

# PASSWORD CRACKING LAB - DOCUMENTATION

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## **Task 1: Password Files**

```
student@pass-crack:~$ more /etc/passwd
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/var/run/ircd:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-timesync:x:100:102:systemd Time Synchronization,,,:/run/systemd:/bin/false
systemd-network:x:101:103:systemd Network Management,,,:/run/systemd/netif:/bin/false
systemd-resolve:x:102:104:systemd Resolver,,,:/run/systemd/resolve:/bin/false
systemd-bus-proxy:x:103:105:systemd Bus Proxy,,,:/run/systemd:/bin/false
_apt:x:104:65534::/nonexistent:/bin/false
messagebus:x:105:106::/var/run/dbus:/bin/false
syslog:x:106:107::/home/syslog:/bin/false
student:x:1000:1000::/home/student:/bin/bash
student@pass-crack:~$
```

## More /Etc/Passwd

```
student@pass-crack:~$ more /etc/shadow
more: cannot open /etc/shadow: Permission denied
student@pass-crack:~$ sudo more /etc/shadow
root:*:17638:0:99999:7:::
daemon:*:17638:0:99999:7:::
bin:*:17638:0:99999:7:::
sys:*:17638:0:99999:7:::
sync:*:17638:0:99999:7:::
games:*:17638:0:99999:7:::
man:*:17638:0:99999:7:::
lp:*:17638:0:99999:7:::
mail:*:17638:0:99999:7:::
news:*:17638:0:99999:7:::
uucp:*:17638:0:99999:7:::
proxy:*:17638:0:99999:7:::
www-data:*:17638:0:99999:7:::
backup:*:17638:0:99999:7:::
list:*:17638:0:99999:7:::
irc:*:17638:0:99999:7:::
gnats:*:17638:0:99999:7:::
nobody:*:17638:0:99999:7:::
systemd-timesync:*:17638:0:99999:7:::
systemd-network:*:17638:0:99999:7:::
systemd-resolve:*:17638:0:99999:7:::
systemd-bus-proxy:*:17638:0:99999:7:::
_apt:*:17638:0:99999:7:::
messagebus:*:17652:0:99999:7:::
syslog:*:17718:0:99999:7:::
student:$657voVz3cj$15AjExbywvsB.pzjeV4D7m2EdKCeWIEfenJ5QDXb0bff0PSHko/6hKjtat7s5QzC0Zx5hlFQ50quhfsZ
Hm0C40:17719:0:99999:7:::
student@pass-crack:~$
```

**Failed to open - permission denied without the SUDO as shown above + Sudo etc/shadow**

**The hash ID on it is \$6\$ -> SHA-512 , salt value is 7voVz3cJ**

```
student@pass-crack:~$ chage -l student
Last password change : Jul 07, 2018
Password expires : never
Password inactive : never
Account expires : never
Minimum number of days between password change : 0
Maximum number of days between password change : 99999
Number of days of warning before password expires : 7
student@pass-crack:~$
```

**Chage -l student command \***

## **TASK 2 Dictionary Attacks:**

```
student@pass-crack:~$ ls
biglist.txt calc crack512.py crackMD5.py crackPre.py crackSHA.py htpasswd-md5 htpasswd-sha1 htpasswd-sha512 tinylist.txt
student@pass-crack:~$ cat htpasswd-sha1
cat: htpasswd-sha1: No such file or directory
student@pass-crack:~$ cat htpasswd-sha1
alice:{SHA}A9Z8JjwnpFPvZbKeMDNHJzM8y80=
bob:{SHA}44rSFJQ9qthWtBAvrsKd5K/p2j0=
carol:{SHA}drwuv3DCvq6R3jONTBmOYoZDdkU=
dave:{SHA}A9ZBjJwnpFPvzbKeMDNHJzM8y80=
eve:{SHA}zFVH7Uxx5pLk81z81pxcBMkiepc=
frank:{SHA}mZw1UrSre5xa086b+zuTBdAlPhA=
george:{SHA}Bjq99Tpg62+4dkPUHGQLFhidFTk=
student@pass-crack:~$
```

