

Centos7 实现对 NTFS 格式硬盘读取

一、问题描述:

Fat32 格式不支持单个文件大于 4G 文件传输, 当需要在 linux 主机上备份大文件, 并希望 window 笔记本能够查看文件时, 需要 linux 主机对 NTFS 格式硬盘支持, 而默认上 linux 是不支持直接对 NTFS 格式读取的, 需要通过第三方软件实现对 NTFS 格式硬盘读取。

二、解决方法:

通过安装第三方软件实现对 NTFS 格式硬盘读取, 软件 ntfs-3g, 官方 tar 包下载地址:
https://tuxera.com/opensource/ntfs-3g_ntfsprogs-2017.3.23.tgz
软件使用说明地址: <https://www.linuxfromscratch.org/blfs/view/svn/postlfs/ntfs-3g.html>

三、软件安装及使用:

以下测试环境: CentOS 7.8 minimal, NTFS 硬盘采用 64G U 盘 (已格式化为 NTFS)

```
[root@localhost ~]# cat /etc/redhat-release
CentOS Linux release 7.8.2003 (Core)
[root@localhost ~]# uname -a
Linux localhost.localdomain 3.10.0-1127.el7.x86_64 #1 SMP Tue Mar 31 23:36:51 UTC 2020 x86_64 x
86_64 x86_64 GNU/Linux
[root@localhost ~]#
```

插上 U 盘, 通过 fdisk -l 命令可查看到硬盘状态

```
Disk /dev/sdb: 62.7 GB, 62746787840 bytes, 122552320 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disk label type: dos
Disk identifier: 0x9810fb0d

   Device Boot      Start         End      Blocks   Id  System
/dev/sdb1 *          63       122552319   61276128+    7  HPFS/NTFS/exFAT
```

此时, 使用挂载命令, 则会提示不支持文件格式

```
[root@localhost ~]# mount /dev/sdb1 /mnt/
mount: unknown filesystem type 'ntfs'
[root@localhost ~]#
```

下面使用两种安装方式安装 ntfs-3g 软件:

1、yum 在线安装:

添加 epel 源, 这款软件需要 epel 源, 可通过 wget 命令下载, 最小化安装系统需先下载 wget 工具

(1) 使用命令 yum install -y wget

```
Installed:
  wget.x86_64 0:1.14-18.el7_6.1

Complete!
[root@localhost ~]#
```

(2) 使用命令 `wget -P /etc/yum.repos.d/ http://mirrors.aliyun.com/repo/epel-7.repo` 下载 epel 源，这里通过阿里云下载，其他服务器都可以

```
[root@localhost ~]# wget -P /etc/yum.repos.d/ http://mirrors.aliyun.com/repo/epel-7.repo
--2021-05-12 21:08:22-- http://mirrors.aliyun.com/repo/epel-7.repo
Resolving mirrors.aliyun.com (mirrors.aliyun.com)... 120.39.194.244, 119.41.210.240, 113.219.13
6.88, ...
Connecting to mirrors.aliyun.com (mirrors.aliyun.com)|120.39.194.244|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 664 [application/octet-stream]
Saving to: '/etc/yum.repos.d/epel-7.repo'

100%[=====>] 664      --.-K/s   in 0s

2021-05-12 21:08:22 (47.6 MB/s) - '/etc/yum.repos.d/epel-7.repo' saved [664/664]

[root@localhost ~]#
```

(3) 使用命令 `yum install -y ntfs-3g` 安装软件

```
Installing:
ntfs-3g      x86_64      2:2017.3.23-11.el7      epel      265 k

Transaction Summary
=====
Install 1 Package

Total download size: 265 k
Installed size: 612 k
Downloading packages:
ntfs-3g-2017.3.23-11.el7.x86_64.rpm      | 265 kB  00:00:00
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : 2:ntfs-3g-2017.3.23-11.el7.x86_64      1/1
  Verifying  : 2:ntfs-3g-2017.3.23-11.el7.x86_64      1/1

Installed:
ntfs-3g.x86_64 2:2017.3.23-11.el7

Complete!
[root@localhost ~]#
```

(4) 首先创建一个挂载点 `mkdir -p /mnt/ntfs_dir`

然后使用命令 `mount -t ntfs-3g /dev/sdb1 /mnt/ntfs_dir` 挂载硬盘

```
[root@localhost mnt]# mount -t ntfs-3g /dev/sdb1 /mnt/ntfs_dir
The disk contains an unclean file system (0, 0).
The file system wasn't safely closed on Windows. Fixing.
[root@localhost mnt]#
```

此时，就能挂载硬盘并读取硬盘内容了

```
[root@localhost ntfs_dir]# ls
6SJ615JF  S22SNXAG970810W  System Volume Information  ZBS0F5XR
S0K0RP59  S2R7NX0H807821B  ZBS02E5T
[root@localhost ntfs_dir]# pwd
/mnt/ntfs_dir
[root@localhost ntfs_dir]#
```

2、安装包编译安装:

