Test Plan

SOFT20091: SOFTWARE DESIGN & IMPLEMENTATION

Group 30

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# Must Requirements

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| **ID** | 01 | **Description** | Users must be able to send, receive and view messages through the application. |
| **Test Type** | Qualitative | **Success Criteria** | Message can send successfully and be received by another successfully |
| **Number of attempts** |  | **Comments** | This test uses a combination of white and black box testing. |
| **List of equipment / requirements** | Computer running Ubuntu Image  MQTT  QT Creator  Server functionality – message passing | | |
| **Setup Instructions** | Test run the application with the MQTT server active with multiple clients to test whether it is functional.  Prior to alternative – UI based message sending functionality, may use direct input to pass the message over command line. | | |
| **Failure Correction Procedure** | Verify client and server source code for message sending and receiving for errors. | | |
| **Engineer(s) / Technicians** |  | | |
| **Individual Results** |  | | |
| **Test Date** |  | **Result** |  |

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| **ID** | 02 | **Description** | Users must be able to create chat rooms (rooms with more than two contacts) |
| **Test Type** | Qualitative | **Success Criteria** | User able to create chatroom and add at least 2 other users. |
| **Number of attempts** |  | **Comments** | This test uses a combination of white and black box testing. |
| **List of equipment / requirements** | Computer running Ubuntu Image  MQTT  QT Creator  Server functionality  Chatroom functionality | | |
| **Setup Instructions** | Create chatroom with user, add multiple other users to chatroom. Send test message, check that other users added can view the chatroom and sent message. | | |
| **Failure Correction Procedure** | Verify client and server source code for message sending and receiving for errors. Verify user and chatroom classes for errors. | | |
| **Engineer(s) / Technicians** |  | | |
| **Individual Results** |  | | |
| **Test Date** |  | **Result** |  |

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| **ID** | 03 | **Description** | The user that creates the chat room must be classified as Admin. |
| **Test Type** | Qualitative | **Success Criteria** | When a user creates a chatroom, they are classified as an admin and has access to all admin capabilities. |
| **Number of attempts** |  | **Comments** | May have a specific label the user can see to know they are an admin or might need to do some white box testing to check. |
| **List of equipment / requirements** | Computer running Ubuntu Image  QT Creator  Server functionality  Chatroom functionality  Admin and User classes | | |
| **Setup Instructions** | Run application and create a chatroom. | | |
| **Failure Correction Procedure** | Verify server for errors and user, admin and chatroom classes for errors. | | |
| **Engineer(s) / Technicians** |  | | |
| **Individual Results** |  | | |
| **Test Date** |  | **Result** |  |

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| **ID** | 04 | **Description** | The moderator must be able to invite and remove users from a chatroom. |
| **Test Type** | Qualitative | **Success Criteria** | Moderator able to add user. Added user able to see and interact with the chatroom, when the removed however they are unable to see it |
| **Number of attempts** |  | **Comments** | This test may use white box techniques prior to the UI’s implementation. |
| **List of equipment / requirements** | Computer running Ubuntu Image  MQTT  QT Creator  Server functionality  Admin, Moderator, User classes | | |
| **Setup Instructions** | Enable MQTT server, run application as two users, user A creates a chatroom and as Moderator adds user B, user B checks their chatroom access, user A removes user B, user B checks their access again. | | |
| **Failure Correction Procedure** | Verify client and server source code for errors. Chatroom source code for permission errors. | | |
| **Engineer(s) / Technicians** |  | | |
| **Individual Results** |  | | |
| **Test Date** |  | **Result** |  |

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| **ID** | 06 | **Description** | Application must provide a friendly User Interface (UI) |
| **Test Type** | Quantitative | **Success Criteria** | User response is at least 60% positive based on numerical feedback. |
| **Number of attempts** |  | **Comments** | Since user acceptance is challenging to evaluate, a judgement call might be made. |
| **List of equipment / requirements** | Computer running Ubuntu Image  MQTT  QT Creator  Test User  User Feedback form  UI functionality | | |
| **Setup Instructions** | Begin application and give to user to evaluate.  Have at least one test user evaluate the interface based on usability proved feedback. | | |
| **Failure Correction Procedure** | Using collected user feedback as a guide, re-evaluate UI design and make usability improvements, recollect feedback. | | |
| **Engineer(s) / Technicians** |  | | |
| **Individual Results** |  | | |
| **Test Date** |  | **Result** |  |

