CREATING PARTITIONS

You'll now create new partitions using **fdisk**. You'll partition **the second drive** into two partitions: one swap partition of size **1GB**, and another of size **9GB**. The file system type on the second partition will be ext4.
Open *fdisk* in interactive mode to do the partitioning:

```
sudo fdisk /dev/[YOUR DRIVE]
```

```
eduit914728_student@linux-instance:~$ sudo fdisk /dev/sda

Welcome to fdisk (util-linux 2.29.2).
Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.


Command (m for help):
```

To create a new partition, the command control **n** is used. However, since all the space on the disk is currently allocated, you'll need to first free up space by deleting the default partition.
Use the **d** command control to delete the default partition. When you issue the **d** command control, **fdisk** asks you to enter the number of partitions you want to delete. Since you only have one partition, the default one, **fdisk** will automatically select and delete it to continue.

```
Command (m for help): d
Selected partition 1
Partition 1 has been deleted.
```

You're now able to create your new partitions. Enter the command control for creating a new partition, **n**.

```
Command (m for help): n
Partition type
   p   primary (0 primary, 0 extended, 4 free)
   e   extended (container for logical partitions)
Select (default p):
```

fdisk will present you with two options to select from: **p** for primary, and **e** for extended or logical partition. Since we want to create the partitions on the actual physical disk, select **p** by pressing **Enter**.

```
Command (m for help): n
Partition type
   p   primary (0 primary, 0 extended, 4 free)
   e   extended (container for logical partitions)
Select (default p):

Using default response p.
Partition number (1-4, default 1):
```

Next, you'll need to provide the partition number for the new partition. Since it's a primary partition, it can only be labelled from 1-4. It's good practice to assign partition numbers sequentially; problems can sometimes arise with certain programs if partitions aren't ordered sequentially. Give the number **1** to this first partition by pressing **Enter**, or optionally entering **1**.

```
Command (m for help): n
Partition type
   p   primary (0 primary, 0 extended, 4 free)
   e   extended (container for logical partitions)
Select (default p):

Using default response p.
Partition number (1-4, default 1):
First sector (2048-20971519, default 2048):
```

You'll then need to provide the starting sector (memory location) of the new partition, from where you want to allocate. Here, press **Enter** to select the default value 2048.

```
Select (default p):

Using default response p.
Partition number (1-4, default 1):
First sector (2048-20971519, default 2048):
Last sector, +sectors or +size{K,M,G,T,P} (2048-20971519, default 20971519):
```

Provide the last sector of the new partition, up to where you want to allocate. The difference between the first and last sectors makes up the total size of the partition. Disk sector represents units used to measure the size on disks. Each sector stores a fixed amount of data. In lots of hard disks, for example, a sector stores 512 bytes. To create the first 1GB partition, enter **2097200** (divide the original partition by 10).

```
Using default response p.
Partition number (1-4, default 1):
First sector (2048-20971519, default 2048):
Last sector, +sectors or +size{K,M,G,T,P} (2048-20971519, default 20971519): 2097200

Created a new partition 1 of type 'Linux' and of size 1023 MiB.

Command (m for help):
```

Two important things happen here: the partition size is set to **1GB**, and the partition type is set to **Linux**. (You'll see how to change partition types in the next section.) Voila! One partition is now created. You'll now move on to the second one.
Use the command control **n** again for a new partition.

```
Command (m for help): n
Partition type
   p   primary (1 primary, 0 extended, 3 free)
   e   extended (container for logical partitions)
Select (default p):
```

Select **p** for a primary partition.

```
Select (default p):

Using default response p.
Partition number (2-4, default 2):
```

Select partition number **2** to issue partition numbers in sequence.

```
Select (default p):

Using default response p.
Partition number (2-4, default 2):
First sector (2097201-20971519, default 2099200):
```

Select the default partition starting sector, which is the next sector from the last partition you allocated.

```
Using default response p.
Partition number (2-4, default 2):
First sector (2097201-20971519, default 2099200):
Last sector, +sectors or +size{K,M,G,T,P} (2099200-20971519, default 20971519):
```

Also select the default last sector, which will be the last sector of the remaining disk space.

```
Using default response p.
Partition number (2-4, default 2):
First sector (2097201-20971519, default 2099200):
Last sector, +sectors or +size{K,M,G,T,P} (2099200-20971519, default 20971519):

Created a new partition 2 of type 'Linux' and of size 9 GiB.

Command (m for help):
```

The second partition is now created. Sweet!

