DRLM Documentation

Release 1.0.0

Brain Updaters, S.L.L.

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DRLM Docs contains comprehensive documentation on the DRLM (Disaster Recovery Linux Manager). This page describes documentation's licensing, editions, and versions, and describes how to contribute to the DRLM Docs.

For more information on DRLM, see About DRLM Project[1]. To download DRLM, see the downloads page.

[1] http://s390213391.mialojamiento.es/www/wpdrlmweb/?page_id=22

CHAPTER 1

License

[2] http://creativecommons.org/licenses/by-nc-sa/4.0/

CHAPTER 2

Contributing

Please, we encourage you to help us to improve this documentation.

To contribute to documentation the Github interface enables users to report errata or missing sections, discuss improvements and new sections through the issue-tracker at: DRLM Docs GitHub Issue Tracker[3].

Note: This documentation is under constant development. Please be patient...

[3] https://github.com/brainupdaters/drlm-docs/issues

CHAPTER 3

Contents:

About DRLM Docs

DRLM Docs contains comprehensive documentation on the DRLM (Disaster Recovery Linux Manager). This page describes documentation's licensing, editions, and versions, and describes how to contribute to the DRLM Docs.

For more information on DRLM, see About DRLM Project[4]. To download DRLM, see the downloads page.

License

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[4] http://drlm.org/about/
[5] http://creativecommons.org/licenses/by-nc-sa/4.0/
[6] https://github.com/brainupdaters/drlm-docs/issues

User Documentation

DRLM Quick Start Guide

DRLM Installation

Follow the steps at DRLM Installation[7]. (Select your OS)

Add Network to DRLM Server

First of all we must add the network where the ReaR clients are. To do this we have to use the command "drlm addnetwork" with the parameters -i "Network IP" network", -g "Gateway IP", -s "Server IP of the network", -n "Network Name" and -m "Netmask".

```
$ drlm -vD addnetwork -i 192.168.1.0 -g 192.168.1.1 -s 192.168.1.38 -n BuLan -m 255.
↪255.255.0
```

Add Client to DRLM Server

Now we can add a ReaR client with the command "drlm addclient" and the parameters -n "Network Name", -i "ReaR client IP", -M "ReaR client MAC address" and -c "ReaR client hostname".

```
$ drlm -vD addclient -n BuLan -i 192.168.1.45 -M 00:13:20:fe:48:16 -c minBUC
```

ReaR Client Installation

Follow the steps at ReaR Client Installation[8]. (Select your OS)

Run Client Backup

We are ready to take OS backups!!! At this point we have the DRLM server and ReaR client configured, you just have to run the command "drlm runbackup" with the parameter -c "ReaR client host name"

```
$ drlm -vD runbackup -c ReaRCli1
```

Restore Client Backup

Follow the steps at DRLM Client Recover[9].

DRLM Installation

The pourpose of this manual is explain, step by step, the installation and configuration of DRLM. At the end of this guide you should have a fully functional DRLM server.

[7] http://docs.drlm.org/en/latest/Install.html#drlm-installation
[8] http://docs.drlm.org/en/latest/ClientConfig.html#rear-client-installation
[9] http://drlm-docs.readthedocs.org/en/latest/Restore.html

Debian 7

Note: On the following steps, is assumed you have a minimal installation of Debian 7.

Install requirements

```
$ apt-get install openssh-client openssl netcat-traditional wget gzip tar gawk sed␣
↪grep coreutils util-linux nfs-kernel-server rpcbind isc-dhcp-server tftpd-hpa␣
↪syslinux apache2
```

Get DRLM

You can obtain the DRLM package building it from the source code or downloading from www.drlm.org website

Build DEB package from Source

```
$ aptitude install git build-essential debhelper
$ git clone https://github.com/brainupdaters/drlm
$ cd drlm
$ make deb
```

Download DEB package From DRLM Web

```
$ wget http://www.drlm.org/downloads/drlm_1.1.3_all.deb
```

Install DRLM package

The DEB package can be installed as follows (on Debian, Ubuntu)

Execute the next command:

```
$ dpkg -i drlm_1.1.3_all.deb
```

Directory structure:

```
$ mkdir -p /var/lib/drlm/arch
$ mkdir -p /var/lib/drlm/store/pxelinux.cfg
```

pxelinux.0:

```
$ cp -p /usr/lib/syslinux/pxelinux.0 /var/lib/drlm/store/
$ chmod 755 /var/lib/drlm/store/pxelinux.0
```

DRLM Configuration

```
$ vi /etc/drlm/local.conf
```

```
STORDIR=/var/lib/drlm/store
ARCHDIR=/var/lib/drlm/arch
DHCP_SVC_NAME="isc-dhcp-server"
```

Add **drlm-stord** service to start up scripts.

```
$ update-rc.d drlm-stord defaults
```

DRLM Components Configuration

This section covers configuration of:

- GRUB
- TFTP Service
- NFS Service
- DHCP Service
- HTTP Service

Configuring loop limits

The default configuration allows up to eight active loop devices. If more than eight file-based guests or loop devices are needed the number of loop devices configured can be adjusted adding the parameter *max_loop=1024* in the **/etc/default/grub** file as follows:

```
...

GRUB_CMDLINE_LINUX="quiet max_loop=1024" ##UPDATE THIS LINE

...
```

```
$ grub-mkconfig -o /boot/grub/grub.cfg
```

TFTP

You have to update the destination folder in the /etc/default/tftpd-hpa cofiguration file as follows

```
# /etc/default/tftpd-hpa
TFTP_USERNAME="tftp"
TFTP_DIRECTORY="/var/lib/drlm/store"
TFTP_ADDRESS="0.0.0.0:69"
TFTP_OPTIONS="--secure"
```

Service Management:

```
$ update-rc.d tftpd-hpa defaults
$ service tftpd-hpa restart
```

NFS

We don't have to configure the /etc/exports file, the file is automatically maintained by DRLM.

