

Run an eternally precisely specified package in Guix

If Baldur's Gate 3 stops working because Wine updated to version 10, you can try to hack something together or find a flatpak someone else maintains for you and keep playing. Or you can learn about Guix inferior packages and gain a tool for truly eternal package definition. There are tons of reasons why you may want that, but "my game stopped working!" is as good as any other :-).

[Inferiors](#) are packages from other versions of Guix composed together with an up to date system. Along with [guix shell --container](#) they enable you to create precisely defined setups.

So when the game stopped working, I turned to my existing [run-in-container](#) setup and tracked down the commit just before wine was updated to version 10:

```
git log --oneline -A1 | grep wine | less
1c434fb17c4 gnu: wine: Update to 10.0.
c788962baee gnu: conda: Add missing dependency.
```

Then I added an inferior channel from the exact version of the Guix package setup and used the inferior in the manifest definition:

```
(use-modules (gnu) (guix inferior) (guix channels) (srfi srfi-1))

(define channels
  (list (channel
        (name 'guix)
        (url "https://git.savannah.gnu.org/git/guix.git")
        (commit
         ;; The commit with wine64@9
         "c788962baeeb6bf021b30c9ad774d472f592fdb5")))))

(define inferior
  (inferior-for-channels channels))

;; the manifest (result of the manifest)
(packages->manifest
 (append (lookup-inferior-packages inferior "wine64")
         ;; simplified parsing
```

```
(append-map specification->package
  `(
    "gfx2"
    ...
  )))
```

I could now describe how to use this to have a setup that ensures that your companies' system will keep working¹ if [dependencies turn volatile](#) (and maybe add your own persistent cache for the package sources to ensure that these also stay available) — along with the advantage that the dependencies are actually verified and built from sources down to the most remote libraries from just [a minimal seed](#) — but I'd rather show you the full example how to keep Baldur's Gate 3 working.

The downside is: this is a big file, because it contains my whole manifest.

The upside is: this is complete, ready to be dropped into `~/.local/bin/baldurs-gate-3` and made executable with `chmod +x ~/.local/bin/baldurs-gate-3`, so you won't have to guess what may be missing:

```
#!/usr/bin/env bash
# -*- mode:scheme -*-
set -ex
xhost +SI:localuser:"$USER"
exec -a "$0" guix shell --verbosity=3 \
--container --network --emulate-fhs \
--preserve='^DISPLAY$' --preserve='^XAUTHORITY$' --preserve='^USER$' \
--preserve='^GDM.*$' --preserve='^PULSE_.*$' --preserve='^XDG.*$' \
--preserve='^DBUS_.*$' --preserve='^SHELL$' \
--expose=$XAUTHORITY --expose=/var/run/dbus --expose=/sys/class/input \
--expose=/dev/dri \
$(if test -e /dev/video0; then --expose=/dev/video0; fi) \
$(if test -e /dev/video1; then --expose=/dev/video1; fi) \
--expose=/etc/bashrc --expose=/sys/devices --expose=/sys/dev \
--expose=/sys/bus/pci --expose=/run/user/"$(id -u)"/pulse \
--expose="$HOME/Downloads" \
--share=/dev/snd/seq --share=/dev/shm --share=/proc \
--share=/var --share=/run --share=/tmp/ \
--share="$HOME/.local" --share="$HOME/.config" \
--manifest="$0" \
--share=/mnt/schatten/baldurs-gate --share="$HOME/.wine" \
-- bash -c '
cd "/mnt/schatten/baldurs-gate/Baldurs Gate 3/bin" && wine64 bg3.exe
'
```

¹Limitation: This only works as long as Guix stays operational and keeps the `shell` and `--manifest` API stable.

```

# ))
!#
;; manifest Scheme code used by Guix thanks to
;; https://www.futurile.net/2023/04/29/guix-shell-virtual-environments-containers/
(use-modules (gnu) (guix inferior) (guix channels) (srfi srfi-1))

(define channels
  (list (channel
        (name 'guix)
        (url "https://git.savannah.gnu.org/git/guix.git")
        (commit
         ;; The commit with wine64@9
         "c788962baeeb6bf021b30c9ad774d472f592fdb5")))))

(define inferior
  (inferior-for-channels channels))

(packages->manifest
 (append (lookup-inferior-packages inferior "wine64")
         (append-map (lambda (spec)
                       (cond
                        ((pair? spec)
                         (let ((pkg (car spec))
                               (output (cadr spec)))
                           (if (string? pkg)
                               (list (specification->package+output pkg output))
                               (list (values pkg output))))))
                        ((string? spec)
                         (list (specification->package spec)))
                        (else (list spec))))
          `("0ad"
            "abcde"
            "adanaxisgpl"
            "adb"
            "adwaita-icon-theme"
            "aha"
            "alsa-lib"
            "alsa-plugins"
            "amb-plugins"
            "anki"
            "ant"
            "apertium"
            "apr"
            "apr-util"

