Hawaii
(Maui Project)

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Maui Project
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Me

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What is this stuff?

Hawaii:

- Low footprint Wayland and QtQuick based desktop
- Less dependencies
- Adapt to different devices
- Customizable layouts, easier styling and theming

Maui:

- Small distro: GNU/Linux stack, Qt, Hawaii
- Convenient way to distribute the desktop
- Atomic and safe updates (OSTree)
- Bundles instead of packages
- Focused on Qt
Updates often gets in your way

This is during yum update: the system is in an inconsistent state

```
[plfiorini@localhost ~]$ firefox

(process:6979): GLib-CRITICAL **: g_slice_set_config: assertion 'sys_page_size = 0' failed
Error: Platform version '24.0' is not compatible with
minVersion >= 23.0.1
maxVersion <= 23.0.1
[plfiorini@localhost ~]$  
```
mauibuild

What it does now

- Written in Python, derived from gnome-ostree
- Base system built from Yocto
- Builds git repositories listed in a JSON manifest
- Can build continuously
- Outputs different trees: runtime, runtime-debug, devel, devel-debug
- Targets bare metal
- Creates live images
mauibuild

Ideas for the future

- Pick a more complete base system (e.g. Mer, Fedora)
- Build a few things from git sources
- Smoke tests and QA
Updates

- Step 1: fetch updates and apply them atomically