Service Management:

```
$ update-rc.d nfs-kernel-server defaults
$ update-rc.d rpcbind defaults
```

DHCP

Same as /etc/exports file, configuration of /etc/dhcp/dhcpd.conf file is not required, the file is automatically maintained by DRLM.

Service Management:

```
$ update-rc.d isc-dhcp-server defaults
```

HTTP

```
$ a2enmod ssl
$ a2enmod rewrite
```

Edit /etc/apache2/apache2.conf file

```
# Include the DRLM Configuration:
Include /usr/share/drlm/conf/HTTP/https.conf
```

```
$ rm /etc/apache2/sites-enabled/*
```

Edit /etc/apache2/ports.conf file

```
#NameVirtualHost *:80
#Listen 80
```

```
$ update-rc.d apache2 defaults
```

```
service apache2 restart
```

Restart & check all is up & running

```
$ service tftpd-hpa status
in.tftpd is running.
$ service rpcbind status
rpcbind is running.
$ service apache2 status
Apache2 is running (pid 2023).
$ service nfs-kernel-server status
nfsd not running
$ service isc-dhcp-server status
Status of ISC DHCP server: dhcpd is not running.
```

Note: If DHCP or NFS not running is because there is no config yet! no worries they will be reloaded after first DRLM client will be added.

CentOS 6, Red Hat 6

Note: On the following steps, is assumed you have a minimal installation of CentOS 6.

Warning: iptables and selinux has been disabled

```
$ cat /etc/sysconfig/selinux

# This file controls the state of SELinux on the system.
# SELINUX= can take one of these three values:
#     enforcing - SELinux security policy is enforced.
#     permissive - SELinux prints warnings instead of enforcing.
#     disabled - No SELinux policy is loaded.
SELINUX=disabled
# SELINUXTYPE= can take one of these two values:
#     targeted - Targeted processes are protected,
#     mls - Multi Level Security protection.
SELINUXTYPE=targeted
```

```
$ setenforce 0
```

Note: It is not a requirement to disable SELinux and IPTABLES, but to work with DRLM Server must be properly configured. We have disabled these features for easier installation.

IPTABLES

```
$ chkconfig iptables off
$ service iptables stop
```

Install requirements

```
$  yum -y install openssh-clients openssl nc wget gzip tar gawk sed grep coreutils␣
↪util-linux rpcbind dhcp tftp-server syslinux httpd xinetd nfs-utils nfs4-acl-tools␣
↪mod_ssl
```

Get DRLM

Build RPM package from Source

```
$ yum install git rpm-build
$ git clone https://github.com/brainupdaters/drlm
```

```
$ cd drlm
$ make rpm
```

Download RPM package From DRLM Web

```
$ wget http://www.drlm.org/downloads/drlm-1.1.3-1git.el6.noarch.rpm
```

Install DRLM package

The RPM package can be installed as follows (on Redhat, CentOS)

Execute the next command:

```
$ rpm -ivh drlm-1.1.3-1git.el6.noarch.rpm
```

Directory structure:

```
$ mkdir -p /var/lib/drlm/arch
$ mkdir -p /var/lib/drlm/store/pxelinux.cfg
```

pxelinux.0:

```
$ cp -p /usr/share/syslinux/pxelinux.0 /var/lib/drlm/store/
$ chmod 755 /var/lib/drlm/store/pxelinux.0
```

DRLM Configuration

```
$ vi /etc/drlm/local.conf
```

```
STORDIR=/var/lib/drlm/store
ARCHDIR=/var/lib/drlm/arch
```

Add **drlm-stord** service to start up scripts.

```
$ chkconfig drlm-stord on
```

DRLM Components Configuration

This section covers configuration of:

- GRUB
- TFTP Service
- NFS Service
- DHCP Service
- HTTP Service

Configuring loop limits

The default configuration allows up to eight active loop devices. If more than eight clients are needed, the number of loop devices configured can be adjusted adding the parameter *max_loop=1024* in the **/etc/grub.conf** file as follows:

```
title Red Hat Enterprise Linux (2.6.32-358.el6.x86_64)
root (hd0,0)
kernel /vmlinuz-2.6.32-358.el6.x86_64 ro root=/dev/mapper/vgroot-lvroot rd_NO_LUKS␣
↪LANG=en_US.UTF-8  KEYBOARDTYPE=pc KEYTABLE=es rd_NO_MD rd_LVM_LV=vgroot/lvswap␣
↪SYSFONT=latarcyrheb-sun16 crashkernel=auto rd_LVM_LV=vgroot/lvroot rd_NO_DM rhgb␣
↪quiet max_loop=1024
initrd /initramfs-2.6.32-358.el6.x86_64.img
```

TFTP

You have to update the /etc/xinetd.d/tftp cofiguration file as follows:

```
service tftp
{
        socket_type = dgram
        protocol = udp
        wait = yes
        user = root
        server = /usr/sbin/in.tftpd
        server_args = -s /var/lib/drlm/store
        disable = no
        per_source = 11
        cps = 100 2
        flags = IPv4
}
```

Service Management:

```
$ chkconfig xinetd on
$ service xinetd start
```

NFS

We don't have to configure the /etc/exports file, the file is automatically maintained by DRLM.

