Brief Outline

- 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](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-thumbnailer)
  - 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

**apps:**

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

**slots:**

- # for GtkApplication registration
- tali:
  - interface: dbus
  - bus: session
  - name: org.gnome.Tali

**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]

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

https://gitlab.gnome.org/GNOME/tali/blob/gnome-3-32/snap/snapcraft.yaml
Smaller snapcraft.yaml to maintain

- plugins:
  - 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 GnomeApplication registration
  tali:
    interface: dbus
    bus: session
    name: org.gnome.Tali

apps:
  tali:
    command: us/bin/tali
    extensions: [gnome-3-28]
    command: desktop-launch tali
    plugs:
      - desktop
      - desktop-legacy
      - gsettings
      - unity7
      - wayland
    desktop: us/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 (i.e. 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/
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
- 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?
Maintenance & Future Extensions

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

- Snapcraft code: [https://github.com/snapcore/snapcraft](https://github.com/snapcore/snapcraft)
- Build and platform snap code: [https://gitlab.gnome.org/Community/Ubuntu/gnome-sdk/](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](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](https://gitlab.gnome.org/GNOME/tali/blob/master/snap/snapcraft.yaml)
- Snap store, docs, and forum can all be found at [https://snapcraft.io/](https://snapcraft.io/)
- Blog: [https://blogs.gnome.org/hellsworth/](https://blogs.gnome.org/hellsworth/)
Thank You!

Questions?

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