

NovTech Software Guide

Chameleon96[®]

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Revision History

Revision Number	Date	Changes	Notes
1.0	10/2017	Initial Release	

Table 1- Provides a revision history for this user guide.



1 Updating source and images

Updates to the Chameleon96[®] project are available from the VM via SVN. The following directories are maintained by SVN:

```
~/Projects/support_files
~/Projects/chameleon96/build/linux_custom
~/Projects/chameleon96/build/uboot_custom
```

These are available via SVN from

<http://novtech.ddns.net/svn/Custom/chameleon96>

with username: chameleon96

and password: Chameleon2017@NovTech

1.1 First update

Initially, it is a good idea to pull the latest support files from SVN and update the `svn_script`, `overlay` and `buildroot.config` files located at `~/Projects/chameleon96`.

To do this, run the following commands:

```
cd ~/Projects/support_files
svn update
./load_files.sh
```

1.2 Updating from SVN with script

For your convenience, a script has been prepared which will update each of the three SVN repositories from within the “`~/Projects/chameleon96`” directory. This script is pre-installed at that location, but the SVN updated version of it can be found in the “`~/Projects/support_files`” directory.

To update the source and images, run the following commands (you may need to provide login credentials as indicated above):

```
cd ~/Projects/chameleon96
./svn_script get support_files
./svn_script get linux
./svn_script get uboot
```



2 Building source and images

Please refer to the Chameleon96[®] User Guide (Document Number: 001-127-04-05-01) for instructions on retrieving and configuring the VM for use.

For convenience of development full source and pre-compiled images for console and GUI configurations are provided. The virtual machine is pre-configured with the necessary tools and packages for compilation.

2.1 Important VM directories

Open a terminal in the virtual machine.

Change directory to the “Projects” directory (`cd ~/Projects`)

This directory contains the following directories:

- `buildroot-2015.08.01` – buildroot and associated support packages
- `chameleon96` – The buildroot project directory, containing a buildroot tree pre-configured for the Chameleon96[®].
- `support_files` – NovTech support files, including
 - scripts to update VM packages and download from SVN.

2.2 Compiling in Buildroot

Change directory to “`~/Projects/chameleon96`” by typing “`cd ~/Projects/chameleon96`”

Configure buildroot to include whatever packages you desire by typing “`make menuconfig`” and selecting packages.

Compile the buildroot tree by typing “`make`”. It will take some time to compile.

When completed, you should see something like this:

```
novtech@ubuntu: ~/Projects/chameleon96
printf '    dbus -1 dbus -1 * /var/run/dbus - dbus DBus messagebus user\n' >
> /home/novtech/Projects/chameleon96/build/_users_table.txt
PATH="/home/novtech/Projects/chameleon96/host/bin:/home/novtech/Projects/chamele
on96/host/sbin:/home/novtech/Projects/chameleon96/host/usr/bin:/home/novtech/Pro
jects/chameleon96/host/usr/sbin:/home/novtech/bin:/usr/local/sbin:/usr/local/bin
:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games" /home/novtech/Projec
ts/buildroot-2015.08.01/support/scripts/mkusers /home/novtech/Projects/chameleon
96/build/_users_table.txt /home/novtech/Projects/chameleon96/target >> /home/nov
tech/Projects/chameleon96/build/_fakeroot.fs
echo " tar -cf /home/novtech/Projects/chameleon96/images/rootfs.tar --numeric-o
wner -C /home/novtech/Projects/chameleon96/target ." >> /home/novtech/Projects/c
hameleon96/build/_fakeroot.fs
chmod a+x /home/novtech/Projects/chameleon96/build/_fakeroot.fs
PATH="/home/novtech/Projects/chameleon96/host/bin:/home/novtech/Projects/chamele
on96/host/sbin:/home/novtech/Projects/chameleon96/host/usr/bin:/home/novtech/Pro
jects/chameleon96/host/usr/sbin:/home/novtech/bin:/usr/local/sbin:/usr/local/bin
:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games" /home/novtech/Projec
ts/chameleon96/host/usr/bin/fakeroot -- /home/novtech/Projects/chameleon96/build
/_fakeroot.fs
rootdir=/home/novtech/Projects/chameleon96/target
table='/home/novtech/Projects/chameleon96/build/_device_table.txt'
/usr/bin/install -m 0644 support/misc/target-dir-warning.txt /home/novtech/Proje
cts/chameleon96/target/THIS_IS_NOT_YOUR_ROOT_FILESYSTEM
novtech@ubuntu:~/Projects/chameleon96$
```

Figure 1 - completed compilation

2.3 Programming compiled images to SD/MMC cards

Once the compilation is complete, you will need to place the images onto an SD/MMC card for use in the Chameleon96®. The compiled buildroot images are located in:

~/Projects/chameleon96/images

For convenience, a script has been provided which will place the images onto an SD/MMC card. Insert the SD/MMC card into your PC and connect it to the VM by selecting it from the “Removable devices” menu.

From the ~/Projects/chameleon96 directory run ./mk_chameleon96_sd -a sdb
This will program the contents of the ~/Projects/chameleon96/images directory onto the SD/MMC card at /dev/sdb. If your card is NOT located on /dev/sdb, use the appropriate device handle.

****Warning**** - this script can be destructive if the wrong device handle is used. Please verify your SD/MMC card is at the expected location before executing. The card location can be verified by running “cat /proc/partitions” and looking for /dev/sdb.

The script can also place individual portions of the compiled images. Run “mk_chameleon96_sd” without options for more information.



3 Programming pre-compiled images to SD/MMC cards

Pre-compiled images for both the console and graphical systems are available from <https://novtech.sharefile.com> in the “03 – Compiled SD Images” directory.

Images in “03.01 – Card Images” can be programmed directly to SD/MMC cards with “dd” or Win32DiskImager per instructions in the Chameleon96[®] User Guide (Document number 001-127-04-05-01)

Images in “03.02 – Card Contents” can be downloaded to the VM extracted. These images can be written to cards using the “mk_chameleon96_sd” script included in their respective directories.