

Outline for April 19, 2013

Reading: §4

Assignments due: Homework #2, due April 26, 2013

1. Types of Access Control
 - a. Mandatory access control
 - b. Discretionary access control
 - c. Originator-controlled access control
2. High-level policy languages
 - a. Characterization
 - b. Example: DTEL
3. Low-level policy languages
 - a. Characterization
 - b. Example: *tripwire* configuration file
4. English policy
 - a. Authorized Use Policy
 - b. Electronic Mail Policy
5. Secure, precise
 - a. Observability postulate
 - b. Theorem: for any program p and policy c , there is a secure, precise mechanism m^* such that, for all security mechanisms m associated with p and c , $m^* \approx m$
 - c. Theorem: There is no effective procedure that determines a maximally precise, secure mechanism for any policy and program
6. Bell-LaPadula Model: intuitive, security classifications only
 - a. Show level, categories, define clearance and classification
 - b. Lattice: poset with \leq relation reflexive, antisymmetric, transitive; greatest lower bound, least upper bound
 - c. Apply lattice
 - i. Set of classes SC is a partially ordered set under relation dom with glb (greatest lower bound), lub (least upper bound) operators
 - ii. Note: dom is reflexive, transitive, antisymmetric
 - iii. Example: $(A, C) dom (A', C')$ iff $A \leq A'$ and $C \subseteq C'$;
 $lub((A, C), (A', C')) = (max(A, A'), C \cup C')$,
 $glb((A, C), (A', C')) = (min(A, A'), C \cap C')$
 - d. Simple security condition (no reads up), *-property (no writes down), discretionary security property
 - e. Basic Security Theorem: if it is secure and transformations follow these rules, it will remain secure
 - f. Maximum, current security level