



NIST SPECIAL PUBLICATION 1800-37

Addressing Visibility Challenges with TLS 1.3 within the Enterprise High-Level Document

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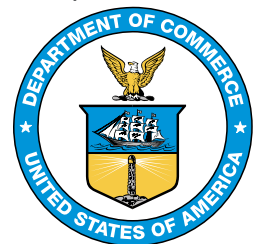
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NIST Cybersecurity Practice Guides (Special Publication 1800 series) target specific cybersecurity challenges in the public and private sectors. They are practical, user-friendly guides that facilitate the adoption of standards-based approaches to cybersecurity. They show members of the information security community how to implement example solutions that help them align with relevant standards and best practices, and provide users with the materials lists, configuration files, and other information they need to implement a similar approach.

The documents in this series describe example implementations of cybersecurity practices that businesses and other organizations may voluntarily adopt. These documents do not describe regulations or mandatory practices, nor do they carry statutory authority.

ABSTRACT

The Transport Layer Security (TLS) protocol is widely deployed to secure network traffic. TLS 1.3 protects the contents of its previous TLS communications even if a TLS-enabled server is compromised. This is known as forward secrecy. The approach used to achieve forward secrecy in TLS 1.3 may interfere with passive decryption techniques that enterprises rely on to have visibility into their TLS 1.2 traffic. Enterprises' authorized network security staff rely on that visibility to protect its data and systems with critical cybersecurity controls to meet operational needs and legal requirements. Adoption of the TLS 1.3 protocol can disrupt current approaches to observing and monitoring internal network communications within an enterprise.

The NCCoE, in collaboration with technology providers and enterprise customers, initiated a project to demonstrate options for maintaining visibility within the TLS 1.3 protocol using several standards-compliant builds that enterprises can use for real-time and post-facto systems monitoring and analytics capabilities.

This publication contains demonstrated proofs of concept along with links to detailed technical information online on NIST pages. This publication also includes links to mappings of TLS 1.3 visibility principles to commonly used security standards and guidelines.

KEYWORDS

bounded lifetime; break and inspect; ephemeral; key management; middlebox; passive decryption; passive inspection; protocol; Transport Layer Security (TLS); visibility.

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Technology Partner/Collaborator	Build Involvement
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DigiCert	Not for Radio LLC
F5	Thales Trusted Cyber Technologies
JPMorgan Chase & Company	U.S. Bank Corporation

Technology Partner/Collaborator	Build Involvement
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Table of Contents

1	Executive Summary.....	1
2	Introduction.....	2
2.1	Audience.....	4
2.2	How to use this Guide.....	4
3	Project Overview	4
3.1	Background.....	4
3.2	Solution.....	5
4	Architecture and Builds.....	6
4.1	Project Collaborators	6
4.1.1	AppViewX.....	7
4.1.2	DigiCert	7
4.1.3	F5.....	8
4.1.4	JPMorgan Chase & Co.	8
4.1.5	Mira Security.....	8
4.1.6	NETSCOUT.....	9
4.1.7	Not for Radio.....	10
4.1.8	Thales Trusted Cyber Technologies	10
4.2	Architecture and Builds.....	11
4.2.1	System Architecture Functions	11
4.2.2	High-Level Passive Inspection Architecture Overview.....	12
4.2.3	High-Level Middlebox Architecture Overview.....	15
5	Build Implementation	17
5.1	Passive Inspection Architecture Builds	18
5.1.1	Bounded-Lifetime Key Pair (Bounded-Lifetime Diffie-Hellman).....	18
5.1.2	Decryption Using Exported Session Keys.....	22
5.2	Break and Inspect Using Middleboxes	25
5.2.1	Real-Time (RT) Decryption	26
5.2.2	Post-Facto Decryption (follows RT Decryption steps)	27
5.2.3	Middlebox Laboratory Build Components.....	27
5.2.4	Installation and Configuration for Active Middlebox Approach.....	29
5.3	NCCoE Laboratory Physical Architecture	29

