

多系统手动-自动安装U盘制作方法

一、目标效果



二、制作方法

2.1 制作准备

- 一个空白U盘，容量根据需求而定，本次使用64G U盘，在本地格式化为 **FAT32**格式
- 在本地通过vmware创建一台centos7.x虚拟机
- 将u盘通过硬盘（**IDE格式**）的方式加入虚拟机

操作参考文档: <https://jingyan.baidu.com/article/48b37f8d011c841a65648869.html>

- 挂载一个centos7.x的iso到虚拟机
- 期望结果

```
[root@bogon ~]# lsblk
NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sda          8:0    0   20G  0 disk
├─sda1       8:1    0    1G  0 part /boot
└─sda2       8:2    0   19G  0 part /
sdb          8:16    0  57.3G  0 disk
sr0         11:0    1   973M  0 rom
```

2.2 引导制作

虚拟机内操作

```
#安装extlinux
[root@bogon ~]# yum -y install syslinux-extlinux

#格式化磁盘、打上标签
[root@bogon ~]# mkfs.ext4 /dev/sdb
[root@bogon ~]# tune2fs -L CENTOS /dev/sdb
tune2fs 1.45.6 (20-Mar-2020)
```

```
[root@bogon ~]# blkid | grep sdb
/dev/sdb: LABEL="CENTOS" UUID="f4df7fb3-cec8-488f-ba23-e5a728cd46cd"
BLOCK_SIZE="4096" TYPE="ext4"
```

#挂载磁盘、挂载iso

```
[root@bogon ~]# mount /dev/sdb /mnt/
[root@bogon ~]# mkdir /iso
[root@bogon ~]# mount -o loop /dev/sr0 /iso/
[root@bogon ~]# ll /mnt/
total 16
drwx----- 2 root root 16384 Dec 23 17:15 lost+found
```

#extlinux安装

```
[root@bogon ~]# extlinux --install /mnt/
```

#将iso中isolinux文件夹下文件复制到u盘根目录,删除vmlinuz、initrd.img

```
[root@bogon ~]# cp /iso/isolinux/* /mnt/
[root@bogon ~]# cd /mnt/
[root@bogon mnt]# rm -f vmlinuz initrd.img
[root@bogon mnt]# mv isolinux.cfg syslinux.cfg
[root@bogon mnt]# ll
total 60840
-r--r--r-- 1 root root      2048 Dec 23 17:26 boot.cat
-rw-r--r-- 1 root root        84 Dec 23 17:26 boot.msg
-rw-r--r-- 1 root root      281 Dec 23 17:26 grub.conf
drwxr-xr-x. 2 root root        6 Dec 23 16:11 hgfs
-rw-r--r-- 1 root root    24576 Dec 23 17:26 isolinux.bin
-rw-r--r-- 1 root root   190896 Dec 23 17:26 memtest
-r--r--r--. 1 root root    32768 Dec 23 17:24 ldlinux.sys
-rw-r--r-- 1 root root      186 Dec 23 17:26 splash.png
-rw-r--r-- 1 root root     3032 Dec 23 17:26 syslinux.cfg
-r--r--r-- 1 root root     2215 Dec 23 17:26 TRANS.TBL
-rw-r--r-- 1 root root   153104 Dec 23 17:26 vesamenu.c32
```