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| **ID** | 07 | **Description** | Users must be able to see the active users in the chat room. |
| **Test Type** | Qualitative | **Success Criteria** | All active users are visible through the chatroom interface. |
| **Number of attempts** |  | **Comments** |  |
| **List of equipment / requirements** | Computer running Ubuntu Image  MQTT  QT Creator  UI functionality  Server functionality  Chatroom functionality | | |
| **Setup Instructions** | Begin application, create a chatroom, add multiple users, have some be online and some offline. Check the active users updates when users go online and offline. | | |
| **Failure Correction Procedure** | Verify client and server source code for errors. Verify UI for errors and chatroom source code for errors. | | |
| **Engineer(s) / Technicians** |  | | |
| **Individual Results** |  | | |
| **Test Date** |  | **Result** |  |

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| **ID** | 08 | **Description** | Users must be notified when a new notification is received. |
| **Test Type** | Qualitative | **Success Criteria** | All notification worthy events trigger a notification. |
| **Number of attempts** |  | **Comments** | Notification worthy events include direct messages, chatroom messages or being added to a chatroom. |
| **List of equipment / requirements** | Computer running Ubuntu Image  MQTT  QT Creator  UI functionality  Server functionality  Chatroom functionality  Notification system | | |
| **Setup Instructions** | Set up two clients, one to send messages and make a chatroom, and one to receive the notifications when the events occur. | | |
| **Failure Correction Procedure** | Verify notification method for errors, verify that all event that trigger a notification are in place. | | |
| **Engineer(s) / Technicians** |  | | |
| **Individual Results** |  | | |
| **Test Date** |  | **Result** |  |

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| **ID** | 09 | **Description** | Clients must not connect directly to other clients without a server or a broker. |
| **Test Type** | Qualitative | **Success Criteria** | A connection error message is displayed when a message is attempted to be sent while disconnected. |
| **Number of attempts** |  | **Comments** | If clients can connect directly this would pose a security risk. Uses white box techniques. |
| **List of equipment / requirements** | Computer running Ubuntu Image  MQTT  Server functionality | | |
| **Setup Instructions** | Manually disable MQTT server broker and attempt to connect client. | | |
| **Failure Correction Procedure** | Check for bugs and implement error handling procedure for client/server connection. | | |
| **Engineer(s) / Technicians** |  | | |
| **Individual Results** |  | | |
| **Test Date** |  | **Result** |  |

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| **ID** | 10 | **Description** | A server or a broker must allow multiple authorised clients to connect to it |
| **Test Type** | Qualitative | **Success Criteria** | Multiple clients can successfully connect to the server simultaneously |
| **Number of attempts** |  | **Comments** | May use white box techniques |
| **List of equipment / requirements** | Computer running Ubuntu Image  MQTT  Server functionality | | |
| **Setup Instructions** | Enable MQTT server and attempt to connect at least 3 clients. | | |
| **Failure Correction Procedure** | Verify client and server source code for errors. | | |
| **Engineer(s) / Technicians** |  | | |
| **Individual Results** |  | | |
| **Test Date** |  | **Result** |  |

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| **ID** | 11 | **Description** | Users must only access their space after the login |
| **Test Type** | Qualitative | **Success Criteria** | User is only able to access their space after login |
| **Number of attempts** |  | **Comments** | Very important for data protection purposes. |
| **List of equipment / requirements** | Computer running Ubuntu Image  MQTT  QT Creator  Login Procedure | | |
| **Setup Instructions** | Start application and ensure that a test account with username and password is available. Test that incorrect username/password combo, incorrect username / correct password, correct username / correct password combinations don’t work, before using correct username/password. | | |
| **Failure Correction Procedure** | Verify login source code for errors. | | |
| **Engineer(s) / Technicians** |  | | |
| **Individual Results** |  | | |
| **Test Date** |  | **Result** |  |

