

User Authentication

CS681 & CS392 Computer Security

Fall 2004

DUE 10/13/2004

October 7, 2004

1 Objective

The objective of this lab is to design and develop a user authentication mechanism for FEAU.

2 User Authentication

Read more about user authentication from the following:

- Chapter 12 from the class text book.
- <http://www.informit.com/content/images/013026332X/samplechapter/013026332X.pdf>

2.1 Warm Up

Answer the following question:

- Describe UNIX and Windows user management system. Your description must at-least summarize, but not limited, to the following:
 - Explain how users and groups are created?
 - Explain the user logon process.
 - What is the default authentication mode (i.e password, biometric...etc)
 - Where is the user information, such as user id and password, stored and how is it secured?
 - Is it possible for an adversary to retrieve user and group information (completely or partially) by accessing the hard drive directly?
 - What encryption algorithms are being used and how?
 - What happens when two users have the same password?
 - Is there any mechanisms to protect users from selecting weak password?

2.2 FEAU User Authentication System

As stated before, in this assignment you will design and build a user authentication mechanism for FEAU. Your mechanism must at-least have the following attributes:

- User and group information file must be secured such that it is inaccessible even if FEAU is offline.
- Must generate RSA private and public key pairs upon user creation and when a user is removed her key must be removed.
- Users RSA private keys must be protected, such that even an administrator cannot access them.
- Some method to reset users password, in case they forget it.

- A user can be a member of multiple groups.

You must submit the design and the code of the user authentication mechanism. You can use flowcharts or any other method to describe your mechanism precisely. For this lab we will not compile your code, but we will check it to make sure that you have all major part of your system implemented.

3 What and how to Handin

For this assignment you must submit answers for all of the above section on or before midnight 10/13/2004. We prefer you to e-mail your submission to **graderSecurity@gmail.com** with subject line "**lab 4 <your name>**" with out the quotes. Subject line is very important if you want to receive any credits.