

Internship Report: MQTT over TLS Security Assessment

Facoltà di Ingegneria dell'Informazione, Informatica e Statistica Corso di laurea triennale in Informatica erogato in modalità Teledidattica

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Problem Definition

Some text

Key Concepts

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2.0.1 MQTT

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2.0.2 SSL/TLS

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2.0.3 Certificate Authority

TLS Vulnerabilities

Test Suite

```
4.0.1
      Test Case 1 - Legal Connection
4.0.2
      Test Case 2 - Self Signed Attacker
      Test Case 3 - Self Signed Attacker's Fake CA
4.0.3
      Test Case 4 - Alteration 1 (Common Name)
4.0.5
      Test Case 5 - Alteration 2 (Expiration Date)
4.0.6
      Test Case 6 - Alteration 3 (Public Key)
      Test Case 7 - Expired CA (Iteration 4)
      Test Case 8 - Certificate Extension
4.0.8
      Test Case 9 - Longer Chain Of Trust Legal Connection
4.0.9
```

4. Test Suite

4.0.10 Test Case 10 - Altered Intermediate CA Common Name

4.0.11 $\,$ Test Case 11 - Altered Intermediate CA Public Key

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Code Developed

•••	
5.0.1	TLS Certificates Generation Script
•••	
5.0.2	TLS Certificate Alteration Scripts
5.0.3	TLS Certificate Keystores Generation Script
5.0.4	MQTT Client Tester Script
5.0.5	Library Tester Script

Tested MQTT Libraries

Test Results

Docker Test Environment

RouterOS CHR Tests

Conclusion