```

"arandr"
"arc-icon-theme"
"arc-theme"
"aria2"
"ark"
"aspell"
"aspell-dict-de"
"aspell-dict-en"
"aspell-dict-eo"
"aspell-dict-es"
"atool"
"audacity"
"autoconf"
"automake"
"autotalent"
"bash"
"bastet"
"bc"
"bind"
"binutils"
"blender"
"borg"
"breeze-icons"
"bzip2"
"cabal-install"
"cabextract"
"calibre"
"cdparanoia"
"cdrtools"
"chez-scheme"
"clang"
"cloc"
"clojure"
"cmake"
"coreutils"
"cryptsetup"
"cups"
"curl"
"daikichi"
"dav1d"
"dbus"
"dbus-c++"
"dbus-glib"
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"ddrescue"
"diffutils"
"dlib"
"docker"
"docker-cli"
"docker-compose"
"dosfstools"
"dunst"
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"electrum"
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"emacs-dash"
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"emacs-deadgrep"
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"emacs-helm-firefox"
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"emacs-next"
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"festival"
"fetchmail"
"ffmpeg@6"
"ffmpegthumbs"
"fil-plugins"
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"filelight"
"firefox-decrypt"
"flameshot"
"flare-game"
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"r-slam"
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"racket"
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"readline"
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"recutils"
"redis"
"redshift"
"retroarch"
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"ripgrep"
"rmlint"
"rsync"
"rtorrent"
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"ruby-ffi"
"ruby-rake"
"rxvt-unicode"
"s6-dns"
"samba"
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"ssss"
"ste-plugins"
"steam"
"strace"
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"texlive-bold-extra"
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"texlive-hyphen-complete"
"texlive-imakeidx"
"texlive-inconsolata"
"texlive-isodate"
"texlive-iwona"
"texlive-kantlipsum"
"texlive-lastpage"
"texlive-latex-fonts"
"texlive-lh"
"texlive-lipsum"
"texlive-makecmds"
"texlive-mathalpha"
"texlive-mathpazo"
"texlive-mdwtools"
"texlive-metafont"
"texlive-mflogo"
"texlive-mflogo-font"
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"texlive-morefloats"
"texlive-ms"
"texlive-newtx"
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"texlive-palatino"
"texlive-placeins"
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"texlive-scholax"
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"texlive-threeparttable"
"texlive-threeparttablex"
"texlive-tikz-timing"

"texlive-tikzposter"
"texlive-times"
"texlive-titlesec"
"texlive-tocloft"
"texlive-todonotes"
"texlive-txfonts"
"texlive-utfsym"
"texlive-wallpaper"
"texlive-worldflags"
"texlive-wrapfig"
"texlive-xurl"
"texlive-zapfding"
"the-silver-searcher"
"time"
"timidity++"
"tinyscheme"
"tipp10"
"tome4"
"toot"
"tor"
"torbrowser"
"torsocks"
"transmission"
"trash-cli"
"ttf2eot"
"ttfautohint"
"tuxpaint"
"uget"
"unzip"
"util-linux"
"v4l-utils"
"vco-plugins"
"virt-manager"
"vlc"
"wah-plugins"
"wesnoth"
"wget"
"wine64"
"wireplumber"
"wireshark"
"workrave"
"wxwidgets"
"x265"
"xauth"

```
"xcb-util"  
"xcb-util-image"  
"xcb-util-keysyms"  
"xclip"  
"xclock"  
"xdg-dbus-proxy"  
"xdg-desktop-portal-gtk"  
"xdg-user-dirs"  
"xdg-utils"  
"xdotool"  
"xev"  
"xfce4-clipman-plugin"  
"xfce4-pulseaudio-plugin"  
"xhost"  
"xinit"  
"xkbcomp"  
"xkeyboard-config"  
"xkill"  
"xlsfonts"  
"xmodmap"  
"xmoto"  
"xorg-server"  
"xournalpp"  
"xpdf"  
"xrandr"  
"xsane"  
"xset"  
"xterm"  
"yasm"  
"yt-dlp"  
"zenity"  
"zip"  
"zlib"  
;; specific outputs  
("alsa-plugins" "pulseaudio")  
("bind" "utils")  
("gcc-toolchain" "debug")  
("openjdk" "jdk")  
("zstd" "lib")  
;; disabled for excessive build times:  
;; "rust"  
;; "rust-avif-serialize"  
;; "rust-cbindgen"  
;; ("rust" "cargo")
```

```
;; workaround to get gcc-lib:  
(,@(gnu packages gcc) gcc) "lib")  
;; "chromium-embedded-framework" ; libcef  
;; "firefox"  
;; "intel-vaapi-driver" ;specific to my set-up  
;; "openjdk"  
))))
```

And that's it. A complete system in which just the wine64 package is pulled from an earlier, eternal version definition that's bootstrapped from source code [using a minimal seed](#).

Feel free to trim this down to what's actually needed — I'm pretty sure 10% of this manifest would suffice — and send it to me; I'll gladly update this article then. But for now I'm finally going back to actually play BG3 :-).