How To Install and Configure Log Rotation on RHEL 7

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Overview

All the services or applications deployed on the system, generates event log's in a file for each action that is performed on the system / application / user. Over a period of time it becomes a tedious task to manage such log files and grows in humongous sizes and the application performance would deteriorate periodically.

To mitigate such issues and maintain log files we utilize **"logrotate"** which is designed to ease administration. It takes care of automatic log file rotation, compression, removal and mailing of log files.

It can be configured to maintain logs file on daily, weekly monthly or when the size of the file is grown to a specific size.

Ideally, logrotate is run as a cron job. To test or run manually you can run command **"logrotate"** with **"-f"** parameter along with the configuration file.

Applies To

Tested on RHEL 7, CentOS 7, though it can be configured on most of the *nix flavor of OS.

Pre-Requisites

- **logrotate**

Check Package

Install the logrotate package, run the command

`rpm -qa | grep logrotate`

```
[root@ip-172-31-17-5 ~]#
[root@ip-172-31-17-5 ~]# rpm -qa | grep logrotate
[root@ip-172-31-17-5 ~]#
```

Install Package

Install the logrotate package, run the command;

`yum install logrotate -y`

```
[root@ip-172-31-17-5 ~]#
[root@ip-172-31-17-5 ~]# yum install logrotate -y
Loaded plugins: amazon-id, rhui-lb
rhui-REGION-client-config-server-7                       | 2.9 kB  00:00:00
rhui-REGION-rhel-server-releases                         | 4.0 kB  00:00:00
rhui-REGION-rhel-server-rh-common                        | 3.8 kB  00:00:00
Resolving Dependencies
--> Running transaction check
```

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Verify Package

To verify the logrotate package is installed, run the command;

rpm -qa | grep logrotate

```
[root@ip-172-31-17-5 ~]#
[root@ip-172-31-17-5 ~]# rpm -qa | grep logrotate
logrotate-3.8.6-4.el7.x86_64
[root@ip-172-31-17-5 ~]#
```

Configuration Files / Location

By default, when the logrotate is installed. All the Configuration files "**/etc/logrotate.conf**" that are configured.

/etc/logrotate.conf	Default configuration file
/etc/logrotate.d/	Default directory for different service or application configuration file location

Logrotate – Configuration File

Default configuration file is configured as below. To display current configuration without comments, run command;

grep -v "#" /etc/logrotate.conf

```
weekly
rotate 4
create
dateext
include /etc/logrotate.d

/var/log/wtmp {
    monthly
    create 0664 root utmp
        minsize 1M
    rotate 1
}

/var/log/btmp {
    missingok
    monthly
    create 0600 root utmp
    rotate 1
}
```

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Logrotate – Configuration Directory to Include

The directive "**include /etc/logrotate.d**" that is configured, instructs the service to include the configuration files in the directory "**/etc/logrotate.d**".

cd /etc/logrotate.d/

ls -l

```
[root@ip-172-31-17-5 logrotate.d]#
[root@ip-172-31-17-5 logrotate.d]# ls -l
total 48
-rw-r--r--. 1 root root   178 Feb  5  2014 chrony
-rw-r--r--. 1 root root   194 Sep 17 09:02 httpd
-rw-r--r--. 1 root root   893 Sep 21 12:56 mariadb
-rw-r-----. 1 root named  514 Sep  2 07:30 named
-rw-r--r--. 1 root root   136 Jan 26  2014 ppp
-rw-r--r--. 1 root root    71 Feb 19  2015 subscription-manager
-rw-r--r--. 1 root root   210 Oct  7  2014 syslog
-rw-r--r--. 1 root root    32 Dec  9  2013 up2date
-rw-r--r--. 1 root root   188 Aug  3 08:06 vsftpd
-rw-r--r--. 1 root root   100 Oct 28  2014 wpa_supplicant
-rw-r--r--. 1 root root   100 Jan 12  2015 yum
[root@ip-172-31-17-5 logrotate.d]#
```

Logrotate – httpd Script

A sample script, which show as to how to configure log rotation for "**/var/log/httpd/**" location for all "***.log**" which is filtered files.

