

# **Textsafe : Secure Deduplication in Cloud**

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**Abstract:** *In today's digital era, the exponential growth of textual data presents significant challenges in terms of both storage efficiency and security, especially in cloud environments. TextSafe offers a robust solution by integrating secure data deduplication with Advanced Encryption Standard (AES) encryption to ensure that sensitive information remains confidential and protected from unauthorized access. AES, a widely trusted encryption protocol, enables both encryption and decryption processes to occur seamlessly within the system, securing data throughout its lifecycle. TextSafe defines distinct roles—data owners, who manage and audit files; users, who request access under strict protocols; cloud administrators, who maintain infrastructure without access to decrypted data; and attackers, whose potential threats are mitigated through layered security defenses. A reliable SQL database supports the backend, ensuring data integrity, availability, and secure access logging. The deduplication mechanism effectively identifies and removes redundant data, significantly reducing storage needs—often by up to 70%—which results in both space savings and improved system performance. Overall, TextSafe combines encryption, access control, role-based management, and smart storage optimization to provide a comprehensive, secure, and scalable cloud data management solution.*

**Keywords:** TextSafe, data deduplication, AES encryption, cloud security, data owners, SQL database, access control, data integrity, storage optimization, secure file management

