1. Message Node detailed tests results
   1. Vertx Tests

The Vertx MN was deployed as docker container on the test machine according to the instructions at the Vertx MN github page.

* + 1. Vertx conformance tests

**1. Stub Connection and Disconnection**

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Test** | **Result** | **Comments** |
| 1.1 | connect / disconnect | **OK** |  |

**2. Hyperty address allocation messages**

| **No.** | **Test** | **Result** | **Comments** |
| --- | --- | --- | --- |
| 2.1 | allocate single hyperty address | **OK** |  |
| 2.2 | de-allocate single hyperty address | **OK** |  |
| 2.3 | allocate block of hyperty addresses | **OK** |  |
| 2.4 | de-allocate block of hyperty addresses | **OK** |  |
| 2.5 | allocate block of hyperty addresses with allocationKey | **OK** |  |
| 2.6 | de-allocate block of hyperty addresses by allocationKey | **OK** |  |

**3. Object address allocation messages**

| **No.** | **Test** | **Result** | **Comments** |
| --- | --- | --- | --- |
| 3.1 | Allocate single object address | **OK** |  |
| 3.2 | de-allocate single object address | **OK** |  |
| 3.3 | allocate block of object addresses | **OK** |  |
| 3.4 | de-allocate block of object addresses | **OK** |  |
| 3.5 | allocate block of object addresses with allocationKey | **OK** |  |
| 3.6 | de-allocate block of object addresses by allocationKey | **OK** |  |

**4. Subscription and publish messages**

| **No.** | **Test** | **Result** | **Comments** |
| --- | --- | --- | --- |
| 4.1 | Allocate object address | **OK** |  |
| 4.2 | subscribe for object address with body.source | **OK** |  |
| 4.3 | subscribe for object address without body.source | **OK** |  |
| 4.4 | publish attribute update and receive update on both subscribers | **OK** |  |
| 4.5 | unsubscribe both subscribers | **OK** |  |
| 4.6 | publish second attribute update and don’t update on both subscribers | **OK** |  |

**5. Hyperty registration messages**

| **No.** | **Test** | **Result** | **Comments** |
| --- | --- | --- | --- |
| 5.1 | Test setup: registration of an allocated hyperty address for a given userid | **OK** |  |
| 5.2 | Search a hyperty by given userid | **OK** |  |
| 5.3 | Search a hyperty address by given userid and scheme | **OK** |  |
| 5.4 | Search a hyperty by given userid and resource-types | **OK** |  |
| 5.5 | Search a hyperty by given userid, scheme and resource-types | **OK** |  |
| 5.6 | Search and retrieve hyperty-data by a given hyperty address | **OK** |  |
| 5.7 | Search for a non existing registry object/hyperty → expect correct error message | **OK** |  |
| 5.8 | Test correct handling of keep-alive messages for an active registration | **OK** |  |
| 5.9 | Subscription for update events, when the status of the registered object changes | **OK** |  |
| 5.10 | Test delivery and receiving of status update events | **FAIL** | Expected behavior,  Not implemented by RegistryConnector |
| 5.11 | unregistration of a hyperty address | **OK** |  |

* + 1. Vertx performance tests

**1. Allocate /de-allocate Hyperty addresses**

NOTE: Since the de-allocation of hyperty addresses was not implemented yet by the Vertx MN, the de-allocation tests have been commented out for now to let the overall test-suite proceed.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **No** | **Test** | **No. of addresses per iteration** | **With alloc. Key ?** | **Duration in milli-seconds for different no. of iterations** | | | **Comment** | |
| **100** | **1k** | **10k** | |  |
| 1.1 | Allocate | 1 |  | 258 | 1917 | 16338 | |  |
| 1.2 | De-allocate | 1 |  | 220 | 1473 | 12983 | |  |
| 1.3 | Allocate | 3 |  | 299 | 2830 | 15990 | |  |
| 1.4 | De-allocate | 3 |  | 170 | 2394 | 13380 | |  |
| 1.5 | Allocate | 3 | x | 219 | 1688 | 16389 | |  |
| 1.6 | De-allocate | 3 | x | 179 | 1428 | 13097 | |  |