5.4	Specific Details	29
6	Functional Demonstrations	30
6.1	Usage Scenarios Supported	30
6.1.1	Troubleshooting Scenario	30
6.1.2	Performance Monitoring Scenario	30
6.1.3	Cybersecurity Threat Triage and Forensics Scenario	31
6.1.4	Monitoring for Compliance and Hygiene Scenario	31
6.2	Example Demonstration Events	32
7	Risk and Compliance Management	34
7.1	Threats	34
7.2	Vulnerabilities	35
7.3	Risk	36
7.4	Security Control Map	38
8	Demonstration and Future Considerations	39
8.1	General Findings and Observations	39
8.2	Future Build Considerations	39
8.2.1	Planning for Visibility with Post-Quantum Cryptography (PQC)	39
8.2.2	Client-Based Monitoring	40
Appendix A	Glossary	41
Appendix B	List of Acronyms	44
Appendix C	References	47
Appendix D	Description of the Architectures	49
D.1	Passive Inspection using Bounded-lifetime DH Server Keys	49
D.2	Passive inspection using Exported Session Keys	49
D.3	Active Inspection using a Break-and-Inspect Middlebox	49
Appendix E	Descriptions of the Build Implementations	50
E.1	Shared Components Across All Builds	50
E.2	Implementation of the Bounded Lifetime DH Key Architecture	50
E.3	Implementation of the Exported Session Key Architecture	50
E.4	Implementation of Middlebox Architecture Implementations	50
Appendix F	Details of the Functional Demonstrations and Results	51

F.1	Traffic Visibility to Support Troubleshooting	51
F.2	Traffic Visibility to Support Performance Monitoring	51
F.3	Traffic Visibility to Support Cybersecurity Threat Triage and Forensics	51
F.4	Traffic Visibility to Support Monitoring for Compliance and Hygiene	51
F.5	Functional Demonstration Scripts and Results	51
F.5.1	Scenario 1.1 – Identify Failed Network Traffic Due to Expired TLS PKI Certificates (Layer 4)	51
F.5.2	Scenario 1.2 – Identify and Log Protocol-Specific Distinct Characteristics of Layer 5, 6, and 7-type Service Utilization and Consumption Information	51
F.5.3	Scenario 1.3 – Identify, Collect, and Report on Protocol-Specific Error Status Codes for Services (Layer 5, 6, and 7-type status codes)	51
F.5.4	Scenario 2.1 – Identify, Collect, and Report on Protocol-Specific Error Status Codes for Services	52
F.5.5	Scenario 2.2 – Identify the Propagation of Performance Issues Throughout a System by Correlating Error Status Codes Across Component Services	52
F.5.6	Scenario 2.3 – Develop Baselines for Traffic Performance Characteristics for Each Server	52
F.5.7	Scenario 3.1 – Scan Network Flows Content for Malware	52
F.5.8	Scenario 3.2 – Scan Network Traffic for Unauthorized Encrypted Connections (i.e., unexpected encryption types, unauthorized encryption protocols, unencrypted traffic, traffic that can't be decrypted, etc.)	52
F.5.9	Scenario 3.3 – Scan Network Traffic Content for Known Command-and-Control or Exfiltration Protocols	52
F.5.10	Scenario 3.4 – Scan Network Traffic for Un-Sanitized User Input	52
F.5.11	Scenario 4.1 – Identify and Report on the Use of Outdated Protocols (and/or 'practices')	52
Appendix G Appendix G: Security Control Mapping		53

List of Figures

Figure 4-1 Middlebox (Break and Inspect) Functional Architecture..... 13

Figure 4-2 Passive Inspection - Exported Session Key Functional Architecture 14

Figure 4-3 Components of Break and Inspect Middlebox Architecture..... 16

Figure 5-1 Real-Time Bounded-Lifetime DH Passive Inspection Flow 19

Figure 5-2 Post-Facto Bounded-Lifetime DH Passive Inspection Flow..... 20

Figure 5-3 Passive Inspection Using Exported Session Keys 23

Figure 5-4 Middlebox Break and Inspect Demonstration Elements 26

Figure 8-1 Sample use of PQC KEM in TLS 1.3 Handshake 40

List of Tables

Table 5-1: Build Components for the Passive Decryption Using Bounded Life-time
Server Keys Reference Architecture 21

Table 5-2: Build Components for the Passive Decryption Using Exported Session
Keys Reference Architecture 24

Table 5-3: Build Components for the Break and Inspect Decryption Reference
Architecture (Layer 3 Implementation) 27

Table 5-4: Build Components for the Break and Inspect Decryption Reference
Architecture (Layer 2 Implementation) 28

Table 6-1: Demonstration Events 33