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| **ID** | 12 | **Description** | Passwords must be saved securely locally. |
| **Test Type** | Qualitative | **Success Criteria** | Passwords are inaccessible or otherwise not easily hackable. |
| **Number of attempts** |  | **Comments** | This might requires some white box techniques to check everything is secure |
| **List of equipment / requirements** | Computer running Ubuntu Image  MQTT  QT Creator  Test User  Login System | | |
| **Setup Instructions** | Attempt to hack application by trying to decrypt passwords using rainbow table. | | |
| **Failure Correction Procedure** | Verify source code for errors, implement additional error handling and validation procedures. | | |
| **Engineer(s) / Technicians** |  | | |
| **Individual Results** |  | | |
| **Test Date** |  | **Result** |  |

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| **ID** | 14 | **Description** | Application must list all the personal contacts in the contacts pane. |
| **Test Type** | Qualitative | **Success Criteria** | Contact’s pane shows all user contacts. |
| **Number of attempts** |  | **Comments** | Requires classes and UI implementation |
| **List of equipment / requirements** | Computer running Ubuntu Image  MQTT  QT Creator  Contacts System  UI Functionality | | |
| **Setup Instructions** | Set up a user with a few dummy contacts. | | |
| **Failure Correction Procedure** | Verify source code and UI for errors, implement additional error handling. | | |
| **Engineer(s) / Technicians** |  | | |
| **Individual Results** |  | | |
| **Test Date** |  | **Result** |  |

# Should Requirements

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| **ID** | 05 | **Description** | Moderators must inherit all the admin permissions; however, Moderators cannot demote the Admin |
| **Test Type** | Qualitative | **Success Criteria** | Moderator able to add/remove but unable to demote admin (linked to 15). |
| **Number of attempts** | 1 | **Comments** |  |
| **List of equipment / requirements** | Computer running Ubuntu Image  MQTT  QT Creator  Server functionality  Class structure implemented | | |
| **Setup Instructions** | Enable MQTT server, run application as three users; admin, moderator, user. Check the admin and moderator have the same ability to add and remove the user from the chatroom, the moderator unable to demote the admin. | | |
| **Failure Correction Procedure** | Verify client and server source code for errors. Moderator and admin source code for permission errors. | | |
| **Engineer(s) / Technicians** |  | | |
| **Individual Results** |  | | |
| **Test Date** |  | **Result** |  |

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| **ID** | 15 | **Description** | The admin should be able to promote and demote users to moderators in chat rooms. |
| **Test Type** | Qualitative | **Success Criteria** | User given moderator and then moderator removed. |
| **Number of attempts** |  | **Comments** | Moderators should not be able to promote/demote admin (see 05) |
| **List of equipment / requirements** | Computer running Ubuntu Image  MQTT  QT Creator  Chatroom functionality  Moderator/admin/user classes | | |
| **Setup Instructions** | Set up a chatroom and use the associated admin account, add an additional user. Promote the user to moderator, check on their end whether it went through, demote the user, check again. | | |
| **Failure Correction Procedure** | Verify source code for errors, implement additional error handling. | | |
| **Engineer(s) / Technicians** |  | | |
| **Individual Results** |  | | |
| **Test Date** |  | **Result** |  |

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| **ID** | 16 | **Description** | The moderator should be able to create and delete channels in the chatroom |
| **Test Type** | Qualitative | **Success Criteria** | Moderator can add and remove channel. |
| **Number of attempts** |  | **Comments** | Should also test this ability is available to Admin. |
| **List of equipment / requirements** | Computer running Ubuntu Image  MQTT  QT Creator  Chatroom functionality with channels  Moderator/admin/user classes | | |
| **Setup Instructions** | Set up a chatroom and use a moderator account, add a channel to chatroom. Check the channel is viewable to other users and messages can be sent received. As moderator, remove channel. Check this is updated for users. | | |
| **Failure Correction Procedure** | Verify chatroom and moderator source code for errors, implement additional error handling. | | |
| **Engineer(s) / Technicians** |  | | |
| **Individual Results** |  | | |
| **Test Date** |  | **Result** |  |

