**System Test Report**

TINF21C, Software Engineering I

Practical project 2022/23

*Project*

AAS-Webclient

*Customer*

Markus Rentschler, Christian Holder

Rotebühlplatz 41, 70178 Stuttgart

*Supplier*

Project Leader: Samara Dominik ([inf21001@lehre.dhbw-stuttgart.de](mailto:inf21001@lehre.dhbw-stuttgart.de))

Product Manager: Martin Rittmann ([inf21157@lehre.dhbw-stuttgart.de](mailto:inf21157@lehre.dhbw-stuttgart.de))

System Architect: Marcel Hintze ([inf21056@lehre.dhbw-stuttgart.de](mailto:inf21056@lehre.dhbw-stuttgart.de))

Test-Manager: Anja Niedermeier ([inf21097@lehre.dhbw-stuttgart.de](mailto:inf21097@lehre.dhbw-stuttgart.de))

Developer: Severin Helms ([21047@lehre.dhbw-stuttgart.de](mailto:21047@lehre.dhbw-stuttgart.de))

Technical Documentation: Tom Engelmann ([inf21010@lehre.dhbw-stuttgart.de](mailto:inf21010@lehre.dhbw-stuttgart.de))

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| 1v0 | 10.05.2023 | Tom Engelmann | Testing |

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## Scope

The System Test Report (STR) records the outcomes of tests that originated from the System Test Plan (STP). It comprises the test cases outlined in the STP, along with their corresponding results obtained from carrying out the test plan.

## Definitions

TC Test case

TS Test suite

STP System test plan

TD Test data

## Test objects

The following test object will be examined:

|  |  |  |  |
| --- | --- | --- | --- |
| Ref.-Id | Product Number | Product Name | Product Description |
| 1 | Build v1.0 (commit d5094d5) | AAS-Webclient | User friendly web-tool for displaying AAS-Servers and its contents while providing filter and search functionalities |

## Test cases

## Test suite <TS-Server>

## <TC-Server-Import-001> (Import server by URL)

|  |  |  |  |
| --- | --- | --- | --- |
| **Test case** | | | |
| **ID:** | TC-SERVER-IMPORT-001 | | |
| **Name:** | Import server by URL | | |
| **Req.-ID:** | REQ10, REQ20, REQ10, REQ40 | | |
| **Description:** | The test case verifies the correct functionality of the import of an AAS-server by its URL. It verifies the display of an error message in case the given URL is incorrect. The test case uses the test data from table TD-001. The test set up consists of a computer, with an active internet connection and a working browser. | | |
| **Test steps** | | | |
| **Step** | **Action** | **Expected result** | **Actual result** |
| **1** | Click on the button “Server Menu” in the upper right corner | Dropdown server menu opens, providing an input field for a server URL as well as some predefined AAS-server URLs | The dropdown server menu is opening, it provides an input field for a server URL and four predefined AAS-server URLs |
| **2** | Click on one of the predefined Server URLs | The selected URL is displayed as the current server and its assets are loaded on the left side of the screen (names and preview images) | The current server is displayed after selection and its assets are shown on the left side with names and preview images |
| **3** | Click into the text input field for the Server URL and type in the URLs specified in TD-001 | URLs that are marked with as “PASS” are loaded as the current server and their assets are loaded on the left side of the screen. URLs that are marked as “FAIL” produce an error message. | After input of the URLs listed in TD-001 the expected results were equivalent to the actual results |
|  | | | |

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| --- | --- | --- | --- |
| **Test Data** | | | |
| **ID:** |  | | |
| **Dataset** | **URL** | **Expected result** | **Actual result** |
| **1** | <https://ccae4836-001e-48c2-a4f9-235554f9400b.ma.bw-cloud-instance.org/> | **PASS** | **PASS** |
| **2** | <http://aas.murrelektronik.com:4001/aas/> | **PASS** | **PASS** |
| **3** | <https://www.dhbw-stuttgart.de/> | **FAIL** | **FAIL** |
| **Tester: Tom Engelmann** | | | |
| **Date: 10.05.2023** | | | |
| **Test case result: PASS** | | | |

