The CyberHygiene Project

Affordable Cybersecurity Compliance for Small Defense Contractors

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Enterprise-Grade Cybersecurity

At Small Business Prices

A proven approach to achieving NIST SP 800-171 Rev 2 compliance for under $5,000

95%

System Complete

100%

OpenSCAP CUI Compliance

110

Security Controls

About The Project

The Challenge

Very Small Businesses (VSBs) in the Defense Industrial Base face a critical barrier: traditional cybersecurity compliance costs $35,000-$50,000 - often more than their entire first contract value.

This cost barrier is driving VSB participation down and new market entrants away, threatening innovation and competition in defense contracting.

The CyberHygiene Project proves there's a better way.

The Solution

Through careful selection of enterprise-grade open-source tools and modern security practices, we've built a complete NIST 800-171 compliant infrastructure for **under $5,000** in hardware costs.

This research project demonstrates that compliance doesn't require expensive proprietary solutions or managed service providers - just knowledge, planning, and the right tools.

Project Timeline

2023-2024: Initial research and feasibility study published in NCMA Journal

September 2025: Project initiated with Rocky Linux 9.6 deployment

October 2025: Core infrastructure completed, 100% OpenSCAP compliance achieved

November 2025: Email server deployed, system at 95% operational status

Current Status: Production-ready reference implementation

System Architecture

Reference Implementation

The CyberHygiene Project demonstrates a complete, on-premises infrastructure suitable for handling Federal Contract Information (FCI) and Controlled Unclassified Information (CUI).

Key Design Principles

Security First

- FIPS 140-2 cryptographic mode

- Full-disk encryption (LUKS2)

- SELinux enforcing mode

- Multi-layered defense in depth

Cost Effective

- Enterprise open-source software (zero licensing)

- Commercial off-the-shelf hardware

- No monthly subscription fees

- Low power consumption design

Compliance Achievements

NIST SP 800-171 Rev 2

100%

All 110 security requirements implemented and validated via OpenSCAP scanning

DFARS 252.204-7012

Ready

CUI safeguarding requirements met, incident response procedures documented

FAR 52.204-21

Ready

Basic safeguarding requirements satisfied, ready for CMMC Level 2 assessment

NIST 800-171 Control Families

✓ Access Control (AC)

✓ Awareness & Training (AT)

✓ Audit & Accountability (AU)

✓ Configuration Management (CM)

✓ Identification & Authentication (IA)

✓ Incident Response (IR)

✓ Maintenance (MA)   ✓ Media Protection (MP)   ✓ Personnel Security (PS)

✓ Physical Protection (PE)   ✓ Risk Assessment (RA)   ✓ Security Assessment (CA)

✓ System & Comm Protection (SC)   ✓ System & Info Integrity (SI)

Continuous Compliance

The system maintains compliance through:

- Automated security patching (dnf-automatic)

- Quarterly OpenSCAP compliance scans

- Continuous vulnerability assessment (Wazuh)

- File integrity monitoring with alerting

- Comprehensive audit logging and retention

- Encrypted automated backups (3-2-1 strategy)

Operational Management Tools

Beyond the core infrastructure, the CyberHygiene Project includes custom-built management dashboards and policy tracking systems that make compliance monitoring and day-to-day operations efficient and streamlined.

Additional Management Capabilities

📈 Automated Reporting

- Weekly security summary emails

- Monthly compliance status reports

- Quarterly executive dashboards

- Incident response documentation

- Change management logs

🔍 Evidence Collection

- Screenshot automation for configurations

- Log excerpt extraction tools

- Configuration file versioning (git)

- Compliance scan result archival

- Audit trail preservation (7 years)

Why Custom Dashboards Matter

Commercial compliance management platforms cost $5,000-$15,000 annually and often require external consultants for setup. Our custom-built dashboards provide:

- **$0 licensing costs** - Built with standard web technologies (HTML/CSS/JavaScript)

- **Tailored to your needs** - Shows exactly what you need, nothing more

- **Direct system integration** - Real-time data from actual security tools, not third-party aggregators

- **Audit-friendly format** - Presents information exactly as assessors expect to see it

- **No vendor lock-in** - You own the code and can modify it anytime

These tools transform compliance from a burden into a streamlined daily operation.

Technology Stack

All software components are enterprise-grade, open-source solutions with active communities and long-term

support. Total software licensing cost: **$0**.