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| **ID** | 17 | **Description** | The moderator should be able to delete a user’s messages in the chatroom. |
| **Test Type** | Qualitative | **Success Criteria** | Moderator can delete the message. |
| **Number of attempts** |  | **Comments** | Should also test this ability is available to Admin. |
| **List of equipment / requirements** | Computer running Ubuntu Image  MQTT  QT Creator  Messaging Functionality  Chatroom functionality with channels  Moderator/admin/user classes | | |
| **Setup Instructions** | Set up a chatroom and use a moderator and user account. With user account, send message. With moderator account, delete message. Check that the message is no longer visible to all members. | | |
| **Failure Correction Procedure** | Verify source code for errors, implement additional error handling. | | |
| **Engineer(s) / Technicians** |  | | |
| **Individual Results** |  | | |
| **Test Date** |  | **Result** |  |

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| **ID** | 18 | **Description** | Users should be able to change their status |
| **Test Type** | Qualitative | **Success Criteria** | User can change status and their status is visible as the same for other users. |
| **Number of attempts** |  | **Comments** | How status is displayed is UI dependant and may change. |
| **List of equipment / requirements** | Computer running Ubuntu Image  MQTT  QT Creator  UI functionality  Status settings  Contact’s functionality | | |
| **Setup Instructions** | Open two users, who have each other as contacts. Have one change their status, check the change is visible to the other. | | |
| **Failure Correction Procedure** | Verify source code for errors, implement additional error handling. | | |
| **Engineer(s) / Technicians** |  | | |
| **Individual Results** |  | | |
| **Test Date** |  | **Result** |  |

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| **ID** | 19 | **Description** | User should be able to change their details including their picture. |
| **Test Type** | Qualitative | **Success Criteria** | User can change details and their new details that are public are visible as the same for another user. The changes persist. |
| **Number of attempts** |  | **Comments** | Details may include profile photo, name and email |
| **List of equipment / requirements** | Computer running Ubuntu Image  MQTT  QT Creator  User settings functionality  Contact’s functionality  Account’s login system | | |
| **Setup Instructions** | Open two users, who have each other as contacts. Have one change their details and check the changes are visible to the other user. Exit the user and re-sign-in, check the changes have persisted. | | |
| **Failure Correction Procedure** | Verify source code for errors, implement additional error handling. | | |
| **Engineer(s) / Technicians** |  | | |
| **Individual Results** |  | | |
| **Test Date** |  | **Result** |  |

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| **ID** | 20 | **Description** | Files transfer should only start if the contact clicks on the link |
| **Test Type** | Qualitative | **Success Criteria** | File transfer only begins when the receiving user clicks the link. |
| **Number of attempts** |  | **Comments** | Might require some white box testing by having a breakpoint at the point of a file being downloaded. |
| **List of equipment / requirements** | Computer running Ubuntu Image  MQTT  QT Creator  File transfer functionality  Messaging system | | |
| **Setup Instructions** | Open two users, who have each other as contacts, have one send a small test file. Check download does not begin until user clicks on it using a breakpoint. | | |
| **Failure Correction Procedure** | Verify source code for errors, implement additional error handling. | | |
| **Engineer(s) / Technicians** |  | | |
| **Individual Results** |  | | |
| **Test Date** |  | **Result** |  |

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| **ID** | 21 | **Description** | Messages should be sent and received within 5-10 seconds |
| **Test Type** | Quantitative | **Success Criteria** | Time between messages being sent and received is <10 seconds, on average |
| **Number of attempts** |  | **Comments** | May use some white box techniques to get the most accurate time |
| **List of equipment / requirements** | Computer running Ubuntu Image  MQTT  QT Creator  Timer  Message Sending | | |
| **Setup Instructions** | Set up two users with each other as contacts, one to send and one to receive. Send a message and time how long it takes to receive a response. | | |
| **Failure Correction Procedure** | Verify client and server source code and message sending procedure for efficiency issues. | | |
| **Engineer(s) / Technicians** |  | | |
| **Individual Results** |  | | |
| **Test Date** |  | **Result** |  |