**Cat the file**

```
student@pass-crack:~$ ./crackSHA.py htpasswd-sha1 tinylist.txt
-----
Pre-processing of input data:
-----
Number of passwords = 7
Number of words      = 109582
Extracting hashes from file
-----
Cracking...
-----
alice password is 'awesome'
dave password is 'awesome'
-----
Found 2 out of 7 passwords.
Processed 109582 words in 0.326 seconds.
student@pass-crack:~$
```

**Tinylist cracked SHA1**

```
student@pass-crack:~$ ./crackSHA.py htpasswd-sha1 biglist.txt
-----
Pre-processing of input data:
-----
Number of passwords = 7
Number of words      = 2198690
Extracting hashes from file
-----
Cracking...
-----
carol password is '2cute4u'
alice password is 'awesome'
dave password is 'awesome'
bob password is 'password1'
eve password is 'zaq12wsx'
-----
Found 5 out of 7 passwords.
Processed 2198690 words in 6.419 seconds.
student@pass-crack:~$
```

## Biglist cracked SHA1

### TASK 3 Considering Execution Time:

```
student@pass-crack:~$ ./crackMD5.py htpasswd-md5 biglist.txt
Traceback (most recent call last):
  File "./crackMD5.py", line 37, in <module>
    fd = open(sys.argv[2], 'r')
IOError: [Errno 2] No such file or directory: 'biglist.txt'
student@pass-crack:~$ ./crackMD5.py htpasswd-md5 biglist.txt
-----
Pre-processing of input data:
-----
Number of passwords = 7
Number of words      = 2198690
Extracting hashes from file
-----
Cracking...
-----
carol password is '2cute4u'
alice password is 'awesome'
dave password is 'awesome'
bob password is 'password1'
eve password is 'zaq12wsx'
-----
Found 5 out of 7 passwords.
Processed 2198690 words in 6.372 seconds.
student@pass-crack:~$
```

## MD5 cracked biglist

```

student@pass-crack:~$ ./crack512.py htpasswd-sha512 biglist.txt
-----
Pre-processing of input data:
-----
Number of passwords = 7
Number of words      = 2198690
Extracting hashes from file
-----
Cracking...
-----
carol password is '2cute4u'
alice password is 'awesome'
dave password is 'awesome'
bob password is 'password1'
eve password is 'zaq12wsx'
-----
Found 5 out of 7 passwords.
Processed 2198690 words in 7.222 seconds.
student@pass-crack:~$ 