Hardware Profile

Server: HP MicroServer Gen 10+ or equivalent small form factor server

- AMD processor with ECC RAM support

- 32GB ECC RAM (recommended for FreeIPA + Wazuh)

- 2TB SSD (boot drive with encrypted partitions)

- 3x 3TB HDDs (RAID 5 encrypted array for data storage)

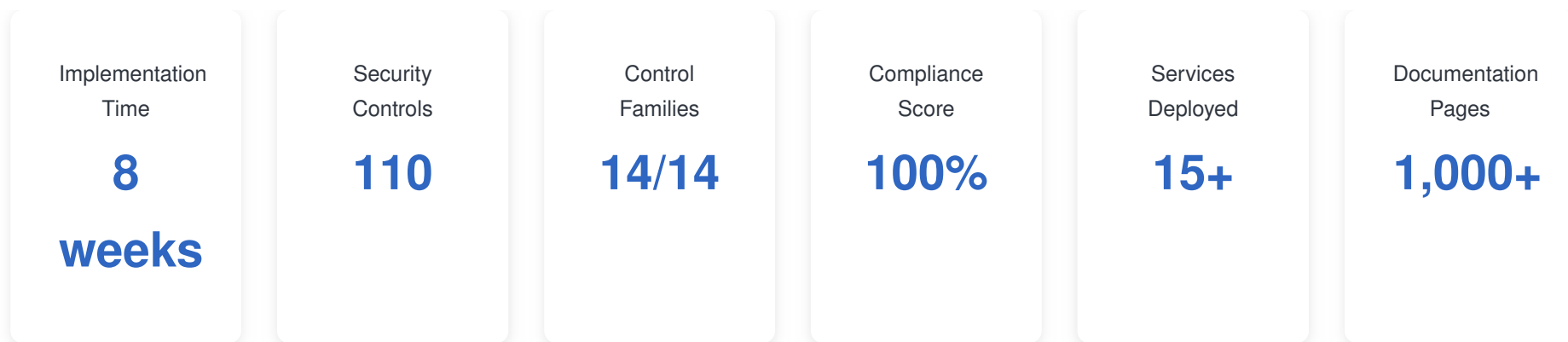- Low power consumption (~50-70W typical)

Estimated Hardware Cost: $1,500 - $2,500 depending on new vs. refurbished

Implementation Results

Project Outcomes

After 8 weeks of focused implementation (October-November 2025), the CyberHygiene Project has achieved:

System Metrics

Implementation Time	Security Controls	Control Families	Compliance Score	Services Deployed	Documentation Pages
8 weeks	**110**	**14/14**	**100%**	**15+**	**1,000+**

Key Lessons Learned

- **Open Source is Enterprise Ready:** Modern open-source tools match or exceed commercial alternatives in capability and security

- **FIPS Compliance is Achievable:** With proper planning, FIPS 140-2 mode works well with carefully selected components

- **Automation is Essential:** Automated patching, backups, and monitoring reduce ongoing maintenance burden

- **Documentation Matters:** Comprehensive documentation is critical for compliance validation and knowledge transfer

- **Small Can Be Secure:** VSBs can achieve enterprise-grade security without enterprise-sized budgets

Breaking the Cost Barrier

The CyberHygiene Project proves that the $35,000-$50,000 cost barrier facing small defense contractors can be reduced by 90% through:

- Strategic use of enterprise open-source software

- Proper system architecture and design

- Leveraging existing government compliance tools (OpenSCAP)

- Self-service implementation with expert guidance

Result: NIST 800-171 compliance is now within reach for VSBs and solopreneurs in the Defense Industrial Base.

About The Contract Coach

Business Overview

The Contract Coach (Donald E. Shannon LLC) is a "Cradle to Grave" contract management and project management consulting firm specializing in federal government contracts and compliance requirements.

Focus Area
Emerging small businesses seeking to acquire government contracts and develop government-required business systems or processes.

Core Services
- Project Management (WBS, scheduling, risk management)
- Proposal Management and development
- Contract Management and negotiations
- Cybersecurity compliance consulting
- Government acquisition system navigation

Professional Credentials

- **PMP®** - Project Management Professional (PMI)
- **CFCM** - Certified Federal Contract Management Professional (NCMA)
- **CPCM** - Certified Professional Contract Management Professional (NCMA)
- **CCT** - Certified Cost Technician (AACEI)
- **DML** - Demonstrated Master Logistician (SOLE)
- **Security:** Active DoD Top-Secret Clearance
  Recognition
  2021 NCMA Outstanding Fellow Award

NAICS Codes
541611, 541613, 541690

Identifiers
CAGE Code: 5QHR9
DUNS: 832123793

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Project Acknowledgments

The CyberHygiene Project has been presented to and received support from:

- **National Contract Management Association (NCMA)** - National leadership briefed and supportive

- **National Apex Accelerator Alliance (NAPEX)** - Project presented to national leadership

- Published research in NCMA Journal of Contract Management (2024)

The CyberHygiene Project

A research initiative demonstrating affordable NIST 800-171 compliance for small defense contractors.

Quick Links

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Standards & Compliance

NIST SP 800-171 Rev 2

DFARS 252.204-7012

FAR 52.204-21

CMMC Level 2 (Ready)

This website presents a research project. Implementation results and compliance achievements are specific to the reference environment. Individual results may

vary. Consult with qualified professionals for your specific compliance needs.