**2. Allocate /de-allocate Object addresses**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **No** | **Test** | **No. of addresses per iteration** | **With alloc. Key ?** | **Duration in milli-seconds for different no. of iterations** | | | **Comment** | |
| **100** | **1k** | **10k** | |  |
| 2.1 | Allocate | 1 |  | 163 | 1595 | 16055 | |  |
| 2.2 | De-allocate | 1 |  | 149 | 135 | 13314 | |  |
| 2.3 | Allocate | 3 |  | 166 | 1606 | 16370 | |  |
| 2.4 | De-allocate | 3 |  | 148 | 1403 | 13342 | |  |
| 2.5 | Allocate | 3 | x | 167 | 1648 | 16187 | |  |
| 2.6 | De-allocate | 3 | x | 172 | 1302 | 13118 | |  |

**3. Hyperty messaging**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **No** | **Test** | **Duration in milli-seconds for different no. of iterations** | | | **Comment** | |
| **100** | **1000** | **10000** | |  |
| 3.1 | 100 Byte payload | 216 | 1683 | 14932 | |  |
| 3.2 | 1kByte payload | 225 | 1788 | 14533 | |  |
| 3.3 | 10kByte payload | 310 | 2232 | 19213 | |  |

**4. Subscription and Object update publication**

**NOTE:**

The tested VertX MN did not always forward the published events to all subscribed listeners. Especially in the runs with 200 listeners variying numbers of subscribers (2 to 9) did not receive the event. Since the completeness was a test criteria, the whole test failed in such a case.

The results for this test were constrained by the limited Websocket resources in browser. This is the reason why the runs with 1000 iterations where expected to fail.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **No** | **Test** | **Duration in milli-seconds for different no. of subscribers** | | | **Comment** | |
| **100** | **200** | **1000** | |  |
| 4.1 | 100 Byte payload | 352 | **FAIL** | **FAIL** | | 5 Lost Events in 200 iterations run;  Failure with 1000 iterations expected due to Limited Websocket resources in browser |
| 4.2 | 1kByte payload | 434 | **FAIL** | **FAIL** | | 2-5 Lost Events in 200 iterations run;  Failure with 1000 iterations expected due to Limited Websocket resources in browser |
| 4.3 | 10kByte payload | 391 | **FAIL** | **FAIL** | | 3-5 Lost Events in 200 iterations run;  Failure with 1000 iterations expected due to Limited Websocket resources in browser |

* 1. NoMatrix Tests

The NoMatrix MN was deployed and configured as a docker container according to the descriptions at <https://github.com/reTHINK-project/dev-msg-node-nomatrix>.

* + 1. NoMatrix conformance tests

**1. Stub Connection and Disconnection**

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Test** | **Result** | **Comments** |
| 1.1 | connect / disconnect | **OK** |  |

**2. Hyperty address allocation messages**

| **No.** | **Test** | **Result** | **Comments** |
| --- | --- | --- | --- |
| 2.1 | allocate single hyperty address | **OK** |  |
| 2.2 | de-allocate single hyperty address | **OK** |  |
| 2.3 | allocate block of hyperty addresses | **OK** |  |
| 2.4 | de-allocate block of hyperty addresses | **OK** |  |
| 2.5 | allocate block of hyperty addresses with allocationKey | **OK** |  |
| 2.6 | de-allocate block of hyperty addresses by allocationKey | **OK** |  |

**3. Object address allocation messages**

| **No.** | **Test** | **Result** | **Comments** |
| --- | --- | --- | --- |
| 3.1 | Allocate single object address | **OK** |  |
| 3.2 | de-allocate single object address | **OK** |  |
| 3.3 | allocate block of object addresses | **OK** |  |
| 3.4 | de-allocate block of object addresses | **OK** |  |
| 3.5 | allocate block of object addresses with allocationKey | **OK** |  |
| 3.6 | de-allocate block of object addresses by allocationKey | **OK** |  |

**4. Subscription and publish messages**

| **No.** | **Test** | **Result** | **Comments** |
| --- | --- | --- | --- |
| 4.1 | Allocate object address | **OK** |  |
| 4.2 | subscribe for object address with body.source | **OK** |  |
| 4.3 | subscribe for object address without body.source | **OK** |  |
| 4.4 | publish attribute update and receive update on both subscribers | **OK** |  |
| 4.5 | unsubscribe both subscribers | **OK** |  |
| 4.6 | publish second attribute update and don’t update on both subscribers | **OK** |  |

