

Zettaset BDEncrypt™

Scale-out Data-centric Protection for Relational/SQL, NoSQL, Object, and Hadoop Big Data Environments

With Zettaset BDEncrypt, organizations can take advantage of a high-performance, scale-out partition-level solution that is ideal for bulk encryption purposes. BDEncrypt delivers a complete encryption package that includes a software-based virtual enterprise key manager (V-EKM) and virtual hardware security module (V-HSM) that can readily match the elasticity of virtual machines and cloud computing. The versatility of BDEncrypt makes it suitable for use in a wide range of data environments, including Relational/SQL, NoSQL, Object, and Hadoop big data stores.

Big Data Security Challenges

The massive attack surface of big data stores makes them highly vulnerable to unauthorized intrusion. However, much of the encryption technology that exists today was not designed for deployment in Big Data's distributed computing architectures which consist of multiple servers that are networked together into a server array. Distributed data systems require a distributed policy server, with secure policy replication to prevent unauthorized modifications to policies, as well as automated mechanisms for secure node removal when a server is removed from a cluster, encryption for both data-at-rest and in-motion, and rapid and secure encryption key rotation. All of these functions must perform efficiently without requiring the re-encryption of any files or downtime during normal operation.

When it comes to securing big data in the enterprise, open source and legacy encryption solutions are compromised in several ways. Most legacy encryption products were designed for static relational databases, and lack the ability to scale and perform well in highly-dynamic, petabyte-scale, distributed computing architectures. Very few are optimized for big data distributed file systems. Open source transparent data encryption (TDE) lacks basic standards-interoperability with existing KMIP-compliant key managers and PKCS#11-compliant hardware security modules (HSMs), making open source encryption difficult to fit into existing enterprise security infrastructures, and leaving encryption keys exposed.

Encryption Optimized for Big Data

Zettaset BDEncrypt is a high-performance, partition-level encryption solution which is ideal for bulk encryption of stored data, and can be applied to both data-at-rest, and data-in-motion. Easily deployed via CLI or Ambari, it utilizes Advanced Encryption Standard (AES) 256-bit encryption, the highest level attainable. AES has been adopted by the U.S. government and is now used worldwide. BDEncrypt provides AES-NI accelerated performance in equipped servers.

Zettaset BDEncrypt has been designed from the ground up for optimal performance and scalability in distributed Big Data stores, including Relational/SQL, NoSQL, Object, and Hadoop environments. The Zettaset solution delivers data-centric security utilizing advanced encryption and access control technologies to ensure the highest levels of protection for critical data.

Zettaset BDEncrypt provides proven defense in regulated industries such as healthcare, financial services, and retail from the accelerating frequency and scope of data breaches. When integrated into a strategic IT security initiative, the BDEncrypt can help bring Relational/SQL, NoSQL, Object, and Hadoop big data stores into compliance with corporate and regulatory data protection initiatives including HIPAA, HITECH, and PCI.

Benefits and Features

Complete Encryption Solution Includes Virtual Enterprise Key Manager (V-EKM) and Virtual Hardware Security Module (V-HSM)

- Full compliance with Key Manager Interoperability Protocol (KMIP) enables BDEncrypt to easily integrate with an organization's existing key management framework.
- Certified interoperability with existing key manager solutions from HPE Security, Thales, Gemalto, HyTrust, and others.
- Full compliance with Public-Key Cryptography Standard (PKCS) #11 for interoperability with PKCS11-compliant Hardware Security Modules (HSMs). For many data environments, HSMs are mandatory (e.g., where PCI compliance is required).
- Certified interoperability with existing Hardware Security Modules (HSM) from Utimaco, Gemalto, and others.

Versatile Database Coverage

- File System transparency means that BDEncrypt can be used to protect sensitive data in a wide range of data environments, including Relational/SQL, NoSQL, Object, and Hadoop big data stores.

Supports Strategic IT Compliance Initiatives

- Provides a proven defense for sensitive data in regulated industries such healthcare, financial services, and retail from the accelerating frequency and scope of data breaches.
- Helps bring Hadoop big data stores into compliance with corporate and regulatory data protection initiatives such as HIPAA, HITECH, PCI, etc.

Industry-leading Performance in Big Data Environments

- Optimized for superior performance in scale-out distributed computing environments, with negligible impact on performance: approximately 3% * for data-at-rest encryption; 7%* for data-in-motion encryption. *Measured using TeraSort MapReduce Benchmark.

Ease of Deployment

- Deploying software-based key managers and HSMs is more cost-effective and less disruptive than traditional hardware approaches in highly elastic cloud environments, offering power users greater operational efficiencies.
- Simplified installation using CLI tools (Ansible, Puppet, Chef) or Apache Ambari (for Hadoop).

Strategic Partnerships and Interoperability Certifications

The Zettaset BDEncrypt technology provides proven interoperability between enterprise key managers, cryptographic devices and range of storage, security and cloud products. It has been tested and certified for interoperability with our strategic systems and security partners, including:

- **ClustrixDB scale-out relational database**
- **Gemalto (SafeNet)** – Key manager, hardware security module (HSM)
- **HPE Security** – Enterprise Secure Key Manager (ESKM)
- **Hortonworks Distribution Platform for Hadoop (HDP), Ambari management platform**
- **HyTrust** – Key manager
- **IBM** - Power Linux Scale-out Systems
- **Pivotal Greenplum** – Massively parallel data warehouse
- **Thales e-Security** - Key manager
- **Utimaco** - Hardware security module (HSM)
- **Open Data Platform Initiative (ODPi) Hadoop distributions including Pivotal HD and IBM BigInsights**

Zettaset BDEncrypt adheres to OASIS encryption open standards, and is compatible with any KMIP-compliant key management system and PKCS#11-compliant hardware security module (HSM). If your key management or HSM vendor is not on our certification list, please contact us and we will work with you to validate interoperability.

