

BÀI THỰC HÀNH 3:
QUẢN LÝ DỊCH VỤ HỆ THỐNG CỦA HỖH CENTOS 7
MỨC CƠ BẢN

Kịch bản:

- Tìm hiểu về các vấn đề cơ bản liên quan tới khái niệm Systemd, cũng như các lệnh cơ bản để quản lý System Services (Xem bước 1 phần hướng dẫn).
- Khởi động máy và thực hiện lệnh: `systemctl list-units --type service --all` để hiển thị trạng thái của tất cả các dịch vụ.
- Tìm hiểu về ý nghĩa các tham số hiển thị sau khi thực hiện lệnh trên.
- Thực hiện lệnh: `systemctl list-units --type service --all | grep running` để hiển thị các dịch vụ đang chạy (chạy lúc khởi động)
- Tìm một dịch vụ cần quan tâm (VD: dịch vụ sshd), xem trạng thái của nó có được chạy khi khởi động hay ko ?
- Thao tác một số lệnh cơ bản (với quyền root) như dừng, chạy, khởi động, xem tình trạng dịch vụ (VD: sshd) như sau:

Yêu cầu	Lệnh	Ghi chú
Dừng dịch vụ	<code># systemctl stop sshd.service</code>	
Kiểm tra trạng thái dịch vụ (sau khi stop)	<code># systemctl status sshd.service</code>	inactive (dead)
Chạy dịch vụ	<code># systemctl start sshd.service</code>	
Kiểm tra trạng thái dịch vụ (sau khi chạy)	<code># systemctl status sshd.service</code>	active (running)

- Enable và Disable dịch vụ sshd khi khởi động thông qua quá trình sau:

Yêu cầu	Lệnh	Ghi chú
Khởi động lại máy		
Kiểm tra xem dịch vụ sshd có được chạy ko ?	# systemctl list-units --type service --all grep sshd	Giả định là có
Dừng dịch vụ	# systemctl stop sshd.service	
Kiểm tra trạng thái dịch vụ (sau khi chạy)	# systemctl status sshd.service	inactive (dead)
Khởi động lại máy		
Kiểm tra xem dịch vụ sshd có được chạy ko ?	# systemctl list-units --type service --all grep sshd	Dịch vụ vẫn chạy
Disable dịch vụ sshd	# systemctl disable sshd.service	Không chạy dịch vụ khi khởi động máy
Khởi động lại máy		
Kiểm tra xem dịch vụ sshd có được chạy ko ?	# systemctl list-units --type service --all grep sshd	Dịch vụ ko chạy
Enable dịch vụ sshd	# systemctl enable sshd.service	Cho phép chạy dịch vụ khi khởi động máy
Khởi động lại máy		

Kiểm tra xem dịch vụ sshd có được chạy ko ?	# systemctl list-units --type service --all grep sshd	Dịch vụ chạy
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Yêu cầu:

- Chụp màn đối với từng câu lệnh đã thực hiện (Giống như trong phần Hướng dẫn chi tiết)
- Các vấn đề khác xem Hướng dẫn cách nộp bài (đã gửi lớp)

Tài liệu tham khảo:

- Tham khảo “Red Hat Enterprise Linux 7 - System Administrator’s Guide”
- Xem “Chapter 1 mục 1.5” và “Chapter 10 mục 10.1, 10.2” (ở tài liệu trên)

Hướng dẫn chi tiết:

Bước 1:

Introduction to systemd (see Section 10.1)

Systemd:

- system and service manager
- systemd configuration file (in /etc/systemd/system.conf)

systemd units:

- systemd unit types
- systemd unit (configuration) files

Managing System Services (see Section 10.2)

To view, start, stop, restart, enable, or disable system services, use the command:

- Systemctl command (from RHEL 7)
- Service command (earlier version). It can run on RHEL 7 but should be avoided

Service (earlier version)	Systemctl (from RHEL 7)
Run a System V init script <ul style="list-style-type: none"> - control the state of services and daemons in their system - It located in /etc/rc.d/init.d/ and written in Bash 	Control the systemd system and service manager <ul style="list-style-type: none"> - daemon from the command line à not to be managed by systemctl utility. - daemon from a system service that have been started by systemd à to be managed by systemctl utility
See more information # man service	See more information # man systemctl

Comparison of the service Utility with systemctl

service	systemctl	Description
service name start	systemctl start name.service	Starts a service.
service name stop	systemctl stop name.service	Stops a service.
service name restart	systemctl restart name.service	Restarts a service.
service name condrestart	systemctl try-restart name.service	Restarts a service only if it is running.
service name reload	systemctl reload name.service	Reloads configuration.

