Create custom debian live usb-stick (stretch, amd64)

Install necessary packages on the build system

```
root@host:~# apt-get install debootstrap syslinux isolinux squashfs-tools
genisoimage memtest86+ rsync
[ ... ]
```

Create directory structure & install base image

```
root@host:~# mkdir /root/shtf-stick && cd /root/shtf-stick

root@host:~/shtf-stick# debootstrap --arch=amd64 --variant=minbase stretch
chroot http://http.at.debian.org/debian/
[ ... ]
```

Perform basic configuration

```
root@host:~/shtf-stick# chroot ./chroot
root@host:/# echo shtf > /etc/hostname
root@host:/# passwd root
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
root@host:/# mount none -t proc /proc && \
mount none -t sysfs /sys && \
mount none -t devpts /dev/pts && \
export HOME=/root && \
export LC_ALL=C && \
apt-get update && \
apt-get install dialog dbus --yes && \
dbus-uuidgen > /var/lib/dbus/machine-id

root@host:/# apt-get install --no-install-recommends --yes linux-image-amd64
firmware-linux-free systemd-sysv live-boot kbd console-data
[ ... ]
```

Install additional packages

```
root@host:/# apt-get install --no-install-recommends --yes \
network-manager net-tools wireless-tools wpagui tcpdump wget openssh-client
\
blackbox xserver-xorg-core xserver-xorg xinit xterm \
pciutils usbutils gparted ntfs-3g hfsprogs rsync less curl tcpdump
dosfstools syslinux partclone vim pv \
firefox-esr chntpw lvm2 mdadm mc htop keepassx gdisk gnupg duplicity
iproute2 s3cmd inetutils-ping inetutils-traceroute lsof screen netcat-
openbsd bzip2

[ ... ]
```

Cleanup & leave chroot environment

```
root@host:/# rm -f /vmlinuz* /initrd.img* /var/lib/dbus/machine-id && \
apt-get clean && \
rm /etc/resolv.conf && \
umount -lf /proc /sys /dev/pts

root@host:/# exit
exit
root@debian:~/shtf-stick# umount -lf $(mount | awk '/shtf-stick/ { print $3
}')
root@host:~/shtf-stick# rm chroot/root/.bash_history
```

Create filesystem & boot config

```
root@host:~/shtf-stick# mkdir -p image/{live,isolinux} && \
mksquashfs chroot image/live/filesystem.squashfs -e boot
Parallel mksquashfs: Using 1 processor
Creating 4.0 filesystem on image/live/filesystem.squashfs, block size
131072.
[================================================================================
==========================================/] 25507/25507 100%

Exportable Squashfs 4.0 filesystem, gzip compressed, data block size 131072
    compressed data, compressed metadata, compressed fragments, compressed
xattrs
    duplicates are removed
Filesystem size 305495.00 Kbytes (298.33 Mbytes)
    39.71% of uncompressed filesystem size (769303.94 Kbytes)
Inode table size 311570 bytes (304.27 Kbytes)
```

```
    29.08% of uncompressed inode table size (1071399 bytes)
Directory table size 300335 bytes (293.30 Kbytes)
    42.66% of uncompressed directory table size (703968 bytes)
Number of duplicate files found 809
Number of inodes 30836
Number of files 21710
Number of fragments 2182
Number of symbolic links  6003
Number of device nodes 8
Number of fifo nodes 0
Number of socket nodes 0
Number of directories 3115
Number of ids (unique uids + gids) 10
Number of uids 2
    root (0)
    systemd-timesync (100)
Number of gids 9
    root (0)
    shadow (42)
    utmp (43)
    rtkit (109)
    tty (5)
    systemd-journal (101)
    staff (50)
    adm (4)
    mail (8)
root@host:~/shtf-stick#
root@host:~/shtf-stick# cp chroot/boot/vmlinuz-* image/live/vmlinuz1 && \
cp chroot/boot/initrd.img-* image/live/initrd1
root@host:~/shtf-stick# cat > image/isolinux/isolinux.cfg << _EOF_
UI menu.c32

prompt 0
menu title The Shit Has Hit The Fan

timeout 300

label Debian Live 4.9.0-3-686
menu label ^Debian Live 4.9.0-3-686
menu default
kernel /live/vmlinuz1
append initrd=/live/initrd1 boot=live

label memtest86+
menu label ^Memory Failure Detection (memtest86+)
kernel /live/memtest
_EOF_

root@host:~/shtf-stick#
```

