

USAGE:

mkg [1]
mkg [[switch=argument]...] filename.iso [2]
mkg [[switch=argument]...] [3]
mkg help[=md] [4]

Usage [1] and [2] create a bootable ISO output file with a current Gentoo distribution.

For [1], implicit ISO output name is **gentoo.iso**

Usage [3] creates a VirtualBox VDI dynamic disk and a virtual machine with name Gentoo.

Usage [4] prints this help, in markdown form if argument 'md' is specified.

Warning: you should have at least 55 GB of free disk space in the current directory or in vmpath if specified.

As of tag 1st March, 2021, part of the build is performed by *Github Actions* automatically. An ISO file of CloneZilla supplemented with VirtualBox guest additions will be downloaded from the resulting automated Github release. To disable this behavior you can add `use_workflow=false` to command line, or build the custom ISO file beforehand using the companion project **clonezilla_with_virtualbox**. In this case, add:
`custom_clonezilla=your_build.iso`
to command line.

Options:

Boolean values are either **true** or **false**. For example, to build a minimal distribution, add to command line:

`minimal=true`

or simply: `minimal` as `true` can be omitted (unlike `false`).

Examples

```
# ./mkg pdfpage
# ./mkg debug_mode verbose from_vm vm=Gentoo.iso gentoo_small.iso      ext_device=sdc device_installer
blank burn cleanup=false
# ./mkg download_arch=false download=false download_clonezilla=false custom_clonezilla=clonezilla_cached.iso
nonroot_user=phil
# nohup ./mkg plot plot_color=red plot_period=10 plot_pause=7 compact minimal minimal_size gui=false
elist=myebuilds email=my.name@gmail.com email_passwd='mypasswd' &
# nohup ./mkg gui=false from_device=sdc gentoo_backup.iso &
```

Type Conventions:

b: true/false Boolean

o: on/off Boolean

n: Integer

f: Filepath

d: Directory path

e: Email address
s: String
u: URL

When a field depends on another, a colon separates the type and the name of the dependency. dep is a reserved word for dummy defaults of dependencies i.e. optional strings that may remain unspecified.

Option	Description	Default value	Type
debug_mode	Do not clean up mkg custom logs at root of gentoo system files before VM shutdown. Boolean.	[false]	b
verbose	Increase verbosity	[false]	b
bios	Type of bootloader: BIOS or EFI (default)	[false]	b
blank	Blank rewritable optical disk before burning installation image.	[false]	b
build_virtualbox	Download code source and automatically build virtualbox and tools. Yields VirtualBox and vbox-img executables under main directory and subdirectory virtualbox with the build, including documentation.	[false]	b
burn cdrecord	Burn to optical disc. Boolean. cdrecord full path. Automatically determined if left unspecified.	[false] [which cdrecord]	b f:burn
cflags	GCC CFLAGS options for ebuids	[-march=native -O2]	
cleanup	Clean up archives, temporary images and virtual machine after successful completion. Boolean.	[true]	b
clonezilla_install	Use the CloneZilla live CD instead of the official Gentoo minimal install CD. May be more robust for headless install, owing to a VB bug requiring artificial keyboard input (see doc).	[false]	b

Option	Description	Default value	Type
cloning_method	Method used by hot_install ext_device=... to install Gentoo to disk. One of: 'guestfish' (default), 'with-raw-buffer' (slower) or 'vbox-img' (currently unavailable)	[guestfish]	s:ext_device
compact	Compact virtual disk after VM building. Caution: this may impede hot_install and ext_device.	[false]	b
cpuexecutioncap	Maximum percentage of CPU per core (0 to 100)	[100]	n
CRAN_REPOS	CRAN repository URL for downloading extra R packages	[https://cloud.r- project.org]	s
create_squashfs	(Re)create the squashfs filesystem. Boolean.	[true]	b
custom_clonezilla	Use this previously created custom CloneZilla ISO with added VirtualBox and guest additions.	[dep]	s
device_installer	Create Gentoo clone installer on external device. ext_device value must be specified.	[]	
disable_md5_check	Disable MD5 checksums verification after downloads. Boolean.	[true]	b
download	Download install ISO image from Gentoo mirror. Boolean.	[true]	b
download_arch	Download and install stage3 archive to virtual disk. Boolean.	[true]	b
download_clonezilla	Refresh CloneZilla ISO download. An ISO file must have been downloaded to create the recovery image of the Gentoo platform once the virtual machine has ended its job. Boolean	[true]	b
download_clonezilla_path	Download the following CloneZilla ISO	[path1]	u