Service Management:

```
$ chkconfig rpcbind on
$ service rpcbind start
$ chkconfig nfs on
$ service nfs start
```

DHCP

Same as /etc/exports file, configuration of /etc/dhcp/dhcpd.conf file is not required, the file is automatically maintained by DRLM.

Service Management:

```
$ chkconfig dhcpd on
$ service dhcpd start
```

HTTP

Disable the default Virtual Host and configure the server to work with SSL.

We have to edit de /etc/httpd/conf.d/ssl.conf, comment or delete the Virtual host and include the DRLM http default configuration at the end of it.

```
Coment from here --->
##
## SSL Virtual Host Context
##


     At the end of the file and insert:
```

```
# Include the DRLM Configuration:
Include /usr/share/drlm/conf/HTTP/https.conf
```

Then we have to coment the 80 port service commenting or deleting the next lines in /etc/httpd/conf/httpd.conf file.

```
#Listen 80

#ServerAdmin root@localhost

#DocumentRoot "/var/www/html"

#<Directory />
#    Options FollowSymLinks
#    AllowOverride None
#</Directory>

#<Directory "/var/www/html">
#    Options Indexes FollowSymLinks
#    AllowOverride None
#    Order allow,deny
#    Allow from all
#</Directory>

#ScriptAlias /cgi-bin/ "/var/www/cgi-bin/"

#<Directory "/var/www/cgi-bin">
#    AllowOverride None
#    Options None
#    Order allow,deny
#    Allow from all
#</Directory>
```

To finish we have to comment the ErrorLog and CustomLog lines in /usr/share/drlm/conf/HTTP/https.conf file.

```
#       ErrorLog ${APACHE_LOG_DIR}/error.log

#       CustomLog ${APACHE_LOG_DIR}/ssl_access.log combined
```

Service Management:

```
$ chkconfig httpd on
$ service httpd start
```

Restart & check all is up & running

```
$ service xinetd status
xinetd (pid  5307) is running...
$ service rpcbind status
rpcbind (pid  5097) is running...
$ service httpd status
httpd (pid  5413) is running...
$ service nfs status
rpc.svcgssd is stopped
rpc.mountd (pid 5216) is running...
nfsd (pid 5232 5231 5230 5229 5228 5227 5226 5225) is running...
$ service dhcpd status
dhcpd is stopped
```

Note: If DHCP or NFS not running is because there is no config yet! no worries they will be reloaded after first DRLM client will be added.

DRLM Client Installation

Debian 7

ReaR requirements for DRLM

As rear is written in bash you need bash as a bare minimum. Other requirements are:

- syslinux (for i386 based systems)
- ethtool
- genisoimage
- parted
- gawk
- attr
- sudo
- curl (rear need to get its configuration from DRLM server)
- mingetty (rear is depending on it in recovery mode)

```
$ apt-get install syslinux ethtool genisoimage parted gawk attr sudo curl mingetty
```

Download and install ReaR

Note: Minimum version required of ReaR: 1.17.0

Download ReaR

```
$ wget http://download.opensuse.org/repositories/Archiving:/Backup:/Rear/Debian_7.0/
↪all/rear_1.17.2_all.deb
```

You can download other ReaR versions from ReaR Download Page[10] or from OpenSuse Build Service[11] .

Install ReaR package

The DEB based package can be installed as follows

Execute the next command:

```
$ dpkg -i rear_1.17.2_all.deb
```

Note: For more information about ReaR visit: http://relax-and-recover.org/documentation

Create DRLM User

```
$ useradd -d /home/drlm -c "DRLM User Agent" -m -s /bin/bash -p $(echo S3cret |␣
↪openssl passwd -1 -stdin) drlm
```

Disable password aging for drlm user

```
$ chage -I -1 -m 0 -M 99999 -E -1 drlm
```

Copy rsa key from DRLM Server to the new client

Warning: You have to execute this code from DRLM Server. The password which you will be asked for is "S3cret" and "client_ipaddr" must be changed to the client ip address.

```
$ ssh-keygen -t rsa
$ ssh-copy-id drlm@"client_ipaddr"
```

Disable password login

```
$ passwd -l drlm
```

[10] http://relax-and-recover.org/download/
[11] https://build.opensuse.org/project/show/Archiving:Backup:Rear

Add Sudo roles for DRLM user

Edit **/etc/sudoers.d/drlm** and add the following lines

```
Cmnd_Alias DRLM = /usr/sbin/rear*
drlm    ALL=(root)      NOPASSWD: DRLM
```

Change **/etc/sudoers.d/drlm** permissions

```
$ chmod 440 /etc/sudoers.d/drlm
```

Client configuration

We have to specify that this ReaR client is managed from a DRLM server. We have to edit the /etc/rear/local.conf and insert the next line.

```
DRLM_MANAGED=y
```

Add client config file at DRLM server

Warning: You have to do this at DRLM Server.

