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How To Reset Root User Password In CentOS/RHEL 7

Posted by Jarrod on September 14, 2016

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Normally resetting the root password is a simple task if you're logged in already with root privileges, however if you forget the password and need to change it things become a little more difficult.

The process has changed from CentOS/RHEL (Red Hat Enterprise Linux) version 6 to 7, as previously you would boot into single user mode and then change the password as root. From version 7 the equivalent modes are the rescue or emergency targets, however these require the root password before you can do anything which doesn't help us here, so we'll take you through the new process to change the lost root password.

This is also a task that you will need to know how to perform for the [RHCSA exam](#).

This procedure will be completed in the console of the Linux system, so be sure that you have access to this prior to beginning. As with all system maintenance tasks, be sure you have a system backup/snapshot prior to proceeding.

1. If your Linux system is currently running, reboot it. If it is not yet running, start it up. At the boot menu, press the 'e' key to edit the first boot entry.

```
CentOS Linux (3.10.0-327.28.3.el7.x86_64) 7 (Core)
CentOS Linux (3.10.0-327.18.2.el7.x86_64) 7 (Core)
CentOS Linux (3.10.0-327.el7.x86_64) 7 (Core)
CentOS Linux (0-rescue-af7f6339749549259f3e0fc2f77d7c0d) 7 (Core)

Use the ↑ and ↓ keys to change the selection.
Press 'e' to edit the selected item, or 'c' for a command prompt.
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```

2. From the grub options, find the line that starts with "linux16" and go to the end of it. Enter 'rd.break' without quotes at the end of this line, as shown below.

```
insmod part_msdos
insmod xfs
set root='hd0,msdos1'
if [ x$feature_platform_search_hint = xy ]; then
  search --no-floppy --fs-uuid --set=root --hint-bios=hd0,msdos1 --hin\
t-efi=hd0,msdos1 --hint-baremetal=ahci0,msdos1 --hint='hd0,msdos1' bf9f0973-9\
1d9-470c-828f-9de5f095b37d
linux16 --no-floppy --fs-uuid --set=root --hint-bios=hd0,msdos1 --hint-efi=hd0,msdos1 --hint-baremetal=ahci0,msdos1 --hint='hd0,msdos1' bf9f0973-9\
1d9-470c-828f-9de5f095b37d
```

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```

else
    search --no-floppy --fs-uuid --set=root bf9f0973-91d9-470c-828f-9de5\
f095b37d
fi
linux16 /vmlinuz-3.10.0-327.28.3.el7.x86_64 root=UUID=37f82268-e090-49\
d4-aae4-e06b172fd86b ro crashkernel=auto rhgb quiet LANG=en_US.UTF-8 rd.break_
initrd16 /initramfs-3.10.0-327.28.3.el7.x86_64.img

Press Ctrl-x to start, Ctrl-c for a command prompt or Escape to
discard edits and return to the menu. Pressing Tab lists
possible completions.

```

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3. Press "Ctrl+x" to boot with these options. This will boot to the initramfs prompt with a root shell.

```

insmod part_msdos
insmod xfs
set root='hd0,msdos1'
if [ x$feature_platform_search_hint = xy ]; then
    search --no-floppy --fs-uuid --set=root --hint-bios=hd0,msdos1 --hin\
t-efi=hd0,msdos1 --hint-baremetal=ahci0,msdos1 --hint='hd0,msdos1' bf9f0973-9\
1d9-470c-828f-9de5f095b37d
else
    search --no-floppy --fs-uuid --set=root bf9f0973-91d9-470c-828f-9de5\
f095b37d
fi
linux16 /vmlinuz-3.10.0-327.28.3.el7.x86_64 root=UUID=37f82268-e090-49\
d4-aae4-e06b172fd86b ro crashkernel=auto rhgb quiet LANG=en_US.UTF-8 rd.break_
initrd16 /initramfs-3.10.0-327.28.3.el7.x86_64.img

Press Ctrl-x to start, Ctrl-c for a command prompt or Escape to
discard edits and return to the menu. Pressing Tab lists
possible completions.

```

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4. At this stage, the root file system is mounted in read only mode to /sysroot and must be remounted with read/write (rw) permissions in order for us to actually make any changes. This is done with the 'mount -o remount,rw /sysroot' command.

```

[ 2.608570] sd 2:0:0:0: [sda] Assuming drive cache: write through

Generating "/run/initramfs/rdsosreport.txt"
[ 3.803779] blk_update_request: I/O error, dev fd0, sector 0
[ 3.908804] blk_update_request: I/O error, dev fd0, sector 0

Entering emergency mode. Exit the shell to continue.
Type "journalctl" to view system logs.
You might want to save "/run/initramfs/rdsosreport.txt" to a USB stick or /boot
after mounting them and attach it to a bug report.

switch_root:~# mount -o remount,rw /sysroot
switch_root:~#

```

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5. Once the file system has been remounted, change into a chroot jail so that /sysroot is used as the root of the file system. This is required so that any further commands we run will be in regards to /sysroot. This is done by running 'chroot /sysroot'.

```

[ 2.608570] sd 2:0:0:0: [sda] Assuming drive cache: write through

Generating "/run/initramfs/rdsosreport.txt"
[ 3.803779] blk_update_request: I/O error, dev fd0, sector 0
[ 3.908804] blk_update_request: I/O error, dev fd0, sector 0

Entering emergency mode. Exit the shell to continue.
Type "journalctl" to view system logs.
You might want to save "/run/initramfs/rdsosreport.txt" to a USB stick or /boot
after mounting them and attach it to a bug report.

