

MULTILEVEL SECURITY (MLS)**M.Vinay Kumar¹ , M. Ramesh² , M.Pavan³****Associate Professor^{1,2,3}****Indira College of Commerce and Science,Pune****ABSTRACT:**

A company's database administrator is responsible for maintaining the database's security and integrity, which is crucial given the importance of the data it contains. This data includes not only financial and operational details, but also details about customers and employees.

Multi-level security (MLS) approaches/techniques are required here. In this research, we examine MLS for databases, which may categorize information with users by applying various security clearances and authorizations, preventing users from accessing secure material from the database.

KEYWORDS: DBMS, Multi-Level Security, SQL Injection, Query Alteration, and Restricted Security Policies.

INTRODUCTION:

Because databases are such an integral part of how businesses function and communicate, protecting them has become a top priority.

The phrase "database security" is used to describe the safeguards that comprise Security measures for an organization's database should adhere to the CIA model, with confidentiality being ensured by means of encryption and integrity being ensured by restricting access to sensitive data to those who have been granted access.

Database security basically include:

1. Security to resources of database.
2. Protect against SQL injections.
3. Security to database applications.
4. Maintain database by remove unknown components.
5. Maintain availability, employ an UPS, to ensure no data loss.
6. Security to services to or for database.

Multi-Level Security (MLS)

The security of private information is a must for each business. For the sole purpose of gaining patronage and serving such patrons.

The goal is to utilize and implement an MLS in fields such as networks, operating systems, and database systems that eliminates the need for administrative processes and human security while still providing the efficiency required for processing and disseminating sorted and organized data from a database.

Why Multi-Level?

Access to classified or sensitive material is only allowed to users after they have been vetted and given the necessary clearances. Those who have just the sensitive clearance level are not trusted with Secret material and are only allowed access to sensitive papers. Data flow rules are always implemented from lower levels to higher ones, never the other way around. Specifically, the below.