We have to add a new file called as "client host name".cfg at /etc/drlm/clients/ For example: If our client host name is ReaRCli1 we have to create /etc/drlm/clients/ReaRCli1.cfg and add the follwing lines. Where CLI_NAME="Client Host Name" and SRV_NET_IP="DRLM Server IP".

```
CLI_NAME=ReaRCli1
SRV_NET_IP=192.168.1.38

OUTPUT=PXE
OUTPUT_PREFIX=$OUTPUT
OUTPUT_PREFIX_PXE=$CLI_NAME/$OUTPUT
OUTPUT_URL=nfs://${SRV_NET_IP}/var/lib/drlm/store/${CLI_NAME}

BACKUP=NETFS
NETFS_PREFIX=BKP
BACKUP_URL=nfs://${SRV_NET_IP}/var/lib/drlm/store/${CLI_NAME}

SSH_ROOT_PASSWORD=drlm
```

Warning: This file must be readable by Apache

```
$ chmod 644 /etc/drlm/clients/ReaRCli1.cfg
```

CentOS 6, Red Hat 6

ReaR requirements for DRLM

As rear is written in bash you need bash as a bare minimum. Other requirements are:

- mkisofs
- mingetty (rear is depending on it in recovery mode)
- syslinux (for i386 based systems)
- nfs-utils
- cifs-utils
- rpcbind
- wget
- sudo
- curl (rear need to get its configuration from DRLM server)

```
$ yum -y install mkisofs mingetty syslinux nfs-utils cifs-utils rpcbind wget curl sudo
```

Download and install ReaR

Note: Minimum version required of ReaR: 1.17.0

Download ReaR

```
$ DISTRO="CentOS_CentOS-6" or DISTRO="RedHat_RHEL-6"

$ wget http://download.opensuse.org/repositories/Archiving:/Backup:/Rear/$DISTRO/
↪$(uname -m)/rear-1.17.2-1.el6.$(uname -m).rpm
```

You can download other ReaR versions from ReaR Download Page[12] or from OpenSuse Build Service[13] .

Install ReaR package

The RPM based package can be installed as follows

Execute the next command:

```
$ yum install rear-1.17.2-1.el6.x86_64.rpm
```

Note: For more information about ReaR visit: http://relax-and-recover.org/documentation

Create DRLM User

```
$ useradd -d /home/drlm -c "DRLM User Agent" -m -s /bin/bash -p $(echo S3cret |␣
↪openssl passwd -1 -stdin) drlm
```

[12] http://relax-and-recover.org/download/
[13] https://build.opensuse.org/project/show/Archiving:Backup:Rear

Disable password aging for drlm user

```
$ chage -I -1 -m 0 -M 99999 -E -1 drlm
```

Copy rsa key from DRLM Server to the new client

> **Warning:** You have to execute this code from DRLM Server. The password which you will be asked for is "S3cret" and "client_ipaddr" must be changed to the client ip address.

```
$ ssh-keygen -t rsa
$ ssh-copy-id drlm@"client_ipaddr"
```

Disable password login

```
$ passwd -l drlm
```

Add Sudo roles to DRLM user

Edit **/etc/sudoers.d/drlm** and add the following lines

```
Cmnd_Alias DRLM = /usr/sbin/rear*
drlm    ALL=(root)      NOPASSWD: DRLM
```

Change **/etc/sudoers.d/drlm** permissions

```
$ chmod 440 /etc/sudoers.d/drlm
```

Client configuration

We have to specify that this ReaR client is managed from a DRLM server. We have to edit the /etc/rear/local.conf and insert the next line.

```
DRLM_MANAGED=y
```

Services

rpcbind

```
$ service rpcbind start
$ chkconfig rpcbind on
```

nfs

```
$ service nfs start
$ chkconfig nfs on
```

Add client config file at DRLM SERVER

Warning: You have to do this at DRLM Server.

We have to add a new file called as "client host name".cfg at /etc/drlm/clients/ For example: If our client host name is ReaRCli1 we have to create /etc/drlm/clients/ReaRCli1.cfg and add the follwing lines. Where CLI_NAME="Client Host Name" and SRV_NET_IP="DRLM Server IP".

```
CLI_NAME=ReaRCli1
SRV_NET_IP=192.168.1.38

OUTPUT=PXE
OUTPUT_PREFIX=$OUTPUT
OUTPUT_PREFIX_PXE=$CLI_NAME/$OUTPUT
OUTPUT_URL=nfs://${SRV_NET_IP}/var/lib/drlm/store/${CLI_NAME}

BACKUP=NETFS
NETFS_PREFIX=BKP
BACKUP_URL=nfs://${SRV_NET_IP}/var/lib/drlm/store/${CLI_NAME}

SSH_ROOT_PASSWORD=drlm
```

Warning: This file must be readable by Apache

```
$ chmod 644 /etc/drlm/clients/ReaRCli1.cfg
```

DRLM Client Recover

In this section we show how to recover a system which has been backed up.

In this example your client and server has the following configuration. You have to adapt it to your case.