#卸载iso, 断开光驱连接

#复制要安装系统的iso镜像文件到u盘根目录

#复制要安装系统的vmlinuz、initrd.img文件到u盘根目录, 并根据系统版本重命名

#例: 安装centos7.5

#重命名为 vmlinuz75、initrd75.img

#编写syslinux.cfg, 见3.1

#编写centos7.x自动安装kickstart文件, 见3.2

#编写centos8.x自动安装kickstart文件, 见3.3

#最终目录结构

```
[root@bogon tmp]# ll /mnt/
-r--r--r-- 1 root root      2048 Dec 23 17:26 boot.cat
-rw-r--r-- 1 root root        84 Dec 23 17:26 boot.msg
-rw-r--r-- 1 root root    1327 Dec 23 17:44 centos7.5-AUTO.ks
-rw-r--r-- 1 root root    1327 Dec 23 17:44 centos7.9-AUTO.ks
-rw-r--r-- 1 root root    1429 Dec 23 17:50 centos8.5-AUTO.ks
```

```

-rw-r--r-- 1 root root 9397338112 Dec 23 11:28 centos7.5/CentOS-7-x86_64-
Everything-1804.iso
-rw-r--r-- 1 root root 10200547328 Dec 23 11:50 centos7.9/CentOS-7-x86_64-
Everything-2009.iso
-rw-r--r-- 1 root root 10794041344 Dec 23 12:14 centos8.5/CentOS-8.5.2111-x86_64-
dvd1.iso
-rw-r--r-- 1 root root 281 Dec 23 17:26 grub.conf
drwxr-xr-x. 2 root root 6 Dec 23 16:11 hgfs
-r--r--r-- 1 root root 52893200 Dec 23 17:45 initrd75.img
-rw-r--r-- 1 root root 55129656 Dec 23 17:45 initrd79.img
-rw-r--r-- 1 root root 79709028 Dec 23 17:45 initrd85.img
-rw-r--r-- 1 root root 24576 Dec 23 17:26 isolinux.bin
-rw-r--r-- 1 root root 190896 Dec 23 17:26 memtest
-rw-r--r-- 1 root root 186 Dec 23 17:26 splash.png
-rw-r--r-- 1 root root 2553 Dec 23 17:46 syslinux.cfg
-r--r--r-- 1 root root 2215 Dec 23 17:26 TRANS.TBL
-rw-r--r-- 1 root root 153104 Dec 23 17:26 vesamenu.c32
-r-xr-xr-x 1 root root 6224704 Dec 23 17:45 vmlinuz75
-rwxr-xr-x 1 root root 6769256 Dec 23 17:45 vmlinuz79
-rw-r--r-- 1 root root 10271880 Dec 23 17:45 vmlinuz85

```

三、配置文件编写

3.1 syslinux.cfg

```

default vesamenu.c32
#等待时间，6秒
timeout 60

display boot.msg

# Clear the screen when exiting the menu, instead of leaving the menu displayed.
# For vesamenu, this means the graphical background is still displayed without
# the menu itself for as long as the screen remains in graphics mode.
menu clear
menu background splash.png
menu title CentOS 7 & 8 Install From USB
menu vshift 8
menu rows 18
menu margin 8
#menu hidden
menu helpmsgrow 15
#menu tabmsgrow 13
ONTIMEOUT local

# Border Area
menu color border * #00000000 #00000000 none

# Selected item
menu color sel 0 #ffffffff #00000000 none

# Title bar
menu color title 0 #ff7ba3d0 #00000000 none

```

```
# Press [Tab] message
menu color tabmsg 0 #ff3a6496 #00000000 none

# Unselected menu item
menu color unsel 0 #84b8ffff #00000000 none

# Selected hotkey
menu color hotsel 0 #84b8ffff #00000000 none

# Unselected hotkey
menu color hotkey 0 #ffffffff #00000000 none

# Help text
menu color help 0 #ffffffff #00000000 none

# A scrollbar of some type? Not sure.
menu color scrollbar 0 #ffffffff #ff355594 none

# Timeout msg
menu color timeout 0 #ffffffff #00000000 none
menu color timeout_msg 0 #ffffffff #00000000 none

# Command prompt text
menu color cmdmark 0 #84b8ffff #00000000 none
menu color cmdline 0 #ffffffff #00000000 none

menu separator

LABEL local
    MENU LABEL ^0 (local)
    MENU DEFAULT
    LOCALBOOT -1

menu separator

label CentOS7.5-AUTO
    menu label ^1 Install CentOS7.5 AUTO
    kernel vmlinuz75
    append initrd=initrd75.img inst.repo=hd:LABEL=CENTOS:CentOS-7-x86_64-
Everything-1804.iso inst.ks=hd:LABEL=CENTOS:centos7.5-AUTO.ks

label CentOS7.5-MANUAL
    menu label ^2 Install CentOS7.5 MANUAL
    kernel vmlinuz75
    append initrd=initrd75.img inst.repo=hd:LABEL=CENTOS:CentOS-7-x86_64-
Everything-1804.iso

menu separator

label CentOS7.9-AUTO
    menu label ^3 Install CentOS7.9 AUTO
    kernel vmlinuz79
    append initrd=initrd79.img inst.repo=hd:LABEL=CENTOS:CentOS-7-x86_64-
Everything-2009.iso inst.ks=hd:LABEL=CENTOS:centos7.9-AUTO.ks
```

```

label CentOS7.9-MANUAL
    menu label ^4 Install CentOS7.9 MANUAL
    kernel vmlinuz79
    append initrd=initrd79.img inst.repo=hd:LABEL=CENTOS:CentOS-7-x86_64-Everything-2009.iso

menu separator

label CentOS8.5-AUTO
    menu label ^5 Install CentOS8.5 AUTO
    kernel vmlinuz85
    append initrd=initrd85.img inst.ks=hd:LABEL=CENTOS:centos8.5-AUTO.ks

label CentOS8.5-MANUAL
    menu label ^6 Install CentOS8.5 MANUAL
    kernel vmlinuz85
    append initrd=initrd85.img inst.repo=hd:LABEL=CENTOS:CentOS-8.5.2111-x86_64-dvd1.iso

menu separator

