NAME

flatpak-run − Run an application or open a shell in a runtime

SYNOPSIS

flatpak run [OPTION...] REF [ARG...]

DESCRIPTION

If REF names an installed application, flatpak runs the application in a sandboxed environment. Extra arguments are passed on to the application.

If REF names a runtime, a shell is opened in the runtime. This is useful for development and testing.

By default, flatpak will look for the application or runtime in all per−user and system installations. This can be overridden with the **−−user**, **−−system** and **−−installation** options.

flatpak creates a sandboxed environment for the application to run in by mounting the right runtime at /usr and a writable directory at /var, whose content is preserved between application runs. The application itself is mounted at /app.

The details of the sandboxed environment are controlled by the application metadata and various options like **−−share** and **−−socket** that are passed to the run command: Access is allowed if it was requested either in the application metadata file or with an option and the user hasn't overridden it.

The remaining arguments are passed to the command that gets run in the sandboxed environment. See the **−−file−forwarding** option for handling of file arguments.

Environment variables are generally passed on to the sandboxed application, with certain exceptions. The application metadata can override environment variables, as well as the **−−env** option. Apart from that, Flatpak always unsets or overrides the following variables, since their session values are likely to interfere with the functioning of the sandbox:

PATH
LD_LIBRARY_PATH
XDG_CONFIG_DIRS
XDG_DATA_DIRS
SHELL
TMPDIR
PYTHONPATH
PERLLIB
PERL5LIB
XCURSOR_PATH

Flatpak also overrides the XDG environment variables to point sandboxed applications at their writable filesystem locations below ~/.var/app/$APPID/:

XDG_DATA_HOME
XDG_CONFIG_HOME
XDG_CACHE_HOME

The host values of these variables are made available inside the sandbox via these HOST_−prefixed variables:

HOST_XDG_DATA_HOME
HOST_XDG_CONFIG_HOME
HOST_XDG_CACHE_HOME

Flatpak sets the environment variable **FLATPAK_ID** to the application ID of the running app.

Flatpak also bind−mounts as read−only the host's /etc/os−release (if available, or /usr/lib/os−release as a fallback) to /run/host/os−release in accordance with the **os−release specification**[1].

If parental controls support is enabled, flatpak will check the current user’s parental controls settings, and will refuse to run an app if it is blocklisted for the current user.

OPTIONS

The following options are understood:

−h, **−−help**
Show help options and exit.

−−user
Look for the application and runtime in per−user installations.

−−system
Look for the application and runtime in the default system−wide installations.

−−installation=NAME
Look for the application and runtime in the system−wide installation specified by NAME among those defined in /etc/flatpak/installations.d/. Using **−−installation=default** is equivalent to using **−−system**.

−v, **−−verbose**
Print debug information during command processing.

−−ostree−verbose
Print OSTree debug information during command processing.

−−arch=ARCH
The architecture to run. See **flatpak −−supported−arches** for architectures supported by the host.

−−command=COMMAND
The command to run instead of the one listed in the application metadata.

−−cwd=DIR
The directory to run the command in. Note that this must be a directory inside the sandbox.

−−branch=BRANCH
The branch to use.

−d, **−−devel**
Use the devel runtime that is specified in the application metadata instead of the regular runtime, and use a seccomp profile that is less likely to break development tools.

−−runtime=RUNTIME
Use this runtime instead of the one that is specified in the application metadata. This is a full tuple, like for example org.freedesktop.Sdk/x86_64/1.2, but partial tuples are allowed. Any empty or missing parts are filled in with the corresponding values specified by the app.

−−runtime−version=VERSION
Use this version of the runtime instead of the one that is specified in the application metadata. This overrides any version specified with the −−runtime option.

−−share=SUBSYSTEM
Share a subsystem with the host session. This overrides the Context section from the application metadata. SUBSYSTEM must be one of: network, ipc. This option can be used multiple times.

−−unshare=SUBSYSTEM
Don't share a subsystem with the host session. This overrides the Context section from the application metadata. SUBSYSTEM must be one of: network, ipc. This option can be used multiple times.

−−socket=SOCKET
Expose a well known socket to the application. This overrides to the Context section from the application metadata. SOCKET must be one of: x11, wayland, fallback−x11, pulseaudio, system−bus, session−bus, ssh−auth, pcsc, cups. This option can be used multiple times.