由于是最小化安装系统，系统可能缺少必须的编译程序，下面仍会使用 yum 下载必要的环境。

(1) 基本环境检查,

使用命令 `rpm -qa|grep gcc*`检查是否安装 gcc、gcc-c++

使用命令 `yum -y install gcc gcc-c++`安装

```
Installed:
gcc.x86_64 0:4.8.5-44.el7                gcc-c++.x86_64 0:4.8.5-44.el7

Dependency Installed:
cpp.x86_64 0:4.8.5-44.el7                glibc-devel.x86_64 0:2.17-324.el7_9
glibc-headers.x86_64 0:2.17-324.el7_9    kernel-headers.x86_64 0:3.10.0-1160.25.1.el7
libmpc.x86_64 0:1.0.1-3.el7              libstdc++.devel.x86_64 0:4.8.5-44.el7
mpfr.x86_64 0:3.1.1-4.el7

Dependency Updated:
glibc.x86_64 0:2.17-324.el7_9            glibc-common.x86_64 0:2.17-324.el7_9
libgcc.x86_64 0:4.8.5-44.el7            libgomp.x86_64 0:4.8.5-44.el7
libstdc++.x86_64 0:4.8.5-44.el7

Complete!
[root@localhost ntfs-3g_ntfsprogs-2017.3.23]#
```

(2)使用命令 `wget https://tuxera.com/opensource/ntfs-3g_ntfsprogs-2017.3.23.tgz` 下载安装包，或者通过 ssh 上传至主机

```
Connecting to download.tuxera.com (download.tuxera.com)|77.86.224.47|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 1259054 (1.2M) [application/x-gzip]
Saving to: 'ntfs-3g_ntfsprogs-2017.3.23.tgz'

100%[=====>] 1,259,054 529KB/s in 2.3s

2021-05-12 21:06:11 (529 KB/s) - 'ntfs-3g_ntfsprogs-2017.3.23.tgz' saved [1259054/1259054]

[root@localhost ~]#
```

(3) 安装过程:

使用命令 `tar -zxvf ntfs-3g_ntfsprogs-2017.3.23.tgz` 解压安装包，并进入解压文件夹，然后在文件夹路径下使用 `./configure --prefix=/usr/local/ntfs-3g` 进行配置，其他配置可参考网站软件使用说明，配置完成无报错后，使用 `make && make install` 安装，也可先后执行 `make` 和 `make install` 命令。

```
config.status: creating src/makefile
config.status: creating src/ntfs-3g.8
config.status: creating src/ntfs-3g.probe.8
config.status: creating config.h
config.status: executing depfiles commands
config.status: executing libtool commands
/usr/bin/rm: cannot remove 'libtoolT': No such file or directory
You can type now 'make' to build ntfs-3g.

ln -s -f ntfs-3g.8 "/usr/local/ntfs-3g/share/man/man8/mount.ntfs-3g.8"
ln -s -f ntfs-3g.8 "/usr/local/ntfs-3g/share/man/man8/mount.lowntfs-3g.8"
make[2]: Leaving directory `/root/ntfs-3g_ntfsprogs-2017.3.23/src'
make[1]: Leaving directory `/root/ntfs-3g_ntfsprogs-2017.3.23/src'
make[1]: Entering directory `/root/ntfs-3g_ntfsprogs-2017.3.23'
make[2]: Entering directory `/root/ntfs-3g_ntfsprogs-2017.3.23'
make[2]: Nothing to be done for `install-exec-am'.
/usr/bin/mkdir -p '/usr/local/ntfs-3g/share/doc/ntfs-3g'
/usr/bin/install -c -m 644 README '/usr/local/ntfs-3g/share/doc/ntfs-3g'
make[2]: Leaving directory `/root/ntfs-3g_ntfsprogs-2017.3.23'
make[1]: Leaving directory `/root/ntfs-3g_ntfsprogs-2017.3.23'
[root@localhost ntfs-3g_ntfsprogs-2017.3.23]#
```

(4) 挂载方法，同上 1-(4)

四、软件其他使用请参考网站使用说明

<https://www.linuxfromscratch.org/blfs/view/svn/postlfs/ntfs-3g.html>

如需 linux 主机开机挂载，需将挂载写入 `/etc/fstab` 文件，格式参考：

Using Ntfs-3g

To mount a Windows partition at boot time, put a line like this in `/etc/fstab`:

```
/dev/sda1 /mnt/windows auto defaults 0 0
```

To allow users to mount a usb stick with an NTFS filesystem on it, put a line similar to this (change `sdcl` to whatever a usb stick would be on your system) in `/etc/fstab`:

```
/dev/sdc1 /mnt/usb auto user,noauto,umask=0,utf8 0 0
```

In order for a user to be able to mount the usb stick, they will need to be able to write to `/mnt/usb`, so as the `root` user:

```
chmod -v 777 /mnt/usb
```

注：其他 linux 发行版也可通过安装 `ntfs-3g` 实现对 NTFS 硬盘读取