when MobX runs myNetwork.updateData() later on.

1.2.3 Incompatibility issues of data pulling

See discussions under GitHub issue [#69](#) and pull request [#78](#).

- Symptom
Due to some issues, the frontend-backend communication was not working properly. Data pulling was not working.
- Solution
Fixed the incompatible API calls on both server and client side.

1.2.4 Filter and grouping features not working

See discussions under GitHub issue [#86](#), [#74](#) and pull request [#101](#).

- Symptom
The filter and grouping features were not working due to an incomplete implementation.
- Solution
Completed the feature.

1.3 Remaining Issues

- Handle logged-out state better

1.4 Small bug fixes

This section lists small bugs which were found and fixed in the testing phase that were not recorded as GitHub issues.

1.4.1 Fix `ConcurrentModificationException` in `logout()`.

Insufficient knowledge of API: it is not safe to remove an element directly from a hashmap, while iterating over the map.

- Symptom
 `ConcurrentModificationException` was thrown.
- Solution
 Delete the element (a terminated user session) with the iterator's `remove()` method.

1.4.2 In `MongoDBUserSession`, catch `MongoSocketOpenException`.

A timeout during login, e.g. because the MongoDB server was not running, caused an exception that was not caught and handled.

- Symptom
 The Hub crashed when MongoDB was not running.
- Solution
 Catch and handle `MongoSocketOpenException` and rethrow it as `LoginFailureException`.

1.4.3 Update ticklabels when brushing.

The array index calculation to get the values for the ticklabels was wrong.

- Symptom
 The moveable axis had no ticklabels.
- Solution
 Fix the calculation of the index offset.

1.4.4 `getCollectionGroup()` needs collection name as parameter.

Forgot to add a parameter for the collection to be used to function `getCollectionGroup()`; instead it used a default value.

- Symptom
 Data from a wrong collection was returned.
- Solution
 Add name parameter.

1.4.5 Fix client sessions clobbering each other.

The java websocket implementation instantiates a new Hub object for each websocket connection that gets opened (started) by a client. Since the Hub classes constructor initialized the list of sessions, this would remove all currently existing sessions.

- Symptom
When a client connected to the server, all current sessions of other clients were aborted.
- Solution
Move the initialization code for the sessions map from the constructor to a static block.

1.4.6 Fix brush container layout.

The width of the React container for the brush and the height of the brush's area were wrong.

- Symptom
The "add new diagram" button was pushed too far to the right and the brush's axis was too close to the container's border.
- Solution
Reduce the container width and increase the axis' vertical offset.