Create CD image

```
root@host:~/shtf-stick# cp /usr/lib/ISOLINUX/isolinux.bin image/isolinux/ &&
\
cp /usr/lib/syslinux/modules/bios/menu.c32 image/isolinux/ && \
cp /usr/lib/syslinux/modules/bios/libmenu.c32 image/isolinux/ && \
cp /usr/lib/syslinux/modules/bios/libutil.c32 image/isolinux/ && \
cp /usr/lib/syslinux/modules/bios/ldlinux.c32 image/isolinux/ && \
cp /usr/share/misc/pci.ids image/isolinux/ && \
cp /boot/memtest86+.bin image/live/memtest && \
cd image && \
genisoimage -rational-rock -volid "SHTF" -cache-inodes -joliet -full-
iso9660-filenames -b isolinux/isolinux.bin -c isolinux/boot.cat -no-emul-
boot -boot-load-size 4 -boot-info-table -output ../debian-shtf-$(date
+%Y%m%d_%H%M).iso . && \
cd ..
```

Prepare USB stick

```
root@host:~/shtf-stick# export DEVICE=/dev/sdc
root@host:~/shtf-stick# dd if=/dev/zero of=${DEVICE} bs=1k count=100
100+0 records in
100+0 records out
102400 bytes (102 kB) copied, 1.5086 s, 67.9 kB/s
root@host:~/shtf-stick# fdisk ${DEVICE}

Welcome to fdisk (util-linux 2.25.2).
Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.

Device does not contain a recognized partition table.
Created a new DOS disklabel with disk identifier 0x374a220b.

Command (m for help): n
Partition type
   p   primary (0 primary, 0 extended, 4 free)
   e   extended (container for logical partitions)
Select (default p): p
Partition number (1-4, default 1):
First sector (2048-2005431, default 2048):
Last sector, +sectors or +size{K,M,G,T,P} (2048-2005431, default 2005431):

Created a new partition 1 of type 'Linux' and of size 978.2 MiB.

Command (m for help): a
Selected partition 1
```

```
The bootable flag on partition 1 is enabled now.

Command (m for help): t
Selected partition 1
Hex code (type L to list all codes): b
If you have created or modified any DOS 6.x partitions, please see the fdisk
documentation for additional information.
Changed type of partition 'Linux' to 'W95 FAT32'.

Command (m for help): w
The partition table has been altered.
Calling ioctl() to re-read partition table.
Syncing disks.

root@host:~/shtf-stick# mkdosfs -F 32 -I ${DEVICE}1
mkfs.fat 3.0.27 (2014-11-12)

root@host:~/shtf-stick#
```

Create USB Stick

```
root@host:~/shtf-stick# export DEVICE=/dev/sdc
root@host:~/shtf-stick# syslinux -i ${DEVICE}1

root@host:~/shtf-stick# dd if=/usr/lib/syslinux/mbr/mbr.bin of=${DEVICE}
conv=notrunc bs=440 count=1
1+0 records in
1+0 records out
440 bytes (440 B) copied, 0.0564548 s, 7.8 kB/s

root@host:~/shtf-stick# mkdir /mnt/usb; \
mount ${DEVICE}1 /mnt/usb

root@host:~/shtf-stick# cp /usr/lib/syslinux/modules/bios/libutil.c32
/mnt/usb/ && \
cp /usr/lib/syslinux/modules/bios/libmenu.c32 /mnt/usb/ && \
cp /usr/lib/syslinux/modules/bios/menu.c32 /mnt/usb/ && \
cp /boot/memtest86+.bin /mnt/usb/memtest && \
cp image/isolinux/isolinux.cfg /mnt/usb/syslinux.cfg && \
cp /usr/share/misc/pci.ids /mnt/usb/ && \
rsync -rv image/live /mnt/usb/
sending incremental file list
live/
live/filesystem.squashfs
live/initrd1
live/vmlinuz1

sent 308,553,889 bytes  received 77 bytes  88,158,276.00 bytes/sec
total size is 308,478,319  speedup is 1.00
```

```
root@host:~/shtf-stick# umount /mnt/usb/
root@host:~/shtf-stick#
```

Source: http://willhaley.com/blog/create-a-custom-debian-stretch-live-environment-ubuntu-17-zesty/

kb, linux, shtf, usb-stick

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