Option	Description	Default value	Type
elist	File containing a list of Gentoo ebuilds to add to the VM on top of stage3. Note: if the default value is not used, adjust the names of the 'elist'.accept_keywords and 'elist'.use files	[ebuilds.list]	f
email	Email address to send a warning to upon build completion. Note: you will have to accept so-called <i>insecure software</i> with some providers. It is not insecure if you are using your private PC throughout.	[]	e
email_passwd	Email password	[]	s:email
emirrors	Mirror sites for downloading ebuilds	[path2]	u
ext_device	Create Gentoo OS on external device. Argument is either a device label (e.g. sdb, hdb), or a mountpoint directory (if mounted), or a few consecutive letters of the vendor name (e.g. 'Samsu', 'PNY' or 'Kingst'), if there is just one such. Requires <i>hot_install</i> on commandline.	[]	s
force	Forcefully creates machine even if others with same name exist. Stops and restarts VBox daemons. Not advised if other VMs are running.	[false]	b
from_device	Do not Generate Gentoo but use the external device on which Gentoo was previously installed. Boolean.	[false]	b:ext_device
from_iso	Do not generate Gentoo but use the bootable ISO given on commandline.	[false]	b
from_vm	Do not generate Gentoo but use the VM. Boolean.	[false]	b
github_release_path	URL to Github Release of clonezilla_with_virtualbox.iso	[path3]	s

Option	Description	Default value	Type
gui	Binary: true corresponds to VBoxManage startvm ... -type=gui, false to -type=headless	[true]	b
help	This help	[]	
hot_install	Intall to Gentoo attached device (like /dev/sdb) possibly mounted (like /media/USER/567EAF). To be used with <i>ext_device=...</i>	[false]	b:ext_device
htmlpage	Create HTML help page	[false]	b
hwvrtex	Activate HWVIRTEX: on/off	[on]	o
interactive	Allow interaction with user. This may cause deadlock if process is detached from the console (<i>nohup</i> or other methods)	[true]	b
ioapic	IOAPIC parameter: on or off	[on]	o
kernel_config	Use a custom kernel config file	[.config]	f
language	Add support for non-US English language as a default. Use standard abbreviations (fr for french, es for spanish) etc.	[us]	s
lineno_patch	Line patched against vbox-img.cpp in virtualbox source code	[797]	n
livedcd	Path to the live CD that will start the VM	[gentoo.iso]	f
logging	Activate logging	[true]	b
manpage	Create manpage mkg.1	[false]	b
mem	VM RAM memory in MiB	[8000]	n
minimal	Remove <i>libreoffice</i> and <i>data science tools</i> from default list of installed software. Boolean.	[false]	b
minimal_size	Remove kernel sources to minimize packaging. Not advised for personal use but OK for deployment and distribution.	[false]	b
mirror	Mirror site for downloading of stage3 tarball	[path2]	u
ncpus	Number of VM CPUs. By default the third of available threads.	[count]	n
nonroot_user	Non-root user	[fab]	s
pae	Activate PAE: on/off	[on]	o

Option	Description	Default value	Type
paravirtprovider	Virtualization interface: kvm for GNU/Linux, may be tweaked (see VirtualBox documentation)	[kvm]	s
passwd	User password	[_user2021_]	s:vm
pdfpage	Create PDF help page	[false]	b
plot	Plot VDI disk size using GNUPlot	[false]	b
plot_color	Plot line color between simple quotes (e.g: 'cyan','red' etc.)	['cyan']	s
plot_pause	Number of seconds of plot display per minute of processing. Maximum 50.	[5]	n
plot_period	Number of minutes elapsed between two successive plots	[10]	n
plot_position	Plot position of on monitor screen (top-left angle) in pixels e.g '0,0' or '500,500'	['0,0']	s
plot_span	Number of minutes of virtual disk processing to be plotted, back in time	[1200]	n
processor	Processor type	[amd64]	s
quiet_mode	Silence output except for the most severe errors.	[false]	b
r_version	R version	[4.0.2]	s
remove_vdi	Remove virtual disk on clean-up	[false]	b
rootpasswd	Root password	[_dev2021_]	s:vm
rtcuseutc	Use UTC as time reference: on/off	[on]	o
scsi_address	In case of several optical disc burners, specify the SCSI address as x,y,z	[]	s
size	Dynamic disc size	[55000]	n
smtp_url	SMTP URL of email provider for end-of-job warning. Default: gmail SMTP	[smtps://smtp.gmail.com:465]	u
stage3	Path to stage3 archive	[stage3.tar.xz]	f
usbehci	Activate USB2 driver: on/off	[off]	o
usbxhci	Activate USB3 driver: on/off. Note: if on, needs extension pack.	[off]	o
use_workflow	Use Github Actions workflow to add virtualbox guest additions to CloneZilla ISO.	[true]	b

Option	Description	Default value	Type
vm	Virtual Machine name. Unless 'force=true' is used, a time stamp will be appended to avoid registry issues with prior VMs of the same name.	[Gentoo]	vm
vbox_version	Virtualbox version	[6.1.14]	s
vbox_version_full	Virtualbox full version	[6.1.14a]	s
vbpath	Path to VirtualBox directory	[/usr/bin]	d
vmpath	Path to VM base directory	[\$PWD]	d
vtxvpid	Activate VTXVPID: on/off	[on]	o
workflow_tag	Tag version (vX.Y) of the release of file clonezilla_with_virtualbox by Github Actions	[v1.8]	s

path1: https://sourceforge.net/projects/clonezilla/files/clonezilla_live_alternative/20200703-focal/clonezilla-live-20200703-focal-amd64.iso/download

path2: <http://gentoo.mirrors.ovh.net/gentoo-distfiles/>

path3: https://github.com/fabnicol/clonezilla_with_virtualbox/releases/download/

count: nproc -all / 3