## <TC-Server-Switch-002> (Switch out servers)

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| --- | --- | --- | --- |
| **Test case** | | | |
| **ID:** | TC-SERVER-SWITCH-002 | | |
| **Name:** | Switch out servers | | |
| **Req.-ID:** | REQ10, REQ30 | | |
| **Description:** | The test case verifies the correct functionality of switching out a currently used server with another one. It verifies the display of an error message in case the given URL is incorrect.  The test case uses the predefined server-URLs that are already provided within the application itself as test data.  The test set up consists of a computer, with an active internet connection and a working browser. | | |
| **Test steps** | | | |
| **Step** | **Action** | **Expected result** | **Actual result** |
| **1** | Click on the button “Server Menu” in the upper right corner | Dropdown server menu opens, providing an input field for a server URL as well as some predefined AAS-server URLs | The dropdown server menu is opening, it provides an input field for a server URL and four predefined AAS-server URLs |
| **2** | Click on one of the predefined Server-URLs | The selected URL is displayed as the current server and its assets are loaded on the left side of the screen (names and preview images) | The current server is displayed after selection and its assets are shown on the left side with names and preview images |
| **3** | Click on a different predefined Server-URL | The current server information in the top right corner switches to the newly selected server. The assets of the old server disappear from the left side of the window and only the assets of the new URL are displayed. | The new server is displayed after selection and its assets are shown on the left side with names and preview images. The old assets disappeared. |
| **Tester: Tom Engelmann** | | | |
| **Date: 10.05.2023** | | | |
| **Test case result: PASS** | | | |

## <TC-Server-Load-003> (Display all assets of server)

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| --- | --- | --- | --- |
| **Test case** | | | |
| **ID:** | TC-SERVER-LOAD-003 | | |
| **Name:** | Display all assets of server | | |
| **Req.-ID:** | REQ10, REQ30 | | |
| **Description:** | The test case verifies the correct functionality of displaying all assets which are contained in the currently used server.  The test case uses the server-URL specified in TD-002  The test set up consists of a computer, with an active internet connection and a working browser. | | |
| **Test steps** | | | |
| **Step** | **Action** | **Expected result** | **Actual result** |
| **1** | Click on the button “Server Menu” in the upper right corner | Dropdown server menu opens, providing an input field for a server URL as well as some predefined AAS-server URLs | The dropdown server menu is opening, it provides an input field for a server URL and four predefined AAS-server URLs |
| **2** | Click on the text input field for the server URL and type in the server-URL specified in TD-002. Then click on the “Add Server” button | The selected URL is displayed as the current server and its assets are loaded on the left side of the screen. (names and preview images) The exact same assets that are specified as expected results in TD-002 are displayed. | After input of the URL listed in TD-002 the expected result is equivalent to the actual result |
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| **Test Data** | | | |
| **ID:** | TD-002 | | |
| **Dataset** | **URL** | **Expected result** | **Actual result** |
| **1** | <https://ccae4836-001e-48c2-a4f9-235554f9400b.ma.bw-cloud-instance.org/> | [REGISTRY,  Norgren\_B84G\_4GK\_AP3\_RME,  Norgren\_ISOLine\_PRA\_802032\_M\_100,  ARGO-HYTOS Filter Element EXAPOR MAX3,  ARGO\_HYTOS\_Return\_Filter\_ES075,  Parker\_D1FPE50MB9NB0\_ISDE8HU,  Parker\_HMI-2203250342054\_HGDK8HU,  Parker\_PV046R2L1T1NMMC\_JU64L8HZ,  AAS\_Type\_CD55B20\_50,  AAS\_Type\_JSY205220,  AAS\_Demo\_4WRPEH6,  AAS\_Demo\_CytroPac,  AAS\_R412026837,  AAS\_R481712899,  AAS\_Type\_SPAU-P10R-T-G18M-L-PNLK-PNVBA-M8D,  AAS\_Type\_VUVS-L25-M52-AD-G14-F8-1C1,  AAS\_Type\_DSBC-63-125-PPVA-N3,  ExampleMotor] | [REGISTRY,  Norgren\_B84G\_4GK\_AP3\_RME,  Norgren\_ISOLine\_PRA\_802032\_M\_100,  ARGO-HYTOS Filter Element EXAPOR MAX3,  ARGO\_HYTOS\_Return\_Filter\_ES075,  Parker\_D1FPE50MB9NB0\_ISDE8HU,  Parker\_HMI-2203250342054\_HGDK8HU,  Parker\_PV046R2L1T1NMMC\_JU64L8HZ,  AAS\_Type\_CD55B20\_50,  AAS\_Type\_JSY205220,  AAS\_Demo\_4WRPEH6,  AAS\_Demo\_CytroPac,  AAS\_R412026837,  AAS\_R481712899,  AAS\_Type\_SPAU-P10R-T-G18M-L-PNLK-PNVBA-M8D,  AAS\_Type\_VUVS-L25-M52-AD-G14-F8-1C1,  AAS\_Type\_DSBC-63-125-PPVA-N3,  ExampleMotor]  PASS |
| **Tester: Tom Engelmann** | | | |
| **Date: 10.05.2023** | | | |
| **Test case result: PASS** | | | |

