Salted Hashes

Labs have been tested with Ubuntu 16.0 & 18.04 but should work on most Linux distributions.

1 Overview

You've been asked by the Garda to assist in helping to retrieve some hashed passwords. They have managed to get a dump of one of the database tables, however they still need the original passwords and have been unable to crack them themselves and have called in your help.

The issue seems to be that the database is only storing the password hashes, and so far their attempts to brute force the passwords have failed.

They have tried their standard rainbow tables without success and suspect that the passwords may have been salted. A brief analysis of the hashes supports this belief and indicates that all the passwords have been hashed with the same salt.

2 Lab Tasks

2.1 Task 1: Can you help the Garda and crack any of the salted hashed passwords?

Some potentially useful information from the Garda case files:

- The password policy file was changed in May 2010, passwords created after this date are alphanumeric 5-7 characters in length.

- Passwords created before these dates are believed to have consisted of only digits and 5-7 characters in length.

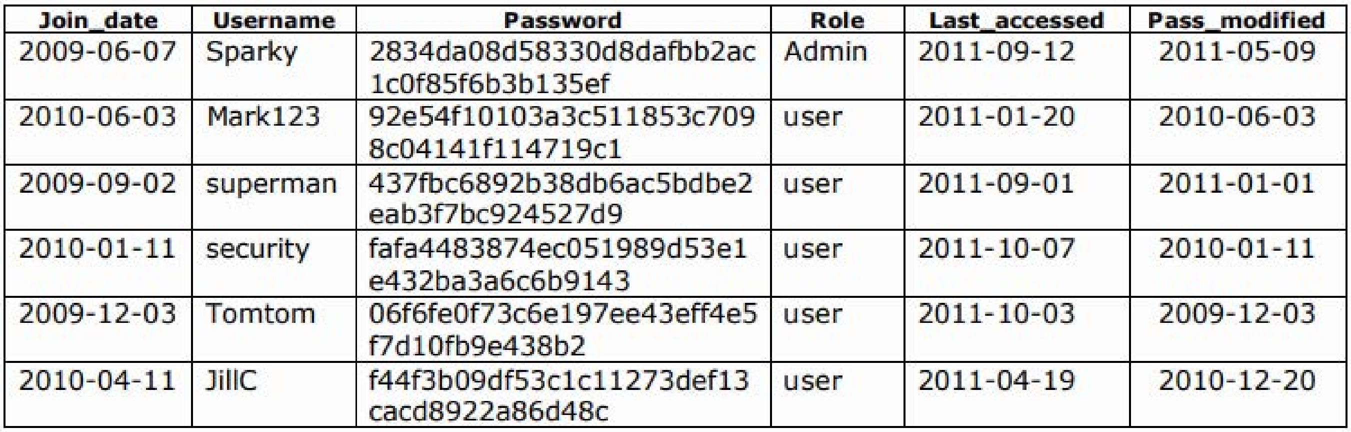
- It's believed that all passwords have used the same salt, and that the value is somewhere in our data. (In this document!!)

- The database dump was from a MySQL database.

- The site's domain name where the garda extracted all the files and databse dump from is www.exploringsecurity.com (no need to visit or do anything on this actual website)

- Some of the captured JavaScript code from the site, reveals the salt format as **CommonHash($salt,$pass)**

- Retrieve as much information as you can from the dump below for the Garda.



Join_date	Username	Password	Role	Last_accessed	Pass_modified
2009-06-07	Sparky	2834da08d58330d8dafbb2ac1c0f85f6b3b135ef	Admin	2011-09-12	2011-05-09
2010-06-03	Mark123	92e54f10103a3c511853c7098c04141f114719c1	user	2011-01-20	2010-06-03
2009-09-02	superman	437fbc6892b38db6ac5bdbe2eab3f7bc924527d9	user	2011-09-01	2011-01-01
2010-01-11	security	fafa4483874ec051989d53e1e432ba3a6c6b9143	user	2011-10-07	2010-01-11
2009-12-03	Tomtom	06f6fe0f73c6e197ee43eff4e5f7d10fb9e438b2	user	2011-10-03	2009-12-03
2010-04-11	JillC	f44f3b09df53c1c11273def13cacd8922a86d48c	user	2011-04-19	2010-12-20

There are plenty of methods and tools you can use to solve this challenge, including scripting it yourself or researching and finding a good tool for brute forcing hashes. You'll need to read the case information carefully for clues and plan your strategy of attack to maximize your chances of recovering as many passwords as possible.

3 Submission

You need to submit a detailed lab report, with screenshots, to describe what you have done and what you have observed. You also need to provide explanation to the observations that are interesting or surprising. Please also list the important code snippets followed by explanation. Simply attaching code without any explanation will not receive credits.