Httpd – Rotation Script

/var/log/httpd/*log {

   missingok

   notifempty

   sharedscripts

   delaycompress

   postrotate

     /bin/systemctl reload httpd.service > /dev/null 2>/dev/null || true

   endscript

}

```
[root@ip-172-31-17-5 logrotate.d]#
[root@ip-172-31-17-5 logrotate.d]# cat httpd
/var/log/httpd/*log {
    missingok
    notifempty
    sharedscripts
    delaycompress
    postrotate
        /bin/systemctl reload httpd.service > /dev/null 2>/dev/null || true
    endscript
}
[root@ip-172-31-17-5 logrotate.d]#
```

logrotate – Run Status

To validate the logrotate run status for each configuration file and know the status of each one of them, run the command; It will list run time for each config file.

cat /var/lib/logrotate.status

```
[root@ip-172-31-17-5 logrotate.d]#
[root@ip-172-31-17-5 logrotate.d]# cat /var/lib/logrotate.status
logrotate state -- version 2
"/var/log/yum.log" 2015-11-14-12:0:0
"/var/named/data/named.run" 2015-12-7-3:9:1
"/var/log/up2date" 2015-11-14-12:0:0
"/var/log/httpd/error_log" 2015-12-6-3:10:1
"/var/log/chrony/*.log" 2015-11-14-12:0:0
"/var/log/wtmp" 2015-11-14-12:0:0
"/var/log/spooler" 2015-12-6-3:10:1
"/var/log/btmp" 2015-12-1-3:32:1
"/var/log/xferlog" 2015-12-7-3:9:1
"/var/log/maillog" 2015-12-6-3:10:1
"/var/log/wpa_supplicant.log" 2015-11-14-12:0:0
"/var/log/secure" 2015-12-6-3:10:1
"/var/log/ppp/connect-errors" 2015-11-14-12:0:0
"/var/log/rhsm/rhsm.log" 2015-12-6-3:10:1
"/var/log/messages" 2015-12-6-3:10:1
"/var/log/cron" 2015-12-6-3:10:1
"/var/log/httpd/access_log" 2015-12-6-3:10:1
"/var/log/vsftpd.log" 2015-11-23-3:0:0
[root@ip-172-31-17-5 logrotate.d]#
```

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logrotate Manually

To run manually logrotate run the command below for specific configuration file.

logrotate -f /etc/logrotate.d/tomcat

```
[root@ip-172-31-17-5 ~]#
[root@ip-172-31-17-5 ~]# logrotate -f /etc/logrotate.d/tomcat
[root@ip-172-31-17-5 ~]#
```

logrotate Manually - Verbose

To verbose logrotate run the command below;

logrotate -v -f /etc/logrotate.d/tomcat

```
[root@ip-172-31-17-5 ~]#
[root@ip-172-31-17-5 ~]# logrotate -v -f /etc/logrotate.d/tomcat
reading config file /etc/logrotate.d/tomcat

Handling 1 logs

rotating pattern: /usr/local/apache-tomcat-6.0.20/logs/catalina.out  forced from co
mmand line (30 rotations)
empty log files are not rotated, old logs are removed
considering log /usr/local/apache-tomcat-6.0.20/logs/catalina.out
  log /usr/local/apache-tomcat-6.0.20/logs/catalina.out does not exist -- skipping
set default create context
[root@ip-172-31-17-5 ~]#
```

logrotate Manually – Debug

To debug logrotate and redirect the logs to a file, run the command below;

logrotate -d /etc/logrotate.conf 2> /tmp/logrotate.debug

```
[root@ip-172-31-17-5 ~]#
[root@ip-172-31-17-5 ~]# logrotate -d /etc/logrotate.conf 2> /tmp/logrotate.debug
[root@ip-172-31-17-5 ~]#
[root@ip-172-31-17-5 ~]# tail /tmp/logrotate.debug

rotating pattern: /var/log/wtmp  monthly (1 rotations)
empty log files are rotated, only log files >= 1048576 bytes are rotated, old logs
are removed
considering log /var/log/wtmp
  log does not need rotating

rotating pattern: /var/log/btmp  monthly (1 rotations)
empty log files are rotated, old logs are removed
considering log /var/log/btmp
  log does not need rotating
[root@ip-172-31-17-5 ~]#
```