## Test suite <TS-Asset>

## <TC-Asset-Browse-001> (Browse through different assets)

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| **Test case** | | | |
| **ID:** | TC-ASSET-BROWSE-001 | | |
| **Name:** | Browse through different assets | | |
| **Req.-ID:** | REQ40, REQ50 | | |
| **Description:** | The test case verifies the correct functionality of selecting one of the displayed assets to see more information about it.  The test set up consists of a computer, with an active internet connection and a working browser. Additionally, the application must already have a working connection to an AAS-Server, meaning that its different assets are already loaded on to the left side of the screen. | | |
| **Test steps** | | | |
| **Step** | **Action** | **Expected result** | **Actual result** |
| **1** | Move cursor to the left side of the screen onto the asset view and start scrolling up and down | The asset view scrolls up and down and reveals all assets that are available. | The preview of the assets does scroll up and down with the mouse wheel |
| **2** | Click on one of the assets | The space on the right side fills up with a more detailed view of the selected asset, providing an image (if available), its name, as well as information about all the sub models, which can be expanded and collapsed. | Detailed view with its information appeared. Image appeared.  Expand and collapse functionality worked. |
| **3** | Click on a different asset | The information about the old asset is replaced by the detailed view about the new asset. All information is replaced. | The detailed view changed to the new asset. Information was updated |
| **Tester: Tom Engelmann** | | | |
| **Date: 10.05.2023** | | | |
| **Test case result: PASS** | | | |

## <TC-Asset-Search-002> (Search for asset by name)

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| **Test case** | | | |
| **ID:** | TC-ASSET-SEARCH-002 | | |
| **Name:** | Search for asset by name | | |
| **Req.-ID:** | REQ80, REQ30 | | |
| **Description:** | The test case verifies the correct functionality of searching for specific assets by their name or by a substring of their name.  For testing, the inputs and expected results from the TD-003 table are used. As not all possible search inputs can be tested, those are categorized by several equivalence classes that are supposed to cover and represent all major groups of input possibilities.  The test set up consists of a computer, with an active internet connection and a working browser. Additionally, the application must already have a working connection to an AAS-Server, meaning that its different assets are already loaded on to the left side of the screen. In this case the server URL provided in TD-003 must be used to verify all the results. | | |
| **Test steps** | | | |
| **Step** | **Action** | **Expected result** | **Actual result** |
| **1** | Click on the search text input field within the filter bar above the assets and start typing in a name. | Below the search field an autocomplete field appears with all assets that start with the same characters as the input. | Input into text input field worked. Autocomplete functionality worked |
| **2** | Select one of the autocomplete suggestions | All assets except the chosen one disappear. | All assets in the preview disappeared except for the chosen one |
| **3** | Click on the cross next to the search input field | The search field is empty and all assets are displayed again. | Text input field was cleared. All assets are shown again in the preview |
| **4** | Click on the search text input field again | / |  |
| **5** | Type in the different search strings that are provided in TD-003 and click on the search icon | The assets that are specified in the expected results section of TD-003 for each input string are displayed. In case of an error, next to the search field, a error message appears. | After input of the URL listed in TD-003 the expected result is equivalent to the actual result |
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| **Test Data** | | | |  |
| **ID:** | **TD-003** | | |  |
| **Dataset** | **Equivalence class** | **Search strings** | **Expected result** | **Actual Result** |
| **1** | String at beginning of asset | “aas” | [AAS\_Type\_CD55B20\_50,  AAS\_Type\_JSY205220,  AAS\_Demo\_4WRPEH6,  AAS\_Demo\_CytroPac,  AAS\_R412026837,  AAS\_R481712899,  AAS\_Type\_SPAU-P10R-T-G18M-L-PNLK-PNVBA-M8D,  AAS\_Type\_VUVS-L25-M52-AD-G14-F8-1C1,  AAS\_Type\_DSBC-63-125-PPVA-N3] | [AAS\_Type\_CD55B20\_50,  AAS\_Type\_JSY205220,  AAS\_Demo\_4WRPEH6,  AAS\_Demo\_CytroPac,  AAS\_R412026837,  AAS\_R481712899,  AAS\_Type\_SPAU-P10R-T-G18M-L-PNLK-PNVBA-M8D,  AAS\_Type\_VUVS-L25-M52-AD-G14-F8-1C1,  AAS\_Type\_DSBC-63-125-PPVA-N3]  PASS |
| **2** | Substring in the middle of asset | “filter” | [ARGO-HYTOS Filter Element EXAPOR MAX3,  ARGO\_HYTOS\_Return\_Filter\_ES075] | [ARGO-HYTOS Filter Element EXAPOR MAX3,  ARGO\_HYTOS\_Return\_Filter\_ES075]  PASS |
| **3** | Numbers | “7” | [ARGO\_HYTOS\_Return\_Filter\_ES075, AAS\_R412026837,  AAS\_R481712899] | [ARGO\_HYTOS\_Return\_Filter\_ES075, AAS\_R412026837,  AAS\_R481712899]  PASS |
| **4** | Special Characters | “-” | [ARGO-HYTOS Filter Element EXAPOR MAX3,  Parker\_HMI-2203250342054\_HGDK8HU,  AAS\_Type\_SPAU-P10R-T-G18M-L-PNLK-PNVBA-M8D,  AAS\_Type\_VUVS-L25-M52-AD-G14-F8-1C1,  AAS\_Type\_DSBC-63-125-PPVA-N3] | [ARGO-HYTOS Filter Element EXAPOR MAX3,  Parker\_HMI-2203250342054\_HGDK8HU,  AAS\_Type\_SPAU-P10R-T-G18M-L-PNLK-PNVBA-M8D,  AAS\_Type\_VUVS-L25-M52-AD-G14-F8-1C1,  AAS\_Type\_DSBC-63-125-PPVA-N3]  PASS |
| **5** | Exact name of asset | “ARGO-HYTOS Filter Element EXAPOR MAX3” | [ARGO-HYTOS Filter Element EXAPOR MAX3] | [ARGO-HYTOS Filter Element EXAPOR MAX3]  PASS |
| **6** | Search string with no results | “abcd” | [] + Error warning | [] + “No entries found”-warning  Pass |
| **7** | Empty string | “” | \*All assets\* (compare TD-002, dataset 1, expected result) | All assets shown  PASS |
| **Tester: Tom Engelmann** | | | | |
| **Date: 10.05.2023** | | | | |
| **Test case result: PASS** | | | | |