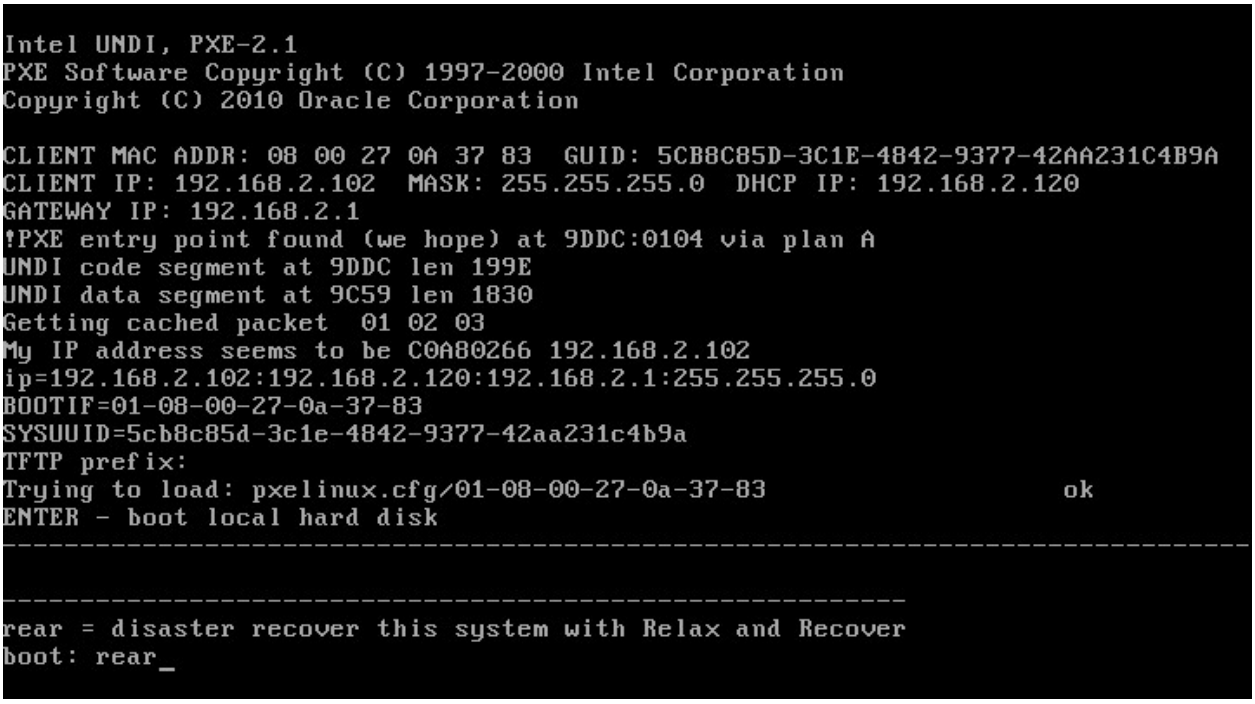
```
DRLM Server Host Name: DRLMsrv
DRLM Server IP: 192.168.2.120

ReaR Client Host Name: fosdemcli4
ReaR Client IP: 192.168.2.102
```

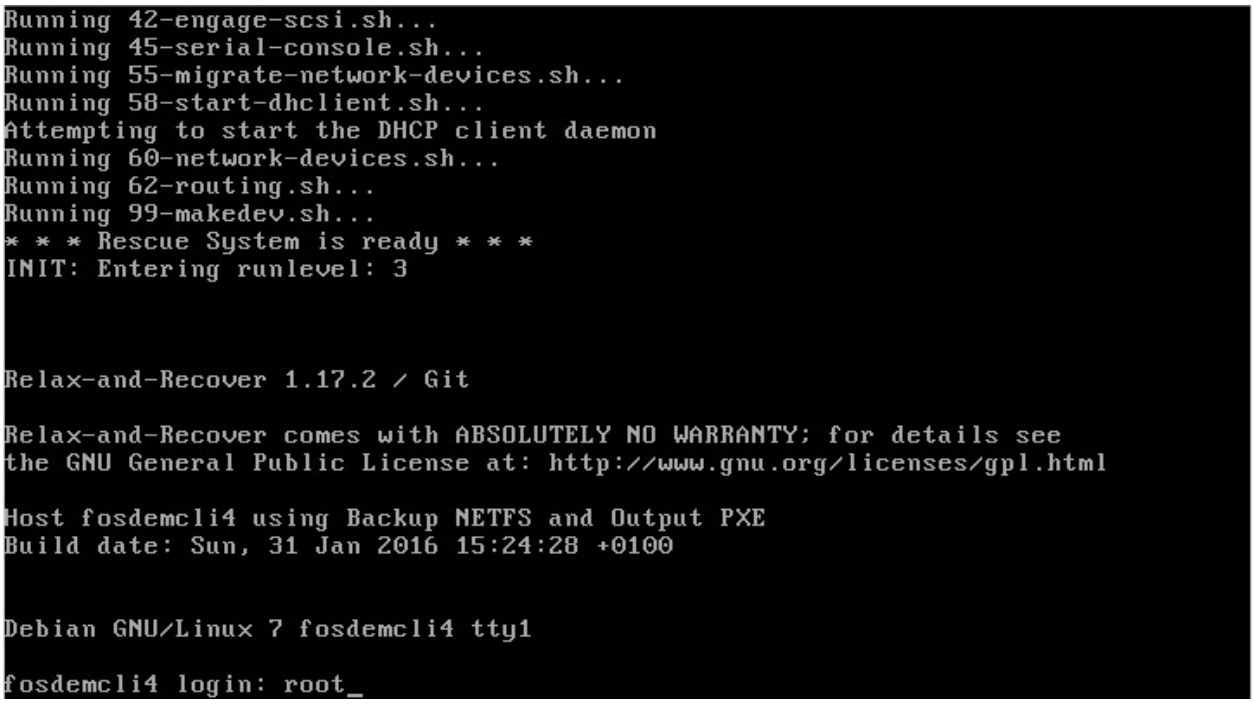
Step by Step Client Recover

Reboot the Client and select boot from network. Automaticaly will boot from PXE.