−−nosocket=SOCKET
Don't expose a well known socket to the application. This overrides to the Context section from the application metadata. SOCKET must be one of: x11, wayland, fallback−x11, pulseaudio, system−bus, session−bus, ssh−auth, pcsc, cups. This option can be used multiple times.

−−device=DEVICE
Expose a device to the application. This overrides to the Context section from the application metadata. DEVICE must be one of: dri, kvm, shm, all. This option can be used multiple times.

−−nodevice=DEVICE
Don't expose a device to the application. This overrides to the Context section from the application metadata. DEVICE must be one of: dri, kvm, shm, all. This option can be used multiple times.

−−allow=FEATURE
Allow access to a specific feature. This overrides to the Context section from the application metadata. FEATURE must be one of: devel, multiarch, bluetooth. This option can be used multiple times.

See **flatpak-build-finish**(1) for the meaning of the various features.

−−disallow=FEATURE
Disallow access to a specific feature. This overrides to the Context section from the application metadata. FEATURE must be one of: devel, multiarch, bluetooth. This option can be used multiple times.

−−filesystem=FILESYSTEM
Allow the application access to a subset of the filesystem. This overrides to the Context section from the application metadata. FILESYSTEM can be one of: home, host, host−os, host−etc, xdg−desktop, xdg−documents, xdg−download, xdg−music, xdg−pictures, xdg−public−share, xdg−templates, xdg−videos, xdg−run, xdg−config, xdg−cache, xdg−data, an absolute path, or a homedir−relative path like ~/dir or paths relative to the xdg dirs, like xdg−download/subdir. The optional :ro suffix indicates that the location will be read−only. The optional :create suffix indicates that the location will be read−write and created if it doesn't exist. This option can be used multiple times. See the "[Context] filesystems" list in **flatpak-metadata**(5) for details of the meanings of these filesystems.

−−nofilesystem=FILESYSTEM
Undo the effect of a previous **−−filesystem=**FILESYSTEM in the app's manifest and/or the overrides set up with **flatpak-override**(1). This overrides the Context section of the application metadata. FILESYSTEM can take the same values as for **−−filesystem**, but the :ro and :create suffixes are not used here. This option can be used multiple times.

This option does not prevent access to a more narrowly−scoped **−−filesystem**. For example, if an application has the equivalent of **−−filesystem=xdg−config/MyApp** in its manifest or as a system−wide override, and flatpak override −−user −−nofilesystem=home as a per−user override, then it will be prevented from accessing most of the home directory, but it will still be allowed to access $XDG_CONFIG_HOME/MyApp.

As a special case, **−−nofilesystem=host:reset** will ignore all **−−filesystem** permissions inherited from the app manifest or **flatpak-override**(1), in addition to having the behaviour of **−−nofilesystem=host**.

−−add−policy=SUBSYSTEM.KEY=VALUE
Add generic policy option. For example, "−−add−policy=subsystem.key=v1 −−add−policy=subsystem.key=v2" would map to this metadata:

[Policy subsystem]
key=v1;v2;

This option can be used multiple times.

−−remove−policy=SUBSYSTEM.KEY=VALUE
Remove generic policy option. This option can be used multiple times.

−−env=VAR=VALUE
Set an environment variable in the application. This overrides to the Context section from the

application metadata. This option can be used multiple times.

−−unset−env=VAR
Unset an environment variable in the application. This overrides the unset−environment entry in the [Context] group of the metadata, and the [Environment] group. This option can be used multiple times.

−−env−fd=*FD*
Read environment variables from the file descriptor *FD*, and set them as if via **−−env**. This can be used to avoid environment variables and their values becoming visible to other users.

Each environment variable is in the form *VAR=VALUE* followed by a zero byte. This is the same format used by env −0 and /proc/*/environ.

−−own−name=NAME
Allow the application to own the well known name NAME on the session bus. If NAME ends with .*, it allows the application to own all matching names. This overrides to the Context section from the application metadata. This option can be used multiple times.

−−talk−name=NAME
Allow the application to talk to the well known name NAME on the session bus. If NAME ends with .*, it allows the application to talk to all matching names. This overrides to the Context section from the application metadata. This option can be used multiple times.

