

GNOME Desktop Snap Applications

Introducing Snapcraft GNOME extensions

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CANONICAL  ubuntu 



- What are Snaps?
- What is Snapcraft?
- Core pieces of snapcraft.yaml
- Improving the developer experience with Snapcraft
GNOME Extensions
- What's next



Foundation Concepts

- Snap
- Snapcraft

What are Snaps?



- Bundle of an app and its dependencies that works without modification across many different Linux distributions.
- Discoverable and installable from the snapstore
- Built with snapcraft
- Run and managed by snapd



What is Snapcraft?



- Tool that builds snaps ...
 - Consumes the snap/snapcraft.yaml of a project
 - For all types of apps
 - Headless (IoT)
 - Desktop: KDE (see Igor's talk) + GNOME

- A bunch of python:
<https://github.com/snapcore/snapcraft>



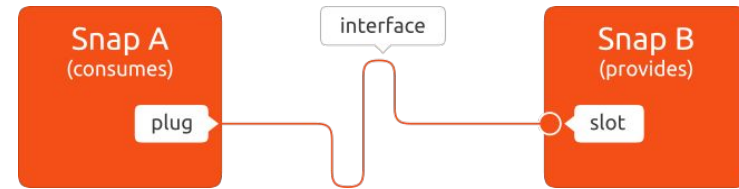


Core GNOME Snap Requirements

snapcraft.yaml for a GNOME app



- GNOME theming info
 - Plugs (consumer of interfaces)
 - Slots (provider of interfaces)
- Desktop icon
- Apps - usually more than one
 - Evince: evince, evince-previewer, evince-thumbnailler)
 - Snappy-debug: 6 apps! A whole toolbox!
- Parts that use libraries needed by GNOME-themed apps
 - Examples: glib, libgtk3-dev, gobject-introspection, etc.





Improving the Developer Experience with Extensions

- Abstract away common pieces
- Provide newer libraries
- Common build environment

What is the new Snapcraft GNOME Extension?



- Alternative method of building a snap
- Snapcraft code
 - gnome-3-28 was the first
 - gnome-3-32 work was rolled into gnome-3-34
 - gnome-3-34 is almost ready for release
- Uses build snap and platform snap
 - Build snap - builds commonly used libraries from source
 - Platform snap - provides your app with the build snap for build time, unnecessary parts removed for your app runtime
- Removes GNOME plugs and simplifies app-specific plugs
- Obviates desktop-launch and the use of desktop helper scripts

Desktop example without extensions (tali)



plugs:

```
gnome-3-28-1804:  
  interface: content  
  target: $SNAP/gnome-platform  
  default-provider: gnome-3-28-1804  
gtk-3-themes:  
  interface: content  
  target: $SNAP/data-dir/themes  
  default-provider: gtk-common-themes  
icon-themes:  
  interface: content  
  target: $SNAP/data-dir/icons  
  default-provider: gtk-common-themes
```

slots:

```
# For GtkApplication registration  
tali:  
  interface: dbus  
  bus: session  
  name: org.gnome.Tali
```

apps:

```
tali:  
  command: desktop-launch tali  
  plugs:  
    - desktop  
    - desktop-legacy  
    - gsettings  
    - unity7  
    - wayland  
  desktop: usr/share/applications/org.gnome.Tali.desktop
```

parts:

```
desktop-gnome-platform:  
  source: https://github.com/ubuntu/snapcraft-desktop-helpers.git  
  source-subdir: gtk  
  plugin: make  
  make-parameters: ["FLAVOR=gtk3"]  
  build-packages:  
    - build-essential  
    - libgtk-3-dev  
  override-build: |  
    snapcraftctl build  
    mkdir -pv $SNAPCRAFT_PART_INSTALL/gnome-platform  
tali:  
  after: [desktop-gnome-platform]
```

...