The DRLM server gives us through PXE/TFTP the client boot system. We just have to type "rear" to start the recovery system.



Once we have the system ready Login as “root”. No password required.



We indicate that we want to recover the system with the command “rear recover” and the following variables SERVER=”DRLM Server Ip” REST_OPTS=-k ID=”Rear Client Host Name”, in our case “rear recover SERVER=192.168.2.120 REST_OPTS=-k ID=fosdemcli4”

```
Running 60-network-devices.sh...
Running 62-routing.sh...
Running 99-makedev.sh...
* * * Rescue System is ready * * *
INIT: Entering runlevel: 3



Relax-and-Recover 1.17.2 / Git

Relax-and-Recover comes with ABSOLUTELY NO WARRANTY; for details see
the GNU General Public License at: http://www.gnu.org/licenses/gpl.html

Host fosdemcli4 using Backup NETFS and Output PXE
Build date: Sun, 31 Jan 2016 15:24:28 +0100


Debian GNU/Linux 7 fosdemcli4 tty1

fosdemcli4 login: root

Welcome to Relax and Recover. Run "rear recover" to restore your system !

RESCUE fosdemcli4:~ # rear recover SERVER=192.168.2.120 REST_OPTS=-k ID=fosdemc
li4_
```

The system is recovering.

```
Debian GNU/Linux 7 fosdemcli4 tty1

fosdemcli4 login: root

Welcome to Relax and Recover. Run "rear recover" to restore your system !

RESCUE fosdemcli4:~ # rear recover SERVER=192.168.2.120 REST_OPTS=-k ID=fosdemc
li4
Relax-and-Recover 1.17.2 / Git
Using log file: /var/log/rear/rear-fosdemcli4.log
Calculating backup archive size
Backup archive size is 332M     /tmp/rear.c7HvG8llh5Xu4EO/outputfs/BKP/backup.ta
r.gz (compressed)
Comparing disks.
Disk configuration is identical, proceeding with restore.
Start system layout restoration.
Creating partitions for disk /dev/sda (msdos)
Creating ext4-filesystem / on /dev/sda1
Mounting filesystem /
Creating swap on /dev/sda5
Disk layout created.
Decrypting disabled
Restoring from '/tmp/rear.c7HvG8llh5Xu4EO/outputfs/BKP/backup.tar.gz'
Restored 305 MiB [avg 20861 KiB/sec]_
```

System recovered! So we only have to restart the client.

```
RESCUE fosdemcli4:~ # rear recover SERVER=192.168.2.120 REST_OPTS=-k ID=fosdemc
li4
Relax-and-Recover 1.17.2 / Git
Using log file: /var/log/rear/rear-fosdemcli4.log
Calculating backup archive size
Backup archive size is 332M     /tmp/rear.c7HvG8llh5Xu4EO/outputfs/BKP/backup.ta
r.gz (compressed)
Comparing disks.
Disk configuration is identical, proceeding with restore.
Start system layout restoration.
Creating partitions for disk /dev/sda (msdos)
Creating ext4-filesystem / on /dev/sda1
Mounting filesystem /
Creating swap on /dev/sda5
Disk layout created.
Decrypting disabled
Restoring from '/tmp/rear.c7HvG8llh5Xu4EO/outputfs/BKP/backup.tar.gz'
Restored 873 MiB [avg 21305 KiB/sec]OK
Restored 873 MiB in 43 seconds [avg 20810 KiB/sec]
Installing GRUB2 boot loader
Installation finished. No error reported.

Finished recovering your system. You can explore it under '/mnt/local'.

RESCUE fosdemcli4:~ # _
```

Development Documentation

Todo

This section will be documented as soon as possible, please be patient. Any question regarding DRLM development, please use DRLM Dev Forum[14]. Thanks!

Command Reference

Network Operations

DRLM can make backups of clients in different networks. So the first step we have to do for the proper functioning of DRLM is register the networks in which later we will register the clients.

DRLM network operations allow us to add, remove, modify and list network of database.

Add Network

This command is used to add networks to DRLM database. It is called like this:

```
$ drlm addnetwork [options]
```

The **`drlm addnetwork`** has some requiered options:

[14] https://groups.google.com/forum/#!forum/drlm-dev

-n network_name, **--netname** network_name
Select Network name to add.

-i ip, **--ipaddr** ip
Network IP address.

-g gateway_ip, **--gateway** gateway_ip
Network gateway address.

-m network_mask, **--mask** network_mask
Network mask

-s server_ip, **--server** server_ip
Network server address.