```

## SHA512 biglist cracked

```

+h 0D 1f 35 4X 5z 7P 8r AH Bj D9 Eb G1 HT Iv KL Ln ND Of Q5 RX Sz UP Vr XH Yj a9 bb d1 eT fv hL in kD lf n5 oX pZ rP sr uH vj x9 yb
+h 0E 1g 36 4Y 6+ 7Q 8s AI Bk DA Ec G2 Hu Iw KM Lo NE Og P6 Q7 RZ T- UR VT XJ YL ab bd d3 eV fx hM ip kF lh n7 oZ q- rR st uJ vL xB yd
+p 0F 1h 37 4Z 6- 7R 8t AJ BL DB Ed G3 Hv IX KN Lp NF O9 Q7 RZ T- UR VT XJ YL ab bd d3 eV fx hM ip kF lh n7 oZ q- rR st uJ vL xB yd
+q 0G 1l 38 4a 68 75 8u AK Bm DC Ee G4 Hv Iy Ko Lq NG O1 Q8 Ra T0 US Vu XK Ym aC be d4 eW fy hO iq kG l1 n8 oA q0 r5 su uk vn xc ye
+r 0H 1j 39 4b 61 77 8V AL Bn DD Ef G5 Hx Iz Kp Lr NH Oj Q9 Rb T1 UT Vv XL Yn aD bf d5 eX fz hP lr kh lJ n9 ob q1 rT sv ul vn xD yf
+s 0I 1k 3A 4c 62 7U 8w AM Bo DE Eg G6 Hy J+ KQ Ls NT Ok QA Rc T2 UU Vw XM Yo aE bg d6 eY g+ hQ is kI lk n4 oc q2 rU sw uM vo xE yg
+t 0J 1l 3B 4d 63 7V 8X AN Bp DF Eh G7 Hz J- KR Lt NJ O1 Q8 Rd T3 UV Vx XN Yp aF bh d7 eZ g- hK it kJ ll nb od q3 rV sx uh vp xF yh
+u 0K 1m 3C 4e 64 7W 8y Ao Bq DG El GB Ha J6 KS Lu NK Om QC Re T4 UW Vy Xo Yq aG bl d8 ea g0 hS iu kk ln nc oe q4 rW sy uO vq xG yl
+v 0L 1n 3D 4f 65 7X 8Z AP Br DH Ej G9 Hb J1 KT Lv NL On QD Rf T5 UX Vz XP Yr ah bj d9 eb g1 ht iv kl ln nd of q5 rX sz uP vr xH yj
+w 0M 1o 3E 4g 66 7Y 9+ AQ Bs DI Ek GA Hc J2 KU Lw NM Oo QE Rg T6 UV W+ XQ Ys aI bk dA ec g2 hu iw km lo nE og q6 rV t+ uQ vs xI yk
+x 0N 1p 3F 4h 67 7Z 9- AR Bt D3 El GB Hd J3 KV Lx NN Op QF Rh T7 UZ W- XR Yt aJ bl db ed g3 hv ix kn lp nF oh q7 rZ t- uk vt xJ yl
+y 0O 1q 3G 4l 68 7a 9S AS Bu DK Em Gc He J4 Kw Ly Nn Oq QG Rl T8 Ua W0 XS Yu aK bm dC ee g4 hW iy ko lq nG ol q8 ra t0 uS vu xk ym
+z 0P 1r 3H 4j 69 7b 91 AT Bv DL En Gd Hf J5 KX Lz Np OQ Rj T9 Ub W1 XT Yv aL bn dD ef g5 hX iz kp lr nh oj q9 rb tl ut vv xL yn
+. 0Q 1s 31 4k 6A 7c 92 AU Bw DM En GE Hg J6 KY M+ Nn Os Qi Rk TA Uc W2 Xu Yw aM bo dE eg g6 hy j+ kQ ls n1 ok qA rc t2 uU vv xM yo
-- 0R 1t 33 4l 6B 7d 93 AV Bx Dn Ep Gf Hh J7 KZ M- Nr Ot Q1 Rl Tb Ud W3 Xv Yx ah bp df eh g7 hZ j- kr lt nJ ol qB rd t3 uv vx yp
-. 0S 1u 3K 4m 6C 7e 94 AW By D0 Eg Gg Hl J8 Ka M0 NS Ou Qk Rm Tc Ue W4 Xw Yy a0 bq dg el g8 ha j0 ks lu kn on qc re t4 uv vy x0 yq