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| **ID** | 22 | **Description** | Users should be logged off automatically after a specific amount of time. |
| **Test Type** | Qualitative | **Success Criteria** | User automatically logged out in expected time. |
| **Number of attempts** |  | **Comments** | Might edit source code to have the time be shorter temporarily, so long as they are automatically logged out within the expected amount of time. |
| **List of equipment / requirements** | Computer running Ubuntu Image  MQTT  QT Creator  Timer  Login System Implemented | | |
| **Setup Instructions** | Log in to a user account and start timer, stop timer when logged out. | | |
| **Failure Correction Procedure** | Verify source code for errors, implement additional error handling. | | |
| **Engineer(s) / Technicians** |  | | |
| **Individual Results** |  | | |
| **Test Date** |  | **Result** |  |

# Could Requirements

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| **ID** | 23 | **Description** | User pictures could be displayed in the channels. |
| **Test Type** | Qualitative | **Success Criteria** | User’s pictures shown in channels beside their messages for all users. |
| **Number of attempts** |  | **Comments** |  |
| **List of equipment / requirements** | Computer running Ubuntu Image  MQTT  QT Creator  Messaging functionality  User profiles system | | |
| **Setup Instructions** | Log in to two users that have access to the same chatroom in the same channel. Set the images of both and send messages in the same channel. Both send a message and ensure that the image is visible for both message. | | |
| **Failure Correction Procedure** | Verify source code for errors, implement additional error handling. | | |
| **Engineer(s) / Technicians** |  | | |
| **Individual Results** |  | | |
| **Test Date** |  | **Result** |  |

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| **ID** | 24 | **Description** | Application could allow the exchange of files with contacts. |
| **Test Type** | Qualitative | **Success Criteria** | User receives and is able to access files send from contacts. |
| **Number of attempts** |  | **Comments** |  |
| **List of equipment / requirements** | Computer running Ubuntu Image  MQTT  QT Creator  Messaging functionality  File handling | | |
| **Setup Instructions** | Log in to two users that have each other as contacts. Have a small test file ready to send. Send test file from one user to another | | |
| **Failure Correction Procedure** | Verify source code for errors, implement additional error handling. | | |
| **Engineer(s) / Technicians** |  | | |
| **Individual Results** |  | | |
| **Test Date** |  | **Result** |  |

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| **ID** | 25 | **Description** | Users could be able to send emoji’s. |
| **Test Type** | Qualitative | **Success Criteria** | User receives and can see emoji. |
| **Number of attempts** |  | **Comments** |  |
| **List of equipment / requirements** | Computer running Ubuntu Image  MQTT  QT Creator  Message sending system implemented | | |
| **Setup Instructions** | Log in to two users that have each other as contacts. Have emoji’s available on the keyboard send a collection of emoji’s and check the user has received. | | |
| **Failure Correction Procedure** | Verify source code for errors, implement additional error handling. | | |
| **Engineer(s) / Technicians** |  | | |
| **Individual Results** |  | | |
| **Test Date** |  | **Result** |  |

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| **ID** | 26 | **Description** | Messages could come with sent and read receipts |
| **Test Type** | Qualitative | **Success Criteria** | Users able to see when a message was sent and able to see whether other user has read their message. |
| **Number of attempts** |  | **Comments** |  |
| **List of equipment / requirements** | Computer running Ubuntu Image  MQTT  QT Creator  Messaging system | | |
| **Setup Instructions** | Log in to two users that have each other as contacts. | | |
| **Failure Correction Procedure** | Verify source code for errors, implement additional error handling. | | |
| **Engineer(s) / Technicians** |  | | |
| **Individual Results** |  | | |
| **Test Date** |  | **Result** |  |