**5. Hyperty registration messages**

| **No.** | **Test** | **Result** | **Comments** |
| --- | --- | --- | --- |
| 5.1 | Test setup: registration of an allocated hyperty address for a given userid | **OK** |  |
| 5.2 | Search a hyperty by given userid | **OK** |  |
| 5.3 | Search a hyperty address by given userid and scheme | **OK** |  |
| 5.4 | Search a hyperty by given userid and resource-types | **OK** |  |
| 5.5 | Search a hyperty by given userid, scheme and resource-types | **OK** |  |
| 5.6 | Search and retrieve hyperty-data by a given hyperty address | **OK** |  |
| 5.7 | Search for a non existing registry object/hyperty → expect correct error message | **OK** |  |
| 5.8 | Test correct handling of keep-alive messages for an active registration | **OK** |  |
| 5.9 | Subscription for update events, when the status of the registered object changes | **OK** |  |
| 5.10 | Test delivery and receiving of status update events | **FAIL** | Expected behavior,  Not implemented in RegistryConnector |
| 5.11 | unregistration of a hyperty address | **OK** |  |

* + 1. NoMatrix performance tests

**1. Allocate /de-allocate Hyperty addresses**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **No** | **Test** | **No. of addresses per iteration** | **With alloc. Key ?** | **Duration in milli-seconds for different no. of iterations** | | | **Comment** | |
| **100** | **1k** | **10k** | |  |
| 1.1 | Allocate | 1 |  | 175 | 1572 | 15847 | |  |
| 1.2 | De-allocate | 1 |  | 152 | 1292 | 12646 | |  |
| 1.3 | Allocate | 3 |  | 181 | 160 | 15835 | |  |
| 1.4 | De-allocate | 3 |  | 155 | 1368 | 13348 | |  |
| 1.5 | Allocate | 3 | x | 158 | 1586 | 15711 | |  |
| 1.6 | De-allocate | 3 | x | 150 | 1349 | 13454 | |  |

**2. Allocate /de-allocate Object addresses**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **No** | **Test** | **No. of addresses per iteration** | **With alloc. Key ?** | **Duration in milli-seconds for different no. of iterations** | | | **Comment** | |
| **100** | **1k** | **10k** | |  |
| 2.1 | Allocate | 1 |  | 139 | 1552 | 15077 | |  |
| 2.2 | De-allocate | 1 |  | 126 | 1246 | 12487 | |  |
| 2.3 | Allocate | 3 |  | 168 | 1520 | 14918 | |  |
| 2.4 | De-allocate | 3 |  | 131 | 1352 | 13561 | |  |
| 2.5 | Allocate | 3 | x | 153 | 1498 | 15149 | |  |
| 2.6 | De-allocate | 3 | x | 146 | 1322 | 13492 | |  |

**3. Hyperty messaging**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **No** | **Test** | **Duration in milli-seconds for different no. of iterations** | | | **Comment** | |
| **100** | **1000** | **10000** | |  |
| 3.1 | 100 Byte payload | 129 | 1307 | 12731 | |  |
| 3.2 | 1kByte payload | 129 | 1340 | 13158 | |  |
| 3.3 | 10kByte payload | 172 | 1642 | 16431 | |  |

**4. Subscription and Object update publication**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **No** | **Test** | **Duration in milli-seconds for different no. of subscribers** | | | **Comment** | |
| **100** | **200** | **1000** | |  |
| 4.1 | 100 Byte payload | 193 | 358 | **FAIL** | | Expected behavior;  Limited Websocket resources in browser |
| 4.2 | 1kByte payload | 188 | 384 | **FAIL** | | See above |
| 4.3 | 10kByte payload | 197 | 374 | **FAIL** | | See above |

* 1. NodeJS Tests

The NodeJS MN was deployed and configured as a docker container according to the descriptions at <https://github.com/reTHINK-project/dev-msg-node-nodejs>. As described there also a required “redis” docker has been installed and setup for these tests.

* + 1. Nodejs conformance tests

**1. Stub Connection and Disconnection**

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Test** | **Result** | **Comments** |
| 1.1 | connect / disconnect | **OK** |  |

**2. Hyperty address allocation messages**

| **No.** | **Test** | **Result** | **Comments** |
| --- | --- | --- | --- |
| 2.1 | allocate single hyperty address | **OK** |  |
| 2.2 | de-allocate single hyperty address | **OK** |  |
| 2.3 | allocate block of hyperty addresses | **OK** |  |
| 2.4 | de-allocate block of hyperty addresses | **OK** |  |
| 2.5 | allocate block of hyperty addresses with allocationKey | **OK** |  |
| 2.6 | de-allocate block of hyperty addresses by allocationKey | **OK** |  |