-1 0T 1v 3L 4n 6D 7F 95 AX Bz Dp Er Gh Hj J9 Kb M1 NT Ov QL Rn Td Uf W5 Xx Yz aP br dh ej g9 ha j1 kt lv nl on qB rf t5 ux vz P0 yr
-2 0U 1w 3M 4o 6E 7g 96 AY C+ DQ Es Gt Hk Ja Kc M2 Nu Ow Qm Ro Te Ug W6 XY Z+ aQ bs d1 ek ga hc j2 ku lw nm oo qE rg t6 uv w+ xQ ys
-3 0V 1x 3N 4p 6F 7h 97 AZ C- DR Et G3 Hl JB Kd M3 Nx Ov Qn Rp Tf Uh W7 XZ Z- ar bt dj el gb hd j3 kv lx nh op qF rh t7 uz w- xR yt
-4 0W 1y 30 4q 66 7l 98 Aa C0 DS Eu Gk Hm Jc Ke M4 Nn Oy Q0 Rq Tg U1 W8 Xa Z0 aS bu dk em gc he j4 kw ly n0 oq qG rl t8 ua w0 xS yu
-5 0X 1z 3P 4r 67 7j 99 Ab C1 DT Ev Gl Hn Jd Kf M5 Nx Oz QP Rr Th Uj W9 Xb Z1 aT bv dl en gd hf j5 kx lz np or qH rj t9 ub w1 xt yv
-6 0Y 2+ 3Q 4s 61 7k 9A Ac C2 DU Ew Gm Ho JE Kg M6 Ny P+ Q0 Rs T1 Uk Wa Xc Z2 aU bw dm eo ge hg j6 ky m+ nQ os qI rk tA uc w2 xu yw
-7 0Z 2- 3R 4t 67 7l 9B Ad C3 DV Ex Gn Hp JF Kh M7 Nz P- QR Rt T2 Ul Wb Xd Z3 aV bx dn ep gf hz j7 kZ m- nk ot qJ r1 tb ud w3 xv yx
-8 0A 28 35 4u 6K 7m 9C Ae C4 Dw Ey Go Hq JG K1 M8 Na P6 Q5 Ru Tk Um Wc Xe Z4 aW by do eq gG h1 j8 ka m0 nS ou qK rm tc ue w4 xH yy
-9 0B 21 3T 4v 6L 7n 9D Af C5 Dx Ez Gp Hr JH Kj M9 Nb P1 Qt Rv Tl Uw Wd Xf Z5 ax bz dp er gh h1 j9 kb m1 nt ov ql rn td uf w5 xx yz
-A 0C 22 3U 4w 6M 7o 9E Ag C6 Dy F+ GQ Hs J1 KK MA NC P2 Q0 Rw Tm Uo We Xg Z6 aY c+ dQ es g1 kC m2 nU ov qM ro tE ug w6 xy z+
-B 0d 23 3V 4x 6N 7p 9F Ah C7 Dz F- Gr Ht J3 Kl MB Nd P3 QV Rx Tn Up WF Xh Z7 aZ c- dr et gJ h1 JB kd m3 nV ox qh rp tF uh w7 xZ z-
-C 0e 24 3W 4y 60 7q 9G Al C8 Ba F0 Gs Hu Jk Km Mc Ne P4 QW Ry To Uq Wg Xl Z8 aa c0 ds eu gk hm jc ke m4 nL oy q0 rq tG ul w8 xA z0
-D 0f 25 3X 4z 6P 7r 9H Aj C9 Db F1 GT Hv Jl Kn MD Nf P5 QX Rz Tp Ur Wh Xj Z9 ab c1 dt ev gl hn jd kf m5 nX oz qP rr th uj w9 xb z1
-E 0g 26 3Y 5+ 6Q 7s 9T Ak Ca Dc F2 Gu Hv Jm Ko Me Ng P6 QY S+ TQ Us Wi Xk Za ac c2 du ew gm ho Je Kg m6 nY p+ qQ rs tI ul wa xc z2
-F 0h 27 3Z 5- 6R 7t 93 Al Cb Dd F3 Gv Hx JN Kp Mf Nh P7 QZ S- Tr Ut Wj Xl ZB ad c3 dv ex gh hp JF kh m7 nZ p- qR rt tJ ul wb xd z3
-G 0l 28 3a 50 65 7u 9K Am Cc De F4 Gw Hy Jo Kg Mg Nl Pb Q8 S0 Ts Uv Wk Xn ZC ae c4 dw ey g0 gh JG k1 m8 na p0 qS ru tk un wc xc z4