```

```
switch_root:/# mount -o remount,rw /sysroot
switch_root:/# chroot /sysroot
sh-4.2#
```

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6. From here the root password can be reset with the 'passwd' command.

```
sh-4.2# passwd
Changing password for user root.
New password:
BAD PASSWORD: The password fails the dictionary check - it is based on a dictionary word
Retype new password:
passwd: all authentication tokens updated successfully.
sh-4.2#
```

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7. If you're not using SELinux, you could reboot at this point and everything would be fine, however by default CentOS/RHEL 7 use SELinux in enforcing mode, so we need to fix the context of the /etc/shadow file. This is because when the 'passwd' command is run, it creates a new /etc/shadow file. As SELinux is not running in this mode the file is created with no SELinux contexts, which can cause problems when we reboot. Create the /.autorelabel command using 'touch'.

```
sh-4.2# touch /.autorelabel
sh-4.2# _
```

Creating this file will automatically perform a relabel of all files on next boot. Note that this may take some time depending on the amount of files you have on the file system. For a plain vanilla CentOS 7 server, it takes me about 2 minutes to complete.

8. Enter the 'exit' command twice, the first one will exit the chroot jail environment while the second will exit the initramfs root shell and reboot the system.

```
sh-4.2# exit
exit
switch_root:/# exit
logout
```

Once the reboot has completed you will be able to use the root account with your newly set password.

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Summary

As shown we can reset the root password in Linux CentOS/RHEL 7 by booting with the 'rd.break' option, remounting the file system with read/write privileges, creating a chroot jail, executing the passwd command and then finally fixing up SELinux contexts.

After exiting the chroot and the initramfs root shell prompt the file system will be relabelled which may take a few minutes or more depending on the number of files you have. When your system has booted back up you'll be able to use the new root password.

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Asim September 21, 2017 at 12:17 am[Reply](#)

Thanks a lot... it works for me

kkrishna October 10, 2017 at 11:26 pm[Reply](#)

great tutorial.....

thanks man.....

Tanvi November 27, 2017 at 12:10 am[Reply](#)

Hello, I tried this method, but I face a problem.

After I pressed ctrl+d 2 times post changing the paddword, the screen gets stuck, probably it is due to the mass relabelling as mentioned in the explanation above.

Now it is so stuck that I am unable to recover my VM.

On every restart it is on the same screen.

Jarrold November 30, 2017 at 6:02 pm[Reply](#)

Do you have a large file system? How long did you wait for the relabel to complete?

janv January 27, 2018 at 6:33 am[Reply](#)

thank you ..

It is really helpfull

Mahmud March 22, 2018 at 8:19 pm[Reply](#)

Thank you

It is really helpfull

I have solved my problem

Jarrold March 22, 2018 at 11:33 pm[Reply](#)

No problem, great to hear!

Ashish Panchal March 26, 2018 at 2:47 am

Reply

How to break secure root password in Linux 7.0 versions

Jarrold March 26, 2018 at 7:08 pm

Reply

You'd have to get the hash out from /etc/passwd then attempt to crack it using a program such as Hashcat.

Marcus April 24, 2018 at 8:05 am

Reply

i followed the steps but not only does the new root password not work but now my regular user password isn't working either. So now i cannot log into the system.

Nelson C Mbadugha July 28, 2019 at 1:45 pm

Reply

Same thing happened to me am still trying to figure it out myself

Neeraj May 29, 2018 at 7:46 am

Reply

when i have reset the root password in rhel 7 then i got a error msg like "Failed to load selinux policy" freezing....., how to resolve this error msg??

Martin July 30, 2018 at 1:15 am

Reply

Hi, maybe it will help another guy, on the kernel load line after "rd.break" wich spawn the bash in initramfs, add enforcing=0 in order to change SELinux policy without disable it.

U're welcome.

