

Outline for April 3, 2013

Reading: §2; [ZLN05]¹

Assignments due: Homework #1, due April 12, 2013

1. Access control matrix and entities
 - a. Subject, objects (includes subjects)
 - b. State is (S, O, A) where A is access control matrix
 - c. Rights (represent abstract notions)
2. Instantiating access control matrices
 - a. Example 1: UNIX file system
 - i. *read, write, execute* on files
 - ii. *read, write, execute* on directories
 - b. Example 2: Boolean expression evaluation
 - i. Verbs and rules
 - ii. Access Restriction Facility
 - c. Example 3: History and limiting rights
 - i. Static rights, current rights
 - ii. Malicious library routine
3. Primitive operations
 - a. **enter** r **into** $A[s, o]$
 - b. **delete** r **from** $A[s, o]$
 - c. **create subject** s (note that $\forall x[A[s', x] = A[x, s'] = \emptyset]$)
 - d. **create object** o (note that $\forall x[A[x, o'] = \emptyset]$)
 - e. **destroy subject** s
 - f. **destroy object** o
4. Commands and examples
 - a. Regular command: *create•file*
 - b. Mono-operational command: *make•owner*
 - c. Conditional command: *grant•rights*
 - d. Biconditional command: *grant•read•if•r•and•c*
 - e. Doing “or” of 2 conditions: *grant•read•if•r•or•c*
 - f. General form
5. Miscellaneous points
 - a. Copy flag and right
 - b. Own as a distinguished right
 - c. Principle of attenuation of privilege

¹This is available in the Resources area of SmartSite; look in the folder “Handouts”