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logrotate Manually – All Configs

To rotate all the logs and in verbose mode, run the command below;

`logrotate -f -v /etc/logrotate.conf`

```
[root@ip-172-31-17-5 ~]#
[root@ip-172-31-17-5 ~]# logrotate -f -v /etc/logrotate.conf
reading config file /etc/logrotate.conf
including /etc/logrotate.d
reading config file chrony
reading config file httpd
reading config file mariadb
reading config file named
reading config file ppp
reading config file subscription-manager
reading config file syslog
reading config file tomcat
reading config file up2date
reading config file vsftpd
reading config file wpa_supplicant
reading config file yum

Handling 14 logs
```

logrotate – Custom Application Log

To configure logrotate for a custom application. Create a new config file and configure the options for log rotation in the folder "**/etc/logrotate.d/**". We will be rotating a specific file "**catalina.out**" only. Set options for the log rotation accordingly.

`vi /etc/logrotate.d/tomcat`

Tomcat – Rotation Script – One Log File

```
/usr/local/apache-tomcat-6.0.20/logs/catalina.out {
    copytruncate
    daily
    dateext
    rotate 30
    size 100M
    notifempty
    missingok
    compress
    postrotate
      /usr/bin/MoveOldLogs.sh || true
    endscript
```

```
}
/usr/local/apache-tomcat-6.0.20/logs/catalina.out {
        copytruncate
        daily
        dateext
        rotate 30
        size 100M
        notifempty
        missingok
        compress
        postrotate
            /usr/bin/MoveOldLogs.sh || true
        endscript
 }
"/etc/logrotate.d/tomcat" line 14 of 14 --100%-- col 1
```

logrotate – Custom Application Multiple Filters

To configure logrotate for a custom application. Create a new configuration file and configure the options for log rotation in the folder "**/etc/logrotate.d/**".

We will be rotating a specific file "**catalina.out**" only. Another path wherein we will configure to rotate filter files "***.log**" for the paths. Similarly we can configure for different paths.

File Type #1	/usr/local/apache-tomcat-6.0.20/logs/catalina.out
File Type #2	/usr/local/apache-tomcat-6.0.20/logs/*.log

logrotate -v -f /etc/logrotate.d/tomcat

Tomcat – Rotation Script – Multiple Filters

```
/usr/local/apache-tomcat-6.0.20/logs/catalina.out /usr/local/apache-tomcat-6.0.20/logs/*.log {
    copytruncate
    daily
    dateext
    rotate 30
    size 100M
    notifempty
    missingok
    compress
    postrotate
      /usr/bin/MoveOldLogs.sh || true
    endscript
}
```

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```
[root@ip-172-31-17-5 ~]#
[root@ip-172-31-17-5 ~]# logrotate -v -f /etc/logrotate.d/tomcat
reading config file /etc/logrotate.d/tomcat