-H 0j 29 3b 51 67 7v 9L An Cd Df F5 Gx Hz Jp Kr Mh Nj P9 Qb S1 Tt Uv Wl Xn ZD af c5 dx ez gp hr Jh k1 m9 nb p1 qT rv tl un wd xf z5
-I 0k 2A 3c 52 6U 7w 9M Ao Ce Dg F6 Gy I+ JQ Ks Mt Nk Pa Qc S2 Tu Uw Wm Xo Ze ag c6 dy f+ gQ hs J1 kk mA nc p2 qU rw tm uo we xg z6
-J 0l 2B 3d 53 6V 7x 9N Ap Cf Dh F7 Gz I- JR Kt Mj Nl Pb Qd S3 Tt Ux Wn Xp ZF ah c7 dz f- gh ht Jj kl mb nd p3 qV rx th up wf xh z7
-K 0m 2C 3e 54 6W 7y 9O Ag Cg Dl F8 Ga Io JS Ku Mk Nn PC Qe S4 Tu Uy W0 Xq ZG ai c8 da f0 g5 hu Jk km mc ne p4 qW ry t0 uq wG xl z8
-L 0n 2D 3F 55 6X 72 9P Ar Ch Dj F9 Gb I1 JT Kv Ml Nn PD QF S5 Tx Uz Wp Xr ZH aj c9 db f1 gT hv Jl kn mD nf p5 qX rz tP ur wh xj z9
-M 0o 2E 3g 56 6Y 8+ 90 As C1 Dk Fa Gc I2 Ju Kw Mm Nn PE Qg S6 Ty V+ WQ Xs ZI ak cA dc F2 gU hv Jm ko mE ng p6 qY s+ tQ us wi xk za
-N 0p 2F 3h 57 6Z 8- 9R At C3 Dl Fb Gd I3 JV Kx Mn Np Pf Qh S7 Tz V- Wr Xt ZJ al cB dd F3 gV hx JN kp mF nh p7 qZ s- th ut wJ xl zB
-O 0q 2G 3L 58 6a 88 95 Au Ck Dm Fc Ge I4 JW Ky Mo Nq Pg Q1 S8 Ta V0 Ws Xu ZK am cc de F4 gw hy jo kq mG nl p8 qa s0 t5 uu wK xm zC
-P 0r 2H 3J 59 6b 81 9T Av Cl Dn FD Gf IS JX Kz Mp Nr Ph Qj S9 Tb V1 WT Xv ZL an cD df f5 gx hz JP kr mh nj p9 qb s1 tT uv wl xn zd
student@pass-crack:~$ more calc/a9

```

Ls calc , more calc /a9 Command\* Opened a huge list of passwords

```
student@pass-crack:~$ ./crackPre.py htpasswd-sha1 calc
-----
Cracking...
-----
alice : password = "awesome"
bob : password = "password1"
carol : password = "2cute4u"
dave : password = "awesome"
eve : password = "zaq12wsx"
-----
Found 5 out of 7 passwords.
Processed 3693 words in 0.008 seconds.
student@pass-crack:~$
```

## Cracked Calc Passwords SHA1

### TASK 4 Personal Experiment :

```
student@pass-crack:~$ htpasswd -sc htpasswd-me bob
New password:
Re-type new password:
Adding password for user bob
student@pass-crack:~$ cat htpasswd-me
bob:{SHA}UiSnajVr3zkBPfq+os1D4UHsyeg=
student@pass-crack:~$ ./crackPre.py htpasswd-me calc
-----
Cracking...
-----
bob : password = "alice"
-----
Found 1 out of 1 passwords.
Processed 517 words in 0.001 seconds.
student@pass-crack:~$
```

Added Bob Password ‘Alice’ and Cracked password ‘Alice’ for bob with calc