## <TC-Asset-Filter-003> (Filter for asset by manufacturer name)

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| --- | --- | --- | --- |
| **Test case** | | | |
| **ID:** | TC-ASSET-FILTER-003 | | |
| **Name:** | Filter for asset by manufacturer name | | |
| **Req.-ID:** | REQ70 | | |
| **Description:** | The test case verifies the correct functionality of filtering for specific assets by the name of their manufacturer.  The test set up consists of a computer, with an active internet connection and a working browser. Additionally, the application must already have a working connection to an AAS-Server, meaning that its different assets are already loaded on to the left side of the screen. | | |
| **Test steps** | | | |
| **Step** | **Action** | **Expected result** | **Actual result** |
| **1** | Click on the manufacturer button within the filter bar above the assets | A drop-down menu appears with all the manufacturers that can be found in the assets of the connected server. | A drop-down menu appeared listing all manufacturers and an “All”-option |
| **2** | Select one of the drop-down options | All assets are displayed that are from the selected manufacturer. | All assets were shown correctly from the chosen manufacturer. “All”-optionen worked as well. |
| **3** | Click on the cross next to the search input field | All assets are displayed again. | Filter was removed successfully. |
| **Tester: Tom Engelmann** | | | |
| **Date: 10.05.2023** | | | |
| **Test case result: PASS** | | | |

## <TC-Asset-Sort-004> (Sort assets by their manufacturing year)

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| --- | --- | --- | --- |
| **Test case** | | | |
| **ID:** | TC-ASSET-SORT-004 | | |
| **Name:** | Sort assets by their manufacturing year | | |
| **Req.-ID:** | REQ60 | | |
| **Description:** | The test case verifies the correct functionality of sorting the assets by the year of their manufacturing.  The test set up consists of a computer, with an active internet connection and a working browser. Additionally, the application must already have a working connection to an AAS-Server, meaning that its different assets are already loaded on to the left side of the screen. | | |
| **Test steps** | | | |
| **Step** | **Action** | **Expected result** | **Actual result** |
| **1** | Click on the “Year” - button within the filter bar above the assets | A drop-down menu appears with the options “oldest first” and “newest first” | The drop-down menu appeared with the two mentioned options |
| **2** | Select the option “oldest first” | All assets are sorted from oldest to newest asset | The assets are sorted correctly beginning with the oldest asset |
| **3** | Select the option “newest first” | All assets are sorted from newest to oldest now | The assets are sorted correctly beginning with the newest |
| **Tester: Tom Engelmann** | | | |
| **Date: 10.05.2023** | | | |
| **Test case result: PASS** | | | |