DeepShield Mobile Security Architecture

CONFIDENTIAL AND PROPRIETARY

Document Version: 3.2

Last Updated: January 11, 2024

1. Introduction and Scope

1. This document describes the security architecture and implementation specifications for DeepShield Systems, Inc.'s ("DeepShield") mobile security components within its Industrial Control System (ICS) Security Platform.

2. This architecture document is considered confidential and proprietary information of DeepShield Systems, Inc. and is protected under applicable intellectual property laws and contractual agreements.

2. Definitions

1. "Mobile Security Components" refers to all software, APIs, and infrastructure elements that enable secure mobile access to DeepShield's ICS monitoring and control functions.

2. "Security Architecture" encompasses the structural design, security controls, authentication mechanisms, and data protection measures implemented within the mobile components.

3. "Zero Trust Framework" refers to DeepShield's proprietary security model requiring continuous verification of every system component and transaction.

3. Architecture Overview

1. Core Components

- Mobile Application Framework (MAF-2000)
- Secure Communications Layer (SCL)
- Identity and Access Management Module (IAM)
- Mobile Device Management Integration (MDM-Link)
- Real-time Threat Detection Engine (TDE-Mobile)

2. Security Layers

a) Application Layer Security

b) Transport Layer Security

c) Data Layer Security

d) Device-level Security

e) User Authentication Layer

4. Authentication and Authorization

1. Multi-factor Authentication (MFA)

- Biometric verification
- Hardware security key support
- Time-based one-time passwords (TOTP)
- Context-aware authentication factors

2. Authorization Framework

- Role-based access control (RBAC)
- Attribute-based access control (ABAC)
- Just-in-time privilege elevation
- Continuous authorization monitoring

5. Data Protection Measures

1. Data at Rest

- AES-256 encryption for stored data
- Secure enclave utilization
- Encrypted SQLite databases
- Secure key storage implementation

2. Data in Transit

- TLS 1.3 with perfect forward secrecy
- Certificate pinning
- Encrypted payload containers
- Secure session management

6. Mobile-Specific Security Controls

1. Device Security Requirements

- Minimum OS version requirements
- Device integrity verification
- Jailbreak/root detection
- Secure boot verification

2. Application Security

- Code obfuscation
- Anti-tampering measures
- Runtime application self-protection (RASP)
- Secure logging and monitoring

7. Integration with Core Platform

1. API Security

- OAuth 2.0 implementation
- JWT token management
- API rate limiting
- Request signing and verification

2. Backend Communication

- Dedicated mobile API gateway
- Load balancing and failover
- Security event correlation
- Real-time threat intelligence integration

8. Compliance and Audit

1. Compliance Features

- NIST 800-53 controls implementation
- IEC 62443 alignment
- GDPR compliance measures
- NERC CIP requirements support

2. Audit Capabilities

- Comprehensive activity logging
- Security event tracking
- Compliance reporting
- Access attempt monitoring

9. Incident Response and Recovery

1. Mobile-Specific Incident Response

- Remote device wiping capabilities
- Session termination
- Credential revocation
- Automated threat response

2. Recovery Procedures

- Secure backup mechanisms
- Authentication recovery
- Session recovery
- Data restoration protocols

10. Proprietary Rights and Confidentiality

1. All aspects of this security architecture, including but not limited to the design patterns, implementation details, and security controls described herein, are the exclusive intellectual property of DeepShield Systems, Inc.

2. This document contains trade secrets and confidential information that shall not be disclosed, copied, or reproduced without the express written consent of DeepShield Systems, Inc.

11. Document Control

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Classification: Confidential - Level 3

12. Approval and Authorization

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