Examples:

```
$ drlm addnetwork -i 13.74.90.0 -g 13.74.90.1 -m 255.255.255.0  -s 13.74.90.222 -
↪n vlan12
$ drlm addnetwork -i 13.74.90.0 --gateway 13.74.90.1 --mask 255.255.255.0  --
↪server 13.74.90.222 -n vlan12
$ drlm addnetwork --ipaddr 13.74.90.0 -g 13.74.90.1 -m 255.255.255.0  --server 13.
↪74.90.222 -n vlan12
```

Optional options:

-h, --help
Show drlm addnetwork help.

Examples:

```
$ drlm addnetwork -h
$ drlm addnetwork --help
```

Delete Network

This command is used to delete networks from DRLM database. It is called like this:

```
$ drlm delnetwork [options]
```

The **drlm delnetwork** has some options:

-n network_name, **--netname** network_name
Select Network to delete by NAME.

Examples:

```
$ drlm delnetwork -n vlan12
$ drlm delnetwork -name vlan12
```

-I network_id, **--id** network_id
Select Network to delete by ID.

Examples:

```
$ drlm delnetwork -I 12
$ drlm delnetwork --id 12
```

Optional options:

-h, --help
Show drlm delnetwork help.

Examples:

```
$ drlm delnetwork -h
$ drlm delnetwork --help
```

Modify Network

This command is used to modify networks from DRLM database. It is called like this:

```
$ drlm modnetwork [options]
```

The **drlm modnetwork** has some required options:

-n network_name, **--netname** network_name
Select Network to change by NAME.

-I network_id, **--id** network_id
Select Network to change by ID.

Optional options:

-i ip, **--ipaddr** ip
Set new IP address to network.

Examples:

```
$ drlm modnetwork -I 12 -i 13.74.91.0
$ drlm modnetwork --id 12 --ipaddr 13.74.91.0
$ drlm modnetwork -n vlan12 -i 13.74.91.0
$ drlm modnetwork --netname vlan12 --ipaddr 13.74.91.0
```

-g gateway_ip, **--gateway** gateway_ip
Set new GATEWAY address to network.

Examples:

```
$ drlm modnetwork -I 12 -g 13.74.91.1
$ drlm modnetwork --id 12 --gateway 13.74.91.1
$ drlm modnetwork -n vlan12 -g 13.74.91.1
$ drlm modnetwork --netname vlan12 --gateway 13.74.91.1
```

-m network_mask, **--mask** network_mask
Assign new MASK to network.

Examples:

```
$ drlm modnetwork -I 12 -m 255.255.0.0
$ drlm modnetwork --id 12 -m 255.255.0.0
$ drlm modnetwork -n vlan12 -m 255.255.0.0
$ drlm modnetwork --netname vlan12 --mask 255.255.0.0
```

-s server_ip, **--server** server_ip
Assign new SERVER to network.

Examples:

```
$ drlm modnetwork -I 12 -s 13.74.91.221
$ drlm modnetwork --id 12 --server 13.74.91.221
$ drlm modnetwork -n vlan12 -s 13.74.91.221
$ drlm modnetwork --netname vlan12 --server 13.74.91.221
```

-h, --help
Show drlm modnetwork help.

Examples:

```
$ drlm modnetwork -h
$ drlm modnetwork --help
```

List Networks

This command is used to list the networks from DRLM database. It is called like this:

```
$ drlm listnetwork [options]
```

The **drlm listnetwork** has some options:

-n network_name, **--netname** network_name
Select Network to list.

Exmples:

```
$ drlm listnetwork -n vlan12
$ drlm listnetwork --netname vlan12
```

-A, --all
List all networks.

Examples:

```
$ drlm listnetwork -A
$ drlm listnetwork -all
```

-h, --help
Show drlm listnetwork help.

Examples:

```
$ drlm listnetwork -h
$ drlm listnetwork --help
```

Client Operations

DRLM client operations allow us to add, remove, modify and list clients of database.

Add Client

This command is used to add clients to DRLM database. It is called like this:

```
$ drlm addclient [options]
```

The **drlm addclient** has some requiered options:

-c client_name, **--client** client_name
Select Client name to add.

-i ip, **--ipaddr** ip
Client IP address.

-M mac_address, **--macaddr** mac_address
Client MAC address.

-n network_name, **--netname** network_name
Client NETWORK.

Examples:

```
$ drlm addclient -c clientHost1 -M 00-40-77-DB-33-38 -i 13.74.90.10 -n vlan12
$ drlm addclient --client clientHost1 --macaddr 00-40-77-DB-33-38 -i 13.74.90.10 -
↪n vlan12
```

Warning: If the network_name doesn't exist in DRLM database you will get an error. First of all register de network where the client will be registered.

Warning: We have to manualy add to the client configuration file in the DRLM server called /etc/drlm/clients/client_name.cfg with the next content:

OUTPUT=PXE OUTPUT_PREFIX=PXE BACKUP=NETFS NETFS_PREFIX=BKP BACKUP_URL=nfs://SERVER_IP/DRLM/STORE/client_name OUTPUT_URL=nfs://SERVER_IP/DRLM/STORE/client_na OUTPUT_PREFIX_PXE=client_name/$OUTPUT_PREFIX

You have to replace the SERVER_IP for the IP of the DRLM server and the client_name for the client host name.

Optional options:

-h, --help
Show drlm addclient help.

Examples:

```
$ drlm addclient -h
$ drlm addclient --help
```

Delete Client

This command is used to delete clients from DRLM database. It is called like this:

```
$ drlm delclient [options]
```

The **drlm delclient** has some requiered options:

-c client_name, **--client** client_name
Select Client to delete by NAME.