service name status	systemctl status name.service systemctl is-active name.service	Checks if a service is running.
service --status-all	systemctl list-units --type service --all	Displays the status of all services.
Ex: # service sshd start	Ex: # systemctl start sshd.service	start sshd service

To determine services that are enabled or disabled at boot time, use the command:

- Systemctl command (from RHEL 7)
- Chkconfig command (earlier version). It can run on RHEL 7 but should be avoided

Comparison of the chkconfig Utility with systemctl

chkconfig	systemctl	Description
chkconfig name on	systemctl enable name.service	Enables a service.
chkconfig name off	systemctl disable name.service	Disables a service.
chkconfig --list name	systemctl status name.service systemctl is-enabled name.service	Checks if a service is enabled.
chkconfig --list	systemctl list-unit-files -- type service	Lists all services and checks if they are enabled.

chkconfig --list	systemctl list-dependencies --after	Lists services that are ordered to start before the specified unit.
chkconfig --list	systemctl list-dependencies --before	Lists services that are ordered to start after the specified unit.
See more # man chkconfig	See more # man systemctl	

Bước 2:

- Chạy lệnh: *systemctl list-units --type service --all*

```
[hieu@TenSV-MaSV ~]$
[hieu@TenSV-MaSV ~]$ systemctl list-units --type service --all
UNIT                                LOAD    ACTIVE SUB    DESCRIPTION
abrt-ccpp.service                  loaded active exited Install ABRT coredump hook
abrt-oops.service                  loaded active running ABRT kernel log watcher
abrt-vmcore.service                loaded inactive dead   Harvest vmcores for ABRT
abrt-xorg.service                  loaded active running ABRT Xorg log watcher
abrttd.service                     loaded active running ABRT Automated Bug Reporting Tool
accounts-daemon.service            loaded active running Accounts Service
alsa-restore.service              loaded inactive dead   Save/Restore Sound Card State
alsa-state.service                loaded active running Manage Sound Card State (restore and store)
apparmor.service                  not-found inactive dead   apparmor.service
atd.service                        loaded active running Job spooling tools
auditd.service                    loaded active running Security Auditing Service
auth-rpcgss-module.service         loaded inactive dead   Kernel Module supporting RPCSEC_GSS
avahi-daemon.service              loaded active running Avahi mDNS/DNS-SD Stack
blk-availability.service           loaded active exited Availability of block devices
bluetooth.service                 loaded active running Bluetooth service
bolt.service                       loaded active running Thunderbolt system service
chronyd.service                   loaded active running NTP client/server
cloud-init-local.service           not-found inactive dead   cloud-init-local.service
colord.service                     loaded active running Manage, Install and Generate Color Profiles
cpupower.service                  loaded inactive dead   Configure CPU power related settings
crond.service                     loaded active running Command Scheduler
cups.service                       loaded active running CUPS Printing Service
dbus.service                      loaded active running D-Bus System Message Bus
dm-event.service                  loaded inactive dead   Device-mapper event daemon
dmraid-activation.service          loaded inactive dead   Activation of DM RAID sets
```

.... (nhấn dấu sách để đọc các trang tiếp theo)

```
systemd-remount-fs.service         loaded active exited Remount Root and Kernel File Systems
systemd-rfkill@rfkill0.service     loaded active exited Load/Save RF Kill Switch Status of rfkill0
systemd-shutdown.service           loaded inactive dead   Delayed Shutdown Service
systemd-sysctl.service             loaded active exited Apply Kernel Variables
systemd-sysusers.service           not-found inactive dead   system-sysusers.service
systemd-timesyncd.service          not-found inactive dead   systemd-timesyncd.service
systemd-tmpfiles-clean.service      loaded inactive dead   Cleanup of Temporary Directories
systemd-tmpfiles-setup-dev.service loaded active exited Create Static Device Nodes in /dev
systemd-tmpfiles-setup.service     loaded active exited Create Volatile Files and Directories
systemd-udev-settle.service         loaded active exited udev Wait for Complete Device Initialization
systemd-udev-trigger.service       loaded active exited udev Coldplug all Devices
systemd-udevd.service              loaded active running udev Kernel Device Manager
systemd-update-done.service         loaded inactive dead   Update is Completed
systemd-update-utmp-runlevel.service loaded inactive dead   Update UTMP about System Runlevel Changes
systemd-update-utmp.service        loaded active exited Update UTMP about System Boot/Shutdown
systemd-user-sessions.service      loaded active exited Permit User Sessions
systemd-vconsole-setup.service     loaded active exited Setup Virtual Console
tuned.service                      loaded active running Dynamic System Tuning Daemon
udisks2.service                   loaded active running Disk Manager
unbound-anchor.service             loaded inactive dead   update of the root trust anchor for DNSSEC validation in unbound
upower.service                     loaded active running Daemon for power management
vdo.service                        loaded active exited VDO volume services
vgauthd.service                    loaded active running VGAuthService for open-vm-tools
virtlockd.service                  loaded inactive dead   Virtual machine lock manager
virtlogd.service                   loaded inactive dead   Virtual machine log manager
vmtoolsd.service                   loaded active running Service for virtual machines hosted on VMware
vpa_supplicant.service             loaded active running WPA Supplicant daemon
ypbind.service                     not-found inactive dead   ypbind.service
ypasswdd.service                   not-found inactive dead   ypasswdd.service
ypserv.service                     not-found inactive dead   ypserv.service
ypxfrd.service                     not-found inactive dead   ypxfrd.service
```

