

# Bank Card Security System (BCSS) + Thales payShield HSM

Simplify Payment Security  
& Save Time and Money

## Build Secure, Compliant Payment Card Applications Faster With Less Complexity and More Visibility



### The Challenge: Building Payment Card Applications is Complex

Building and maintaining payment card applications is complex. Organizations must manage cryptographic key lifecycles, enforce strict access controls, maintain audit readiness, and continuously adapt to evolving PCI and payment network requirements.

Teams developing their own payment card applications take on high costs, considerable time investment, and significant risk. Developers must understand complex HSM host commands, implement specialized cryptographic workflows, and continuously update systems to align with changing standards.

The result is slower time-to-market, higher development costs, and greater compliance risk.

### The Solution: Payment Security, Simplified

**Prime Factors Bank Card Security System (BCSS)**, powered by **Thales payShield HSMs**, provides a proven, integrated approach to payment security.

BCSS delivers out-of-the-box functionality required by payment card applications to enforce security and ensure compliance with industry and regulatory standards. Rather than building and maintaining complex cryptographic infrastructure, BCSS helps simplify integration between a custom payment application and payShield HSMs. Built-in security workflows mean developers don't need to build or maintain cryptographic logic themselves. The solution supports the latest logical security requirements of leading payment brands and enables organizations to respond quickly to change without complex and costly application redevelopment.

Together, Prime Factors and Thales help organizations **save time, save money, and reduce risk** – enforcing compliance with security controls that have stood the test of PCI auditors for decades.

### Hardware-Rooted Foundation for Payment Security

Thales payShield HSMs provide the secure cryptographic foundation that underpins the entire BCSS solution. As industry-leading payment HSMs, payShield devices generate, protect, and process sensitive cryptographic keys within a certified, tamper-resistant boundary, ensuring that critical payment data is never exposed.

Designed for high-performance, mission-critical payment environments, payShield HSMs deliver the scalability, resilience, and compliance required by global payment networks. With support for PCI HSM and FIPS 140-2 Level 3 certifications, and continuous updates to evolving payment standards, Thales ensures organizations can confidently secure card issuance and transaction processing at scale.

When combined with BCSS, payShield HSMs enable a complete, hardware-backed security architecture that simplifies compliance, strengthens trust, and accelerates secure payment innovation.

### Improved Organization for Increased Efficiency

Payment applications must manage and correctly apply keys, parameters, options, certificates, and associated hardware to execute every payment function. BCSS drastically reduces complexity through functional partitions called Network Profile Records, which organize everything needed into a single record. Payment applications then simply reference a Network Profile Record by name to execute a payment transaction.

### More Control and Flexibility

BCSS can be deployed across multiple programming languages and infrastructure types—on-premises, in the cloud, or in hybrid environments—ensuring seamless integration with payShield HSMs, including payShield Cloud HSMs with configurable load balancing and built-in redundancy. The software can operate independently to support one or multiple applications on a **single server** or be deployed in a **multi-server** setup to meet business needs.

## Business Outcomes

### Save Time & Money

- High-level API for payShield HSMs
- Hundreds of pre-built workflows specially designed for payment card security
- Configurable transaction load balancing
- Configurable transaction load targeting
- Functional partitioning to simplify programming

### Stay Audit Ready

- Tamper-proof, forensic-level audit logging
- Configurable reporting with Syslog support
- Granular role-based access controls to enforce compliance with separations of duties
- Robust payment key lifecycle management
- TLS support for secure connections

### Adapt to Change

- Stay up to date with payShield hardware upgrades
- Respond quickly to industry changes and adapt easily to new PCI requirements
- Simplify cloud migration with better control and visibility across HSMs
- Automate LMK rotation in payShield
- Automate migration from variant to Key Block

## BCSS Deployment Editions

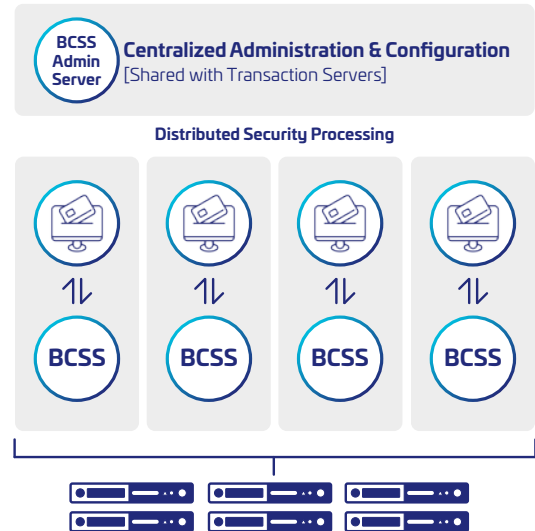
### Standalone Edition

BCSS instance that deploys on a single server with one or many applications



### Multi-Server Edition

Separates administration and configuration functionality (Administration Server) to enable centralized control and distributed transaction processing (Transaction Servers)



## Why Prime Factors and Thales

Together, Prime Factors BCSS and Thales payShield HSMs deliver a complete payment security solution that combines software-driven simplicity with hardware-rooted trust. Organizations can reduce development complexity, accelerate time-to-market, and meet the most demanding payment security and compliance requirements with confidence.

## About Prime Factors

For nearly half a century, Prime Factors has served customers across six continents in a variety of industries, including 80% of the top financial institutions in North America, with cryptographic software solutions for payments, information exchange, and general data protection.

## About Thales

Thales is a global leader in cybersecurity, helping businesses, governments, and the most trusted organizations in the world protect critical applications, sensitive data, identities, and software anywhere, at scale — with the highest ROI. With more than 30,000 customers, including 58% of the Fortune Global 500, our solutions are deployed in 148 countries around the world. Through our innovative services and integrated platforms, Thales helps customers achieve better visibility of risks, defend against cyber threats, close compliance gaps, and deliver trusted digital experiences for billions of consumers every day.