Before committing your changes, you'll change the second partition to a different partition type. You'll change the first partition type to a Linux swap type. Enter command control **t** to change the partition type, and select the first partition.

```
Command (m for help): t
Partition number (1,2, default 2): 1
Partition type (type L to list all types):
```

You can use the command control **L** to view a list of all partition types.

```
Command (m for help): t
Partition number (1,2, default 2): 1
Partition type (type L to list all types): L

 0  Empty           24  NEC DOS         81  Minix / old Lin bf  Solaris
 1  FAT12           27  Hidden NTFS Win 82  Linux swap / So c1  DRDOS/sec (FAT-
 2  XENIX root      39  Plan 9          83  Linux           c4  DRDOS/sec (FAT-
 3  XENIX usr       3c  PartitionMagic  84  OS/2 hidden or  c6  DRDOS/sec (FAT-
 4  FAT16 <32M      40  Venix 80286     85  Linux extended  c7  Syrinx
 5  Extended        41  PPC PReP Boot   86  NTFS volume set da  Non-FS data
 6  FAT16           42  SFS             87  NTFS volume set db  CP/M / CTOS / .
 7  HPFS/NTFS/exFAT 4d  QNX4.x          88  Linux plaintext de  Dell Utility
 8  AIX             4e  QNX4.x 2nd part 8e  Linux LVM       df  BootIt
 9  AIX bootable    4f  QNX4.x 3rd part 93  Amoeba          e1  DOS access
 a  OS/2 Boot Manag 50  OnTrack DM      94  Amoeba BBT      e3  DOS R/O
 b  W95 FAT32       51  OnTrack DM6 Aux 9f  BSD/OS          e4  SpeedStor
 c  W95 FAT32 (LBA) 52  CP/M            a0  IBM Thinkpad hi ea  Rufus alignment
 e  W95 FAT16 (LBA) 53  OnTrack DM6 Aux a5  FreeBSD         eb  BeOS fs
 f  W95 Ext'd (LBA) 54  OnTrackDM6      a6  OpenBSD         ee  GPT
10  OPUS            55  EZ-Drive        a7  NeXTSTEP        ef  EFI (FAT-12/16/
11  Hidden FAT12    56  Golden Bow      a8  Darwin UFS      f0  Linux/PA-RISC b
12  Compaq diagnost 5c  Priam Edisk     a9  NetBSD          f1  SpeedStor
14  Hidden FAT16 <3 61  SpeedStor       ab  Darwin boot     f4  SpeedStor
16  Hidden FAT16    63  GNU HURD or Sys af  HFS / HFS+      f2  DOS secondary
17  Hidden HPFS/NTF 64  Novell Netware  b7  BSDI fs         fb  VMware VMFS
18  AST SmartSleep  65  Novell Netware  b8  BSDI swap       fc  VMware VMKCORE
1b  Hidden W95 FAT3 70  DiskSecure Mult bb  Boot Wizard hid fd  Linux raid auto
1c  Hidden W95 FAT3 75  PC/IX           bc  Acronis FAT32 L fe  LANstep
1e  Hidden W95 FAT1 80  Old Minix       be  Solaris boot    ff  BBT
Partition type (type L to list all types):
```

Enter **82** to change the partition type to ‘Linux swap / Solaris', and press **Enter**. Head's up: Some of the characters in the partition type name **Linux swap / Solaris** are truncated.

```
Partition type (type L to list all types): 82

Changed type of partition 'Linux' to 'Linux swap / Solaris'.

Command (m for help):
```

The partition type will be changed to match the selection.

Up to this point, you've just been editing the partition table in memory. You can use the **q** command here to quit **fdisk** without committing changes to the disk. You can also update your partitions by using the **d** and **n** commands to remove and add new partitions.
You can also use the **v** command here to verify your changes before proceeding.

```
Command (m for help): v
Remaining 1999 unallocated 512-byte sectors.

Command (m for help):
```

If you're satisfied with the changes you've made so far, you can commit them to the disk by using the **w** command.

```
Command (m for help): w

The partition table has been altered.
Calling ioctl() to re-read partition table.
Syncing disks.

eduit914728_student@linux-instance:~$
```

Congrats! You've successfully partitioned the second disk using **fdisk**.
The second disk device is now made up of two partitions of **1GB** and **9GB**, respectively.