Iyke July 26, 2018 at 5:46 am

Reply

After resetting my root password on CentOS7 successfully, I couldn't use the newly set password, but the old password still works. I tried with different servers and still encounter same issue

subham singh August 10, 2018 at 8:56 pm

Reply

you will have to change passwd then you could login
cmd- passwd

subham singh August 10, 2018 at 8:53 pm

Reply

It's good dude

Jan September 20, 2018 at 10:39 pm

Reply

I didn't know procedure changed in rhel7 and almost failed exam because of it. Fortunately I found another option how to jump into single mode. Just write init=1 which will do same job as rd.break :-)

Karunesh October 29, 2018 at 9:30 pm

Reply

I didn't know procedure changed in rhel7 and almost failed exam because of it. Fortunately I found another option how to jump into single mode. Just write init=1 which will do same job as rd.break :-)

Apu November 15, 2018 at 5:58 am

Reply

I didn't know procedure changed in rhel7 and almost failed exam because of it. Fortunately I found another option how to jump into single mode. Just write init=1 which will do same job as rd.break :-)

perreo January 15, 2019 at 1:28 am

Reply

Hi. Thanks. For me, it works with this: rd.break console=tty0

giri September 16, 2019 at 4:53 pm

Reply

Thanks Perreo. This has worked for me.

Manoj Namdev January 18, 2019 at 5:24 pm

Reply

Thanks a lot... it works for me

Sagubar Sathik Haja Najimudeen January 19, 2019 at 4:03 pm

Reply

Perfect Steps. Clean and Crisp. Worked perfectly for RHEL-7 server installed as VM.

Ode March 4, 2019 at 2:25 pm

Reply

Hi, this works on my system, thank a lot man. Keep a good work !!!

Jarrood March 4, 2019 at 6:17 pm

Reply

No problem!

kul bahadur March 19, 2019 at 4:26 pm

Reply

its not working in my centos 7

Ismail Hossain March 20, 2019 at 4:00 am

Reply

This topics really works. Thank you very much.

Amy April 8, 2019 at 8:44 am

Reply

Thanks a lot!! Works like a charm

Seyha Ros April 10, 2019 at 3:16 pm

Reply

How can the client change the password by themself on GUI of CentOS7?
Because in my company all the users are in the domain system so when their username expires the password they can't change as Windows 10?

irfan April 14, 2019 at 4:27 am

Reply

Is Root password can be cracked by anyone? if yes, how to avoid it.

Jarrold April 15, 2019 at 1:12 pm

Reply

If the hash becomes accessible, yes. By default it should only be available to the root user, so keep users with root privileges secure and set strong passwords so that if the hash is discovered it becomes infeasible to attack.

Toha April 16, 2019 at 11:52 am

Reply

I can not give touch /.autorelabel in the last line .
so the OS can not boot and comes blank screen. How I solve this problem??

Jarrold April 16, 2019 at 7:26 pm

Reply

What error do you get? My guess is there may not be permissions for that file to be created there.

WW April 23, 2019 at 6:43 pm

Reply

thanks buddy you save my day

Gunaseelan Selvam April 29, 2019 at 11:55 pm

Reply

Thank you very much.

www May 21, 2019 at 11:13 pm

Reply

when I am pressing e it's showing username prompt instead of grub options

JONATHAN JOHNSON June 29, 2019 at 1:14 am

Reply

@lyke

You should check to make sure that your password file is restored to the correct context with selinux enabled if you did not change your user password and it stopped working then the bad context is more than likely the issue. You can do this by getting into the system the same way. skip the password reset portion and once you are inside the file structure use

`#restorecon /etc/shadow`

command this should solve your issue.

Rob Perez July 11, 2019 at 1:38 am

Reply

Perfect!!! One question though... how can I return to automatically selecting 'normal' mode? Now, the grub stops & displays options for selecting, for like 3 seconds before selecting first option (which is the correct option).

Thanks again!

fadli ginanjar July 15, 2019 at 11:15 pm

Reply

nice its worked, well done

Carl August 21, 2019 at 11:35 pm

Reply

Very good information, thank you for the write up.

Benedek Polgár October 25, 2019 at 6:13 pm

Reply

I tried, but the system ask from me a username and password after I press 'e' key.
How can i change root's password if i dont have login data?

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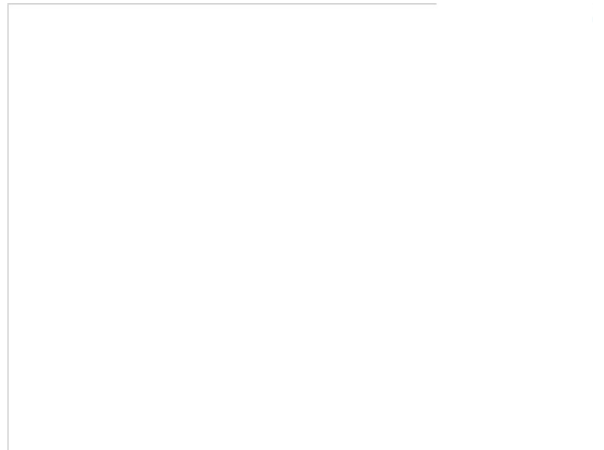
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