LOAD = Reflects whether the unit definition was properly loaded.
ACTIVE = The high-level unit activation state, i.e. generalization of SUB.
SUB = The low-level unit activation state, values depend on unit type.

176 loaded units listed.
To show all installed unit files use 'systemctl list-unit-files'.
Lines 147-184/184 (END)

(Nhấn q để thoát)

- Chạy lệnh: `systemctl list-units --type service --all | grep running`

```
[hieu@TenSV-MaSV ~]$ systemctl list-units --type service --all | grep running
abrt-oops.service      loaded active running ABRT kernel log watcher
abrt-xorg.service      loaded active running ABRT Xorg log watcher
abrt.service          loaded active running ABRT Automated Bug Reporting Tool
accounts-daemon.service loaded active running Accounts Service
alsa-state.service     loaded active running Manage Sound Card State (restore and store)
atd.service            loaded active running Job spooling tools
auditd.service         loaded active running Security Auditing Service
avahi-daemon.service   loaded active running Avahi mDNS/DNS-SD Stack
bluetooth.service      loaded active running Bluetooth service
bolt.service           loaded active running Thunderbolt system service
chronyd.service         loaded active running NTP client/server
colord.service          loaded active running Manage, Install and Generate Color Profiles
crond.service           loaded active running Command Scheduler
cups.service            loaded active running CUPS Printing Service
dbus.service            loaded active running D-Bus System Message Bus
firewalld.service       loaded active running firewalld - dynamic firewall daemon
fwupd.service           loaded active running Firmware update daemon
gdm.service             loaded active running GNOME Display Manager
geoclue.service         loaded active running Location Lookup Service
gssproxy.service        loaded active running GSSAPI Proxy Daemon
irqbalance.service     loaded active running irqbalance daemon
ksmtuned.service        loaded active running Kernel Samepage Merging (KSM) Tuning Daemon
libstoragemgmt.service loaded active running libstoragemgmt plug-in server daemon
libvirt.service         loaded active running Virtualization daemon
lvm2-lvmetad.service    loaded active running LVM2 metadata daemon
mclog.service           loaded active running Machine Check Exception Logging Daemon
ModemManager.service   loaded active running Modem Manager
NetworkManager.service loaded active running Network Manager
packagekit.service     loaded active running PackageKit Daemon
polkit.service          loaded active running Authorization Manager
postfix.service         loaded active running Postfix Mail Transport Agent
rngd.service            loaded active running Hardware RNG Entropy Gatherer Daemon
rpcbind.service         loaded active running RPC bind service
rsyslog.service         loaded active running System Logging Service
rtkit-daemon.service    loaded active running RealtimeKit Scheduling Policy Service
smartd.service          loaded active running Self Monitoring and Reporting Technology (SMART) Daemon
sshd.service            loaded active running OpenSSH server daemon
```

- Chạy lệnh: `systemctl list-units --type service --all | grep sshd`

```
[hieu@TenSV-MaSV ~]$ systemctl list-units --type service --all | grep sshd
sshd-keygen.service     loaded inactive dead OpenSSH Server Key Generation
sshd.service            loaded active running OpenSSH server daemon
[hieu@TenSV-MaSV ~]$
```

Bước 3:

Thao tác một số lệnh cơ bản (với quyền root) như dừng, chạy, khởi động, xem tình trạng dịch vụ sshd

