

# Access Control Policy Mining and Management

## Challenge:

- Access control policies are increasingly large, complex, decentralized, and dynamic.
- Administrators need better tools that help them develop correct policies.

### OPERATION LOG

Time	User	Resource	Op.
10:34	John	EStore/schedule	Read
10:44	Rita	EStore/budget	Edit
10:45	Alex	SalesLeads	Insert

### USER DATA

User	Dept	Position
Alex	Sales	Sales Rep
John	IT	Developer
Rita	Tax	Manager

## POLICY MINING

### HIGH-LEVEL POLICY RULES

The manager of a department can view and edit the budgets of projects in the department.

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## Solution:

- Develop **policy mining** algorithms that produce high-level policies from low-level policies or logs, with attribute data.
- Develop algorithms that **verify safety** of access control policies and administrative policies.

## Scientific Impact:

- Improved techniques for developing and administering attribute-based and relationship-based access control policies.

## Broader Impact:

- **Facilitate adoption** of flexible access control models that promote security and information sharing.
- **Reduce cost** of policy development and increase confidence in policy correctness.