IWL MQTT Test Suite

Executive Overview

MQTT is a lightweight, low-power/bandwidth, publish/subscribe messaging protocol ideal for sensors, mobile devices, and the Internet of Things (IoT).

The IWL MQTT Test Suite provides MQTT implementers with a robust solution for testing apps and devices with a high quality, commercial test suite.

Whether your job is to find MQTT compliance and robustness problems or to fix them, the IWL MQTT Test Suite is your most valuable ally.

The MQTT Test Suite software automatically identifies bugs and anomalies in apps and devices to help MQTT implementers fix their MQTT implementations – ranging from tire pressure sensors to trash bins to gas detectors.

IWL's MQTT Test Suite may be used to evaluate the quality of MQTT brokers (servers),

Test Coverage and Access

The IWL MQTT Test Suite tests MQTT broker (server) implementations using both:

- MQTT version 3.1.1
- MQTT version 5

The tests are grouped into three categories: Basic Operations, Conformance, and Robustness.

Presently there are 324 unique test cases. The test cases exercise one or a small number of parameters. Each test references the "source of authority" for the test.

Test coverage includes tests for protocol compliance, error and exception handling, and boundary condition behavior and functionality.

User Interface Support

The IWL MQTT Test Suite supports:

- A graphical user interface (via a web browser) and
- Python scripting via the command line interface
- Shell commands via the command line interface

Architecture

The IWL MQTT Test Suite architecture incorporates "Robot Framework", a test automation framework for acceptance testing and acceptance test-driven development. The use of Robot Framework permits easy integration of the IWL MQTT Test Suite with other test harnesses and test tools.

MQTT Test Suite Operation

Setup

- Use TLS/SSL authentication
- Select logging options: Info or Debugging
- Save and reload configuration files
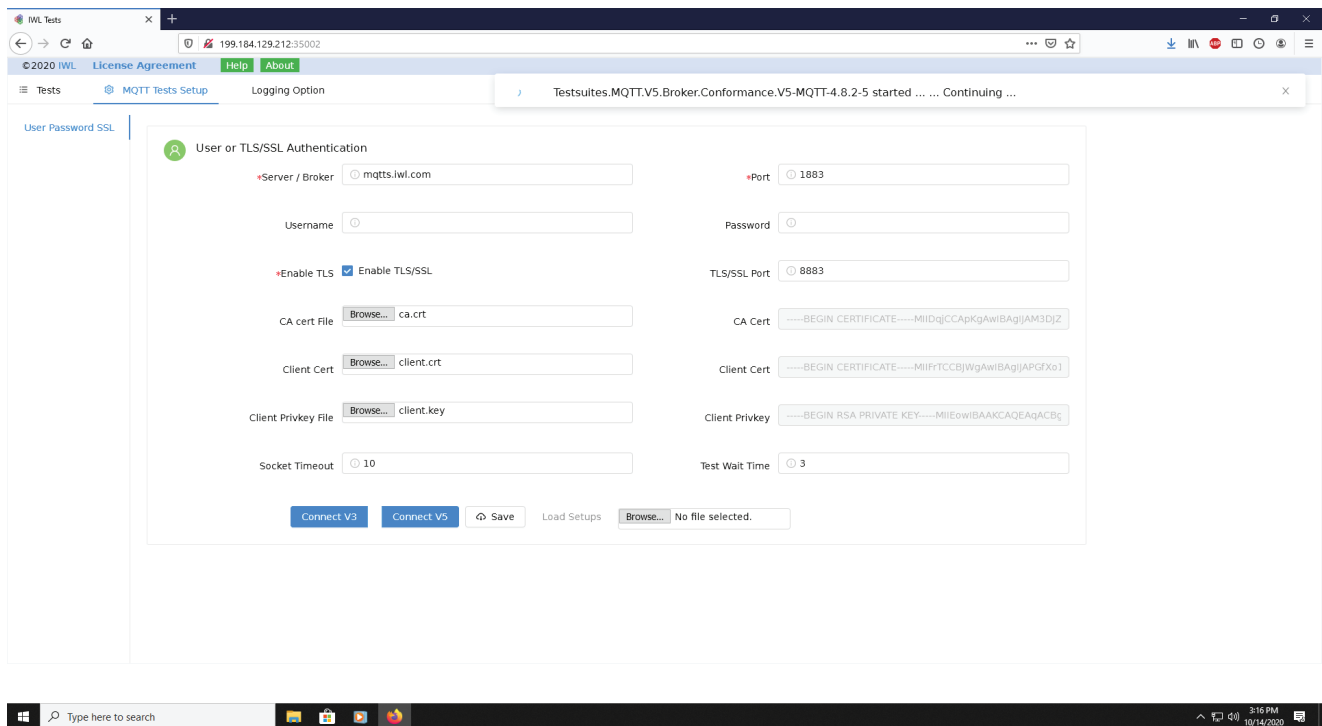
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Integration

Full support of the Python language. Tests can be run using Python scripting or as a stand-alone command line program. Therefor it is easy to integrate the IWL MQTT Tests into your existing test environment.

Documentation

- Online Help (user manual)
- Comprehensive List of Tests

Test Output

- Standard Result Codes: Passed, Failed, Warning.
- XML result file (can be easily parsed using Robotframework Python API)
- HTML result file and log for display in a Web browser.

← → C ⚠ Not secure │ 199.184.129.212:35002/api/test_results/log.html

Testsuites Log

Generated
20201016 14:45:45 UTC-07:00
6 minutes 46 seconds ago

Test Statistics

Total Statistics		Total	Pass	Fail	Elapsed	Pass / Fail
Critical Tests		324	130	194	00:46:27	
All Tests		324	130	194	00:46:27	

Statistics by Tag		Total	Pass	Fail	Elapsed	Pass / Fail
basic		33	17	16	00:03:37	
compliance311_server		114	41	73	00:10:19	
compliance5_server		154	58	96	00:18:25	
compliance8_server		1	0	1	00:00:04	
mqtt_server_basic_operation_userauth		28	16	12	00:01:54	
mqtt_server_compliance_tests_tls		285	107	178	00:35:23	
robustness		22	14	8	00:14:02	

Statistics by Suite		Total	Pass	Fail	Elapsed	Pass / Fail
Testsuites		324	130	194	00:49:12	
Testsuites.MQTT		324	130	194	00:49:11	
Testsuites.MQTT.V3.1.1		138	56	82	00:17:05	
Testsuites.MQTT.V3.1.1.Broker		138	56	82	00:17:05	
Testsuites.MQTT.V3.1.1.Broker.Basic-Operations		13	8	5	00:00:51	
Testsuites.MQTT.V3.1.1.Broker.Conformance		114	41	73	00:11:16	
Testsuites.MQTT.V3.1.1.Broker.Robustness		11	7	4	00:04:58	
Testsuites.MQTT.V5		186	74	112	00:32:06	
Testsuites.MQTT.V5.Broker		186	74	112	00:32:06	
Testsuites.MQTT.V5.Broker.Basic-Operations		15	8	7	00:01:18	
Testsuites.MQTT.V5.Broker.Conformance		160	59	101	00:21:32	
Testsuites.MQTT.V5.Broker.Robustness		11	7	4	00:09:16	

Test Execution Errors

| 20201016 14:21:49.394 | WARN | CONNACK does not contain Retain Available to test MQTT_3.2.2_14 |
| 20201016 14:21:51.610 | WARN | CONNACK does not contain Maximum Packet Size to test MQTT_3.2.2_15 |

Test Execution Log

⊟ SUITE Testsuites

Full Name:	Testsuites
Source:	/usr/local/pte/lib/testsuites