<https://gitlab.gnome.org/GNOME/tali/blob/gnome-3-32/snap/snapcraft.yaml>

Note: **Bold** items are all at the same hierarchy in the snapcraft.yaml

Smaller snapcraft.yaml to maintain



```
- plugs:  
- gnome-3-28-1804:  
  - interface: content  
  - target: $SNAP/gnome-platform  
  - default-provider: gnome-3-28-1804  
- gtk-3-themes:  
  - interface: content  
  - target: $SNAP/data-dir/themes  
  - default-provider: gtk-common-themes  
- icon-themes:  
  - interface: content  
  - target: $SNAP/data-dir/icons  
  - default-provider: gtk-common-themes  
  
slots:  
# For GtkApplication registration  
tali:  
  interface: dbus  
  bus: session  
  name: org.gnome.Tali  
  
apps:  
  tali:  
    + command: usr/bin/tali  
    + extensions: [gnome-3-28]  
  - command: desktop-launch tali  
  - plugs:  
    - - desktop  
    - - desktop-legacy  
    - - gsettings  
    - - unity7  
    - - wayland  
  desktop: usr/share/applications/org.gnome.Tali.desktop  
  
parts:  
- desktop-gnome-platform:  
  - source: https://github.com/ubuntu/snapcraft-desktop-helpers.git  
  - source-subdir: gtk  
  - plugin: make  
  - make-parameters: ["FLAVOR=gtk3"]  
  - build-packages:  
    - - build-essential  
    - - libgtk-3-dev  
  - override-build: |  
    snapcraftctl build  
    mkdir -pv $SNAPCRAFT_PART_INSTALL/gnome-platform  
  tali:  
  - after: [desktop-gnome-platform]  
  ...  
  
https://gitlab.gnome.org/GNOME/tali/blob/master/snap/snapcraft.yaml  
Note: Bold items are all at the same hierarchy in the snapcraft.yaml
```

Newer Libraries in the Build Snap



- Project libraries built from latest stable gnome branch (ie gnome-3-34) or latest stable branch or tag
- Better than using default libraries provided by apt (18.04 base)
- Any package built as part of the build snap never needs to be listed in build-packages list

<https://gitlab.gnome.org/Community/Ubuntu/gnome-sdk/>

Common Build Environment



- Available to all parts in `snapcraft.yaml`
- Can be overridden as needed for full control

`PATH: /snap/gnome-3-34-1804-sdk/current/usr/bin:$PATH`

`XDG_DATA_DIRS: /snap/gnome-3-34-1804-sdk/current/usr/share:/usr/share:$XDG_DATA_DIRS`

`LD_LIBRARY_PATH:`

`/snap/gnome-3-34-1804-sdk/current/lib/$SNAPCRAFT_ARCH_TRIPLET:/snap/gnome-3-34-1804-sdk/current/usr/lib/$SNAPCRAFT_ARCH_TRIPLET:/snap/gnome-3-34-1804-sdk/current/usr/lib:/snap/gnome-3-34-1804-sdk/current/usr/lib/vala-current:$LD_LIBRARY_PATH`

`PKG_CONFIG_PATH:`

`/snap/gnome-3-34-1804-sdk/current/usr/lib/$SNAPCRAFT_ARCH_TRIPLET/pkgconfig:/snap/gnome-3-34-1804-sdk/current/usr/lib/pkgconfig:/snap/gnome-3-34-1804-sdk/current/usr/share/pkgconfig:$PKG_CONFIG_PATH`

`GETTEXTDATADIRS: /snap/gnome-3-34-1804-sdk/current/usr/share/gettext-current:$GETTEXTDATADIRS`

`GDK_PIXBUF_MODULE_FILE:`

`/snap/gnome-3-34-1804-sdk/current/usr/lib/$SNAPCRAFT_ARCH_TRIPLET/gdk-pixbuf-current/loaders.cache`

`GTK_USE_PORTALS: '1'`



That's neat!

What's next?



- There are many existing GNOME snaps -> keep them up to date
- Documentation improvements
- Encourage community involvement
- Expect a new extension for every GNOME release

Snap Packaging Workshop



Join us tomorrow for the Snap Packaging Workshop where we will:

- Have fun 🎉
- Talk about snap packaging
- Help with any snap packaging issues

Sala de reunions , 10am - 4pm



- Snapcraft code: <https://github.com/snapcore/snapcraft>
- Build and platform snap code: <https://gitlab.gnome.org/Community/Ubuntu/gnome-sdk/>
- Tali example:
 - Before extension: <https://gitlab.gnome.org/GNOME/tali/blob/gnome-3-32/snap/snapcraft.yaml>
 - After extension: <https://gitlab.gnome.org/GNOME/tali/blob/master/snap/snapcraft.yaml>
- Snap store, docs, and forum can all be found at <https://snapcraft.io/>
- Blog: <https://blogs.gnome.org/hellsworth/>



Thank You!

Questions?

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