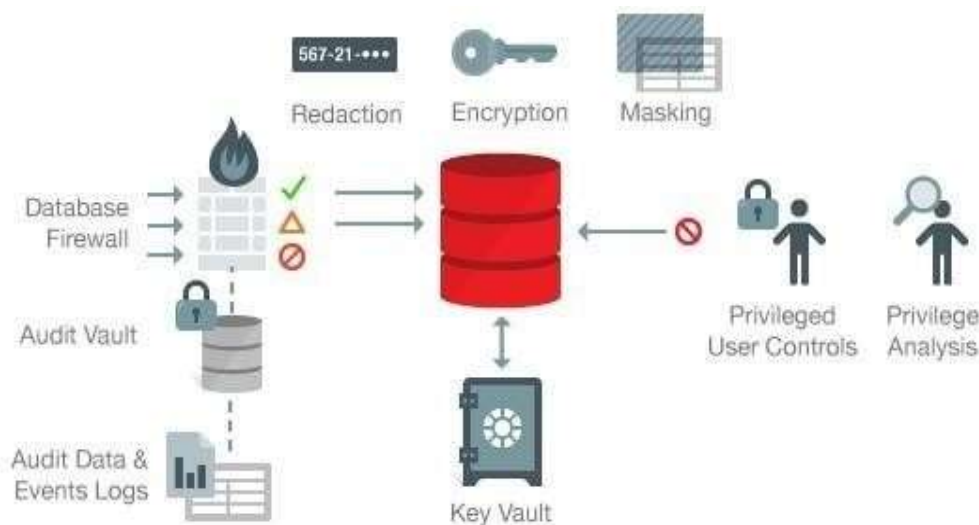


Information Security Levels

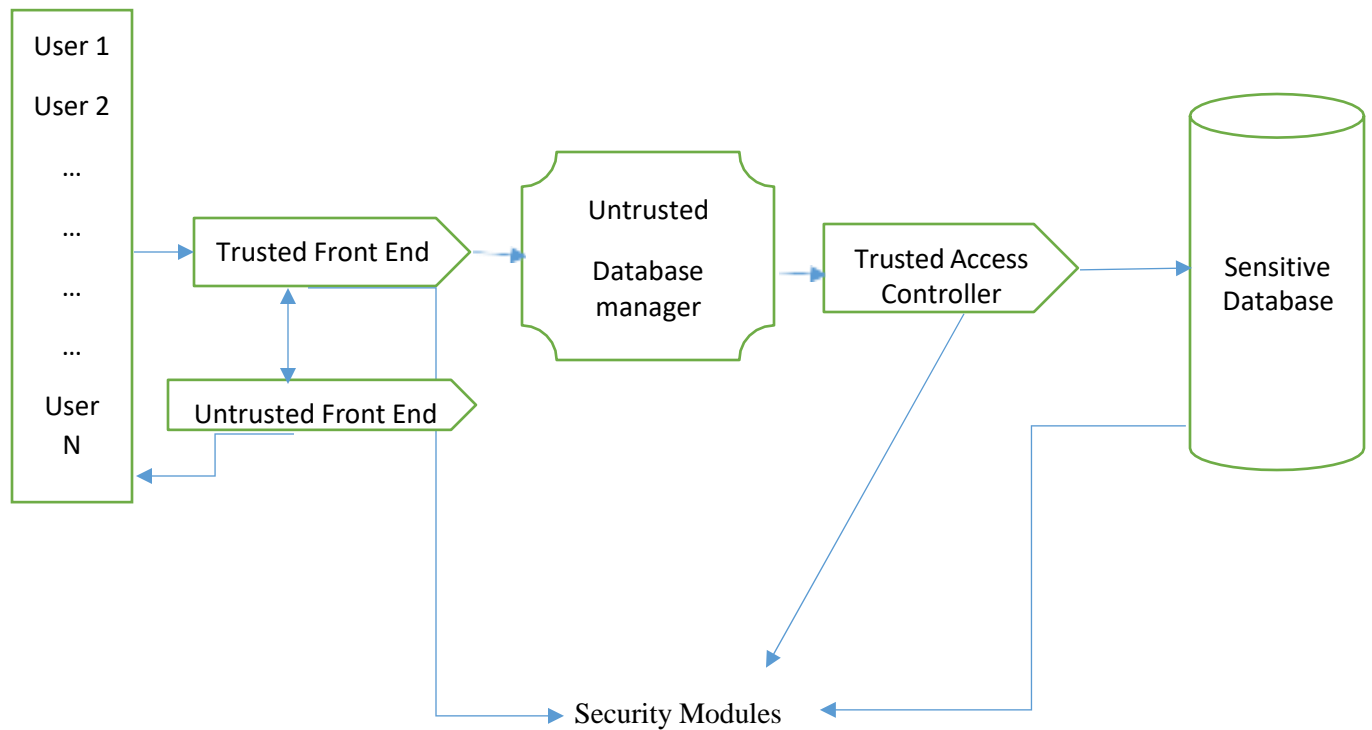
Multilevel security offers the following advantages:

1. It is mandatory and automatic working process.
2. It is easy to implement.
3. It does not rely on any database variables to provide row-level security control and maintaining.
4. Its controls are consistent so that you can avoid defining users and authorizations more than once or repetition in it.
5. It does not allow user to declassify information.
6. Provide multilevel share of data in database.

Ex:- Multilevel security used in oracle..



Proposed MLS



Flow of proposed MLS:-

1. A user get authorized from front end authentication procedure.
2. The user pass query as input.
3. Then front end verifies for users with respect to particular data.
4. Then front end issues a query to database manager.
5. Now database manager do I/O access activity and interacting with low-level access control to access the actual data/information.
6. Now database manager output result of the query to the trusted front end.
7. The front end analyzes the sensitivity levels and selects those items consistent with the user's security level.
8. Afterthat front end send selected data to the
9. untrusted front end for analyzing and formatting.
10. Untrusted front end send formatted data to the particular user.

CONCLUSION:

The primary objective of MLS is to secure databases, and this method completely accounts for implement ability and flexibility in real-world database applications, making it very relevant to the design and implementation of multilevel security systems.

As a result, it is essential for businesses to adopt or implement MLS in order to ensure the confidentiality, integrity, and accessibility of their databases.

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