**3. Object address allocation messages**

| **No.** | **Test** | **Result** | **Comments** |
| --- | --- | --- | --- |
| 3.1 | Allocate single object address | **OK** |  |
| 3.2 | de-allocate single object address | **OK** |  |
| 3.3 | allocate block of object addresses | **OK** |  |
| 3.4 | de-allocate block of object addresses | **OK** |  |
| 3.5 | allocate block of object addresses with allocationKey | **OK** |  |
| 3.6 | de-allocate block of object addresses by allocationKey | **OK** |  |

**4. Subscription and publish messages**

| **No.** | **Test** | **Result** | **Comments** |
| --- | --- | --- | --- |
| 4.1 | Allocate object address | **OK** |  |
| 4.2 | subscribe for object address with body.source | **OK** |  |
| 4.3 | subscribe for object address without body.source | **OK** |  |
| 4.4 | publish attribute update and receive update on both subscribers | **OK** |  |
| 4.5 | unsubscribe both subscribers | **OK** |  |
| 4.6 | publish second attribute update and don’t update on both subscribers | **OK** |  |

**5. Hyperty registration messages**

| **No.** | **Test** | **Result** | **Comments** |
| --- | --- | --- | --- |
| 5.1 | Test setup: registration of an allocated hyperty address for a given userid | **OK** |  |
| 5.2 | Search a hyperty by given userid | **OK** |  |
| 5.3 | Search a hyperty address by given userid and scheme | **OK** |  |
| 5.4 | Search a hyperty by given userid and resource-types | **OK** |  |
| 5.5 | Search a hyperty by given userid, scheme and resource-types | **OK** |  |
| 5.6 | Search and retrieve hyperty-data by a given hyperty address | **OK** |  |
| 5.7 | Search for a non existing registry object/hyperty → expect correct error message | **OK** |  |
| 5.8 | Test correct handling of keep-alive messages for an active registration | **OK** |  |
| 5.9 | Subscription for update events, when the status of the registered object changes | **OK** |  |
| 5.10 | Test delivery and receiving of status update events | **FAIL** | Expected behavior,  Not implemented in RegistryConnector |
| 5.11 | unregistration of a hyperty address | **OK** |  |

* + 1. Nodejs performance tests

**1. Allocate /de-allocate Hyperty addresses**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **No** | **Test** | **No. of addresses per iteration** | **With alloc. Key ?** | **Duration in milli-seconds for different no. of iterations** | | | **Comment** | |
| **100** | **1k** | **10k** | |  |
| 1.1 | Allocate | 1 |  | 259 | 1851 | 18551 | |  |
| 1.2 | De-allocate | 1 |  | 153 | 2218 | 14415 | |  |
| 1.3 | Allocate | 3 |  | 194 | 2547 | 18802 | |  |
| 1.4 | De-allocate | 3 |  | 170 | 2169 | 15074 | |  |
| 1.5 | Allocate | 3 | x | 188 | 2569 | 18709 | |  |
| 1.6 | De-allocate | 3 | x | 170 | 2154 | 14496 | |  |

**2. Allocate /de-allocate Object addresses**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **No** | **Test** | **No. of addresses per iteration** | **With alloc. Key ?** | **Duration in milli-seconds for different no. of iterations** | | | **Comment** | |
| **100** | **1k** | **10k** | |  |
| 2.1 | Allocate | 1 |  | 242 | 1752 | 16915 | |  |
| 2.2 | De-allocate | 1 |  | 154 | 1392 | 14156 | |  |
| 2.3 | Allocate | 3 |  | 193 | 1715 | 16908 | |  |
| 2.4 | De-allocate | 3 |  | 161 | 1379 | 13611 | |  |
| 2.5 | Allocate | 3 | x | 188 | 1754 | 16672 | |  |
| 2.6 | De-allocate | 3 | x | 154 | 1391 | 13286 | |  |

**3. Hyperty messaging**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **No** | **Test** | **Duration in milli-seconds for different no. of iterations** | | | **Comment** | |
| **100** | **1000** | **10000** | |  |
| 3.1 | 100 Byte payload | 270 | 1557 | 14493 | |  |
| 3.2 | 1kByte payload | 185 | 1616 | 15853 | |  |
| 3.3 | 10kByte payload | 267 | 2227 | 22393 | |  |

**4. Subscription and Object update publication**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **No** | **Test** | **Duration in milli-seconds for different no. of subscribers** | | | **Comment** | |
| **100** | **200** | **1000** | |  |
| 4.1 | 100 Byte payload | 282 | 569 | **FAIL** | | Expected behavior;  Limited Websocket resources in browser |
| 4.2 | 1kByte payload | 398 | 581 | **FAIL** | | See above |
| 4.3 | 10kByte payload | 498 | 791 | **FAIL** | | See above |