-I client_id, **--id** client_id
Select Client to delete by ID.

Examples:

```
$ drlm delclient -c clientHost1
$ drlm delclient --client clientHost1
$ drlm delclient -I 12
$ drlm delclient --id 12
```

Optional options:

-h, --help
Show drlm delclient help.

Examples:

```
$ drlm delclient -h
$ drlm delclient --help
```

Modify Client

This command is used to modify clients from DRLM database. It is called like this:

```
$ drlm modclient [options]
```

The **drlm modclient** has some requiered options:

-c client_name, **--client** client_name
Select Client to change by NAME

-I client_id, **--id** client_id
Select Client to change by ID

Optional options:

-i ip, **--ipaddr** ip
Set new IP address to client.

Examples:

```
$ drlm modclient -c clientHost1 -i  13.74.90.10
```

-M mac_address, **--macaddr** mac_address
Set new MAC address to client.

Examples:

```
$ drlm modclient -c clientHost1 -M  00-40-77-DB-33-38
$ drlm modclient --client clientHost1 --macaddr  00-40-77-DB-33-38
$ drlm modclient -I 12 --macaddr 00-40-77-DB-33-38
$ drlm modclient --id 12 -M 00-40-77-DB-33-38
```

-n network_name, **--netname** network_name
Assign new NETWORK to client.

Examples:

```
$ drlm modclient -c clientHost1 -n  vlan12
$ drlm modclient --client clientHost1 --netname  vlan12
$ drlm modclient -I 12 --netname vlan12
$ drlm modclient --id 12 -n vlan12
```

-h, --help
Show drlm modclient help.

Examples:

```
$ drlm modclient -h
$ drlm modclient --help
```

List Clients

This command is used to list the clients stored at the database. It is called like this:

```
$ drlm listclient [options]
```

The **drlm listclient** has some options:

-c client_name, **--client** client_name
Select Client to list.

Examples:

```
$ drlm listclient -c clientHost1
$ drlm listclient --client clientHost1
```

-A, --all
List all clients.

Examples:

```
$ drlm listclient -A
$ drlm listclient --all
```

-h, --help
Show drlm listclient help.

Examples:

```
$ drlm listclient -h
$ drlm listclient --help
```

Backup Operations

DRLM backup operations allow us to remotely create new backups of clients, enable and disable restore points and make listings of backups created among other things.

Run Backup

This command is used to Run remote client backup from DRLM. It is called like this:

```
$ drlm runbackup [options]
```

The **drlm runbackup** has several options:

-c client_name, **--client** client_name
Select Client to remotely run backup by name.

Examples:

```
$ drlm runbackup -c clientHost1
$ drlm runbackup --client clientHost1
```

-I client_id, **--id** client_id
Select Client to remotely run backup by ID.

Examples:

```
$ drlm runbackup -I 12
$ drlm runbackup -id 12
```

-h, --help
Show drlm runbackup help.

Examples:

```
$drlm runbackup -h
$drlm runbackup --help
```

Delete Backup

This command is used to delete backups from DRLM database. It is called like this:

```
$ drlm delbackup [options]
```

The **drlm delbackup** has some requiered options:

-c client_name, **--client** client_name
Select Client to delete the backup.

-I backup_id, **--id** backup_id
Select Backup to delete by ID.

-A, --all
Delete All backup.

Examples:

```
$ drlm delbackup -c clientHost1 -I 2015030121245
$ drlm delbackup --client clientHost1 --id 2015030121245
$ drlm delbackup -c clientHost1 -A
$ drlm delbackup --client clientHost1 --all
```

Optional options:

-h, --help
Show drlm delbackup help.

Examples:

```
$ drlm delbackup -h
$ drlm delbackup --help
```

Backup Manager

This command is used to enable or disable clients restore points. Is also used to put a restore point by default. It is called like this:

```
$ drlm bkpmgr [options]
```

The **drlm bkpmgr** has some requiered options:

-c client_name, **--client** client_name
: Select Client name to modify backup

-I backup_id, **--id** backup_id
: Select Backup ID to modify

-e, --enable
: Enable Backup

-d, --disable
: Disable Backup

Examples:

```
$drlm bkmgr -c clientHost1 -I 20140519065512 -e
$drlm bkmgr --client clientHost1 -I 20140519065512 -d
$drlm bkmgr -c clientHost1 --id 20140519065512 -e
```

Aditional options:

-P
: Set backup to persistent mode. The persistent mode is used to indicate what backup will be activated by default in case of service restarting. A backup stops to be in persistent mode and it is replaced when creating a new one backup for the same client.

Examples:

```
$drlm bkmgr -c clientHost1 - I 20140519065512 -e -P
```

-h, --help
: Show drlm bkmgr help.

Examples:

```
$ drlm bkmgr -h
$ drlm bkmgr --help
```

List Backups

This command is used to list the backups that we have stored on the server. It is called like this:

```
$ drlm listbackup [options]
```

The **drlm listbackup** has some options:

-c client_name, **--client** client_name
: Select Client to list its backups.

Exampples:

```
$ drlm listbackup -c clientHost1
$ drlm listbackup --client clientHost1
```

-A, --all
List all backups

Examples:

```
$ drlm listbackup -A
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```

-h, --help
Show this help

Examples:

```
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