−−no−talk−name=NAME
Don't allow the application to talk to the well known name NAME on the session bus. If NAME ends with .*, it allows the application to talk to all matching names. This overrides to the Context section from the application metadata. This option can be used multiple times.

−−system−own−name=NAME
Allow the application to own the well known name NAME on the system bus. If NAME ends with .*, it allows the application to own all matching names. This overrides to the Context section from the application metadata. This option can be used multiple times.

−−system−talk−name=NAME
Allow the application to talk to the well known name NAME on the system bus. If NAME ends with .*, it allows the application to talk to all matching names. This overrides to the Context section from the application metadata. This option can be used multiple times.

−−system−no−talk−name=NAME
Don't allow the application to talk to the well known name NAME on the system bus. If NAME ends with .*, it allows the application to talk to all matching names. This overrides to the Context section from the application metadata. This option can be used multiple times.

−−persist=FILENAME
If the application doesn't have access to the real homedir, make the (homedir−relative) path FILENAME a bind mount to the corresponding path in the per−application directory, allowing that location to be used for persistent data. This overrides to the Context section from the application metadata. This option can be used multiple times.

−−no−session−bus
Run this instance without the filtered access to the session dbus connection. Note, this is the default when run with −−sandbox.

−−session−bus
Allow filtered access to the session dbus connection. This is the default, except when run with −−sandbox.

Isandbox mode, even if you allow access to the session bus the sandbox cannot talk to or own the application ids (org.the.App.*) on the bus (unless explicitly added), only names in the .Sandbox subset (org.the.App.Sandbox.*).

−−no−a11y−bus

Run this instance without the access to the accessibility bus. Note, this is the default when run with −−sandbox.

−−a11y−bus
Allow access to the accessibility bus. This is the default, except when run with −−sandbox.

−−sandbox
Run the application in sandboxed mode, which means dropping all the extra permissions it would otherwise have, as well as access to the session/system/a11y busses and document portal.

−−log−session−bus
Log session bus traffic. This can be useful to see what access you need to allow in your D−Bus policy.

−−log−system−bus
Log system bus traffic. This can be useful to see what access you need to allow in your D−Bus policy.

−p, **−−die−with−parent**
Kill the entire sandbox when the launching process dies.

−−parent−pid=PID
Specifies the pid of the "parent" flatpak, used by −−parent−expose−pids and −−parent−share−pids.

−−parent−expose−pids
Make the processes of the new sandbox visible in the sandbox of the parent flatpak, as defined by −−parent−pid.

−−parent−share−pids
Use the same process ID namespace for the processes of the new sandbox and the sandbox of the parent flatpak, as defined by −−parent−pid. Implies −−parent−expose−pids.

−−instance−id−fd
Write the instance ID string to the given file descriptor.

−−file−forwarding
If this option is specified, the remaining arguments are scanned, and all arguments that are enclosed between a pair of '@@' arguments are interpreted as file paths, exported in the document store, and passed to the command in the form of the resulting document path. Arguments between '@@u' and '@@' are considered uris, and any file: uris are exported. The exports are non−persistent and with read and write permissions for the application.

−−app−path=*PATH*
Instead of mounting the app's content on /app in the sandbox, mount *PATH* on /app, and the app's content on /run/parent/app. If the app has extensions, they will also be redirected into /run/parent/app, and will not be included in the **LD_LIBRARY_PATH** inside the sandbox.

−−app−path=
As a special case, **−−app−path=** (with an empty *PATH*) results in an empty directory being mounted on /app.

−−usr−path=*PATH*
Instead of mounting the runtime's files on /usr in the sandbox, mount *PATH* on /usr, and the runtime's normal files on /run/parent/usr. If the runtime has extensions, they will also be redirected into /run/parent/usr, and will not be included in the **LD_LIBRARY_PATH** inside the sandbox. This option will usually only be useful if it is combined with **−−app−path=** and **−−env=LD_LIBRARY_PATH=**....

EXAMPLES

$ flatpak run org.gnome.gedit

$ flatpak run −−devel −−command=bash org.gnome.Builder

$ flatpak run −−command=bash org.gnome.Sdk

SEE ALSO

flatpak(1), **flatpak-override**(1), **flatpak-enter**(1)

NOTES

1. os-release specification
   https://www.freedesktop.org/software/systemd/man/os-release.html