```

3.2 centos7.x-AUTO.ks

```

#platform=x86, AMD64, or Intel EM64T
#version=DEVEL
# Install OS instead of upgrade
install
cdrom
# System keyboard
keyboard us
# System language
lang en_US
# rootpw --plaintext 密码 #明文方式
# Root password - root用户密码 (加密方式)
rootpw --iscrypted
$6$07S074XyrFaB0NHA$yszuIh/5w37jykup6IXTG9oH7OkTZGzr1MMeqLpPyCv23q/n1QrFr4kecksZ.
nfLaA0F04qbiHgSHcWFzB3nB/
# System authorization information
auth --useshadow --passalgo=sha512
# Use graphical install
graphical
firstboot --disable
# SELinux configuration
selinux --disabled
# Firewall configuration
firewall --disabled
# Reboot after installation
reboot
# Network information
network --bootproto=dhcp --activate
network --hostname=localhost.localdomain
# System timezone
timezone Asia/Shanghai
# Ignore disk - 将u盘排查，避免安装到u盘
ignoredisk --drives=disk/by-label/CENTOS

```

```

# System bootloader configuration
bootloader --append=" crashkernel=auto" --location=mbr --boot-drive=sda
# Clear the Master Boot Record
zerombr
# Partition clearing information
clearpart --all

# Disk partitioning information
part /boot --fstype="xfs" --ondisk=sda --size=1024
#part swap --fstype="swap" --ondisk=sda --size=2048
part / --fstype="xfs" --ondisk=sda --grow --size=1

#软件安装,iso至少为base模式
%packages
@^minimal
vim
wget
git
net-tools
bridge-utils
tcpdump
bash-completion
sysstat
lftp
lrzsz
iptables-services
%end

%post
#/bin/bash
echo 'UseDNS no' >> /etc/ssh/sshd_config
%end

```

3.3 centos8.x-AUTO.ks

```

#platform=x86, AMD64, or Intel EM64T
#version=DEVEL
# Install OS instead of upgrade
install
# Use hard drive installation media - dir根据镜像变化,记得修改
harddrive --dir=CentOS-8.5.2111-x86_64-dvd1.iso --partition=LABEL=CENTOS
# System keyboard
keyboard us
# System language
lang en_US
# rootpw --plaintext 密码 #明文方式
# Root password - root用户密码(加密方式)
rootpw --iscrypted
$6$07S074XyrFaBoNHA$yszuIh/5w37jykup6IXTG9oH7OkTZGzr1MMeqLpPyCv23q/n1QrFr4kecksZ.
nfLaA0F04qbiHgSHcWFzB3nB/
# System authorization information
auth --useshadow --passalgo=sha512
# Use graphical install
graphical
firstboot --disable

```

```

# SELinux configuration
selinux --disabled
# Firewall configuration
firewall --disabled
# Reboot after installation
reboot
# Network information
network --bootproto=dhcp --activate
network --hostname=localhost.localdomain
# System timezone
timezone Asia/Shanghai
# Ignore disk - 将u盘排查，避免安装到u盘
ignoredisk --drives=disk/by-label/CENTOS
# System bootloader configuration
bootloader --append=" crashkernel=auto" --location=mbr --boot-drive=sda
# Clear the Master Boot Record
zerombr
# Partition clearing information
clearpart --all

# Disk partitioning information
part /boot --fstype="xfs" --ondisk=sda --size=1024
#part swap --fstype="swap" --ondisk=sda --size=2048
part / --fstype="xfs" --ondisk=sda --grow --size=1

%packages
@^minimal-environment
vim
wget
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tcpdump
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sysstat
lftp
lrzsz
iptables-services
%end

%post
#/bin/bash
echo 'UseDNS no' >> /etc/ssh/sshd_config
%end

```

四、测试

- 进biso更改虚拟机启动项为u盘所在的IDE硬盘
- 各系统自动、手动两种方式分别测试安装
- 系统安装完成后，需进biso更改为原硬盘启动