Handling 1 logs

rotating pattern: /usr/local/apache-tomcat-6.0.20/logs/catalina.out /usr/local/apa
che-tomcat-6.0.20/logs/*.log  forced from command line (30 rotations)
empty log files are not rotated, old logs are removed
considering log /usr/local/apache-tomcat-6.0.20/logs/catalina.out
  log /usr/local/apache-tomcat-6.0.20/logs/catalina.out does not exist -- skipping
considering log /usr/local/apache-tomcat-6.0.20/logs/catalina.2015-12-08.log
  log needs rotating
considering log /usr/local/apache-tomcat-6.0.20/logs/host-manager.2015-12-08.log
  log does not need rotating
considering log /usr/local/apache-tomcat-6.0.20/logs/localhost.2015-12-08.log
  log needs rotating
considering log /usr/local/apache-tomcat-6.0.20/logs/manager.2015-12-08.log
  log needs rotating
rotating log /usr/local/apache-tomcat-6.0.20/logs/catalina.2015-12-08.log, log->ro
tateCount is 30
dateext suffix '-20151208'
glob pattern '-[0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9]'
glob finding old rotated logs failed
```

Configurable Options

A lot of other configurable options and with its function.

Options	Function
compress	To compress the rotated log file with **gzip**
nocompress	Compression is disabled
copytruncate	When processes are still writing information to open log files. It will copy the active log file to a **backup file** and **truncates the active log file**
nocopytruncate	Will copy the log files to **backup file**, but the open log file will not be truncated
create mode owner group	rotates the log file and **creates a new log file** with the specified permissions, owner, and group. **The default is to use the same mode, owner, and group as the original file**
nocreate	prevents the creation of a new log file creation
delaycompress	It's used with the compress option is set, then rotated log file is not compressed until the next time it is cycled
nodelaycompress	overrides delaycompress. The log file is compressed when it is cycled
errors address	If logrotate encounters errors to an email address
ifempty	Log file is rotated **even if it is empty**. It's the default setting
notifempty	Does not rotate the log file, if it is empty file or zero byte file
mail address	This mails log files that are cycled to an address. When mail log files are cycled, they are effectively removed from the system
nomail	When mail log files are cycled, a copy is not mailed
olddir directory	With this, cycled log files are kept in the specified directory. This directory must be on the same filesystem as the current log files

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noolddir	Cycled log files are kept in the same directory as the current log files
prerotate/endscript	Before rotation run. The **prerotate** and **endscript** invoke task or script, check script below.
postrotate/endscript	After rotation run. The **postrotate** and **endscript** invoke task or script, check script below.
daily	To rotate log files daily
weekly	To rotate log files weekly
monthly	To rotate log files monthly
rotate count	Specifies the number of times to rotate a file before it is deleted. **0 (zero) means no copies are retained**. In case you set it as 7, **seven copies are retained**.
tabootext [+] list	directs logrotate to not rotate files with the specified extension. The default list of extensions is .rpm-orig, .rpmsave, v, and ~.
size size	With this, the log file is rotated when the specified size is reached. Size may be specified in bytes (default), kilobytes (sizek), or megabytes (sizem).

Shell Script - MoveOldLogs.sh

```
#!/bin/bash
LogPath=/usr/local/apache-tomcat-6.0.20/logs/
LogFileName=catalina.out
LogDate=$(date +"%m%d%Y")
MoveFileName=${LogPath}${LogFileName}
DestPath=/var/log/archive-logs/apache-tomcat/
#
# Create Destination path if it doesn't exists
#
if [ ! -d ${DestPath} ]; then
  mkdir -p ${DestPath}
fi
```

```
#
# Move the file to a archive folder
#
mv ${MoveFileName} ${DestPath}${LogFileName}.${LogDate}
gzip ${DestPath}/${LogFileName}.${LogDate}
exit
```

PostRotate - Option

Invoke command / task between postrotate and endscript tags.

postrotate

   /bin/systemctl reload httpd.service > /dev/null 2>/dev/null || true

endscript

```
[root@ip-172-31-17-5 logrotate.d]#
[root@ip-172-31-17-5 logrotate.d]# cat httpd
/var/log/httpd/*log {
    missingok
    notifempty
    sharedscripts
    delaycompress
    postrotate
        /bin/systemctl reload httpd.service > /dev/null 2>/dev/null || true
    endscript
}
[root@ip-172-31-17-5 logrotate.d]#
```