- `# systemctl stop sshd.service`
- `# systemctl status sshd.service`

```
[root@TenSV-MaSV ~]# systemctl stop sshd.service
[root@TenSV-MaSV ~]# systemctl status sshd.service
● sshd.service - OpenSSH server daemon
   Loaded: loaded (/usr/lib/systemd/system/sshd.service; enabled; vendor preset: enabled)
   Active: inactive (dead) since Sun 2023-02-05 10:30:49 +0430; 5s ago
     Docs: man:sshd(8)
           man:sshd_config(5)
  Process: 1212 ExecStart=/usr/sbin/sshd -D $OPTIONS (code=exited, status=0/SUCCESS)
 Main PID: 1212 (code=exited, status=0/SUCCESS)
```

- `# systemctl start sshd.service`

- # systemctl status sshd.service

```
[root@TenSV-MaSV ~]# systemctl start sshd.service
[root@TenSV-MaSV ~]# systemctl status sshd.service
● sshd.service - OpenSSH server daemon
   Loaded: loaded (/usr/lib/systemd/system/sshd.service; enabled; vendor preset: enabled)
   Active: active (running) since Sun 2023-02-05 10:33:09 +0430; 3s ago
     Docs: man:sshd(8)
           man:sshd_config(5)
  Main PID: 4190 (sshd)
    Tasks: 1
   CGroup: /system.slice/sshd.service
           └─4190 /usr/sbin/sshd -D
```

Bước 4:

- Kiểm tra xong, dùng lệnh *systemctl stop sshd.service* rồi *reboot* lại máy

```
[root@TenSV-MaSV ~]# systemctl list-units --type service --all | grep sshd
ssh-keygen.service loaded inactive dead OpenSSH Server Key Generation
sshd.service loaded active running OpenSSH server daemon

[root@TenSV-MaSV ~]#
[root@TenSV-MaSV ~]#
[root@TenSV-MaSV ~]#
[root@TenSV-MaSV ~]#
[root@TenSV-MaSV ~]#
[root@TenSV-MaSV ~]#
[root@TenSV-MaSV ~]# systemctl stop sshd.service
[root@TenSV-MaSV ~]# systemctl status sshd.service
● sshd.service - OpenSSH server daemon
   Loaded: loaded (/usr/lib/systemd/system/sshd.service; enabled; vendor preset: enabled)
   Active: inactive (dead) since Sun 2023-02-05 11:03:19 +0430; 17s ago
     Docs: man:sshd(8)
           man:sshd_config(5)
  Process: 4190 ExecStart=/usr/sbin/sshd -D $OPTIONS (code=exited, status=0/SUCCESS)
 Main PID: 4190 (code=exited, status=0/SUCCESS)

[root@TenSV-MaSV ~]#
[root@TenSV-MaSV ~]#
[root@TenSV-MaSV ~]# reboot
```

- Kiểm tra xem dịch vụ có chạy ko (vẫn chạy khi khởi động)

```
[root@TenSV-MaSV ~]# systemctl list-units --type service --all | grep sshd
ssh-keygen.service loaded inactive dead OpenSSH Server Key Generation
sshd.service loaded active running OpenSSH server daemon

[root@TenSV-MaSV ~]#
```

Disable dịch vụ, rồi reboot lại máy

```
[root@TenSV-MaSV ~]#
[root@TenSV-MaSV ~]# systemctl disable sshd.service
Removed symlink /etc/systemd/system/multi-user.target.wants/sshd.service.
[root@TenSV-MaSV ~]#
[root@TenSV-MaSV ~]# reboot
[root@TenSV-MaSV ~]#
```

- Kiểm tra dịch vụ có chạy ko (ko chạy khi khởi động)


```
[root@TenSV-MaSV ~]#  
[root@TenSV-MaSV ~]#  
[root@TenSV-MaSV ~]# systemctl list-units --type service --all | grep sshd  
[root@TenSV-MaSV ~]#  
[root@TenSV-MaSV ~]#  
[root@TenSV-MaSV ~]#
```

- Enable dịch vụ, rồi reboot lại máy

```
[root@TenSV-MaSV ~]#  
[root@TenSV-MaSV ~]#  
[root@TenSV-MaSV ~]# systemctl enable sshd.service  
Created symlink from /etc/systemd/system/multi-user.target.wants/ssh.service to /usr/lib/systemd/system/ssh.service.  
[root@TenSV-MaSV ~]#  
[root@TenSV-MaSV ~]#  
[root@TenSV-MaSV ~]# reboot
```

- Kiểm tra dịch vụ có chạy ko (chạy khi khởi động)

```
[root@TenSV-MaSV ~]# systemctl list-units --type service --all | grep sshd  
ssh-keygen.service loaded inactive dead OpenSSH Server Key Generation  
ssh.service loaded active running OpenSSH server daemon  
[root@TenSV-MaSV ~]#
```