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| **ID** | 27 | **Description** | User able to select a contact and view message history with that user |
| **Test Type** | Qualitative | **Success Criteria** | Able view all previous messages exchanged. |
| **Number of attempts** |  | **Comments** |  |
| **List of equipment / requirements** | Computer running Ubuntu Image  MQTT  QT Creator  Messaging system  Additional file handling | | |
| **Setup Instructions** | Create a message history with two users who have each other as contacts. Log in as user. | | |
| **Failure Correction Procedure** | Verify source code for errors, implement additional error handling. | | |
| **Engineer(s) / Technicians** |  | | |
| **Individual Results** |  | | |
| **Test Date** |  | **Result** |  |

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| **ID** | 28 | **Description** | Offline messages could be stored in the client-side and transmitted to the target user(s) once they are online. |
| **Test Type** | Qualitative | **Success Criteria** | Message is delivered once user is online. |
| **Number of attempts** |  | **Comments** |  |
| **List of equipment / requirements** | Computer running Ubuntu Image  MQTT  QT Creator  Messaging system  Additional file handling | | |
| **Setup Instructions** | Log into one user who is offline, and one online. Send message as offline user, check the online user hasn’t got it, go online and check the online user receives the message. | | |
| **Failure Correction Procedure** | Verify source code and server for errors, implement additional error handling. | | |
| **Engineer(s) / Technicians** |  | | |
| **Individual Results** |  | | |
| **Test Date** |  | **Result** |  |

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| **ID** | 29 | **Description** | Attempt to run application on macOS and Windows 10 |
| **Test Type** | Qualitative | **Success Criteria** | Application able to run |
| **Number of attempts** |  | **Comments** | May be actual machines with the OSs or virtual images of them. |
| **List of equipment / requirements** | Computer running Ubuntu Image  VM with MacOS Image or an Apple Mac computer  Computer running Windows 10  MQTT  QT Creator | | |
| **Setup Instructions** | Set up application on MacOS machine and Windows machine. Attempt to run. | | |
| **Failure Correction Procedure** | Verify build settings and check portability capabilities. | | |
| **Engineer(s) / Technicians** |  | | |
| **Individual Results** |  | | |
| **Test Date** |  | **Result** |  |

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| **ID** | 30 | **Description** | Application could have a light and dark mode. |
| **Test Type** | Qualitative | **Success Criteria** | UI colour scheme changes from light preset, to dark and back to light. This is true across all pages. |
| **Number of attempts** |  | **Comments** |  |
| **List of equipment / requirements** | Computer running Ubuntu Image  MQTT  QT Creator  Settings page implemented | | |
| **Setup Instructions** | Access application, navigate to settings and change to dark mode, then back to light mode. | | |
| **Failure Correction Procedure** | Verify source code and UI for errors, implement additional error handling. | | |
| **Engineer(s) / Technicians** |  | | |
| **Individual Results** |  | | |
| **Test Date** |  | **Result** |  |

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| **ID** | 31 | **Description** | Application could have text-size customisation. |
| **Test Type** | Qualitative | **Success Criteria** | Text size in all pages of the application changes to reflect text size setting. |
| **Number of attempts** |  | **Comments** |  |
| **List of equipment / requirements** | Computer running Ubuntu Image  MQTT  QT Creator  Settings page | | |
| **Setup Instructions** | Access application, change text size in settings, check text size has been updated. | | |
| **Failure Correction Procedure** | Verify source code and server for errors, implement additional error handling. | | |
| **Engineer(s) / Technicians** |  | | |
| **Individual Results** |  | | |
| **Test Date** |  | **Result** |  |

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| **ID** | 32 | **Description** | The application could have several language options. |
| **Test Type** | Qualitative | **Success Criteria** | Language pre-set changed for all pages of the application. |
| **Number of attempts** |  | **Comments** |  |
| **List of equipment / requirements** | Computer running Ubuntu Image  MQTT  QT Creator  Settings Page | | |
| **Setup Instructions** | Access application, change language via settings, check language pre-set updated across all pages. | | |
| **Failure Correction Procedure** | Verify source code and UI for errors, implement additional error handling. | | |
| **Engineer(s) / Technicians** |  | | |
| **Individual Results** |  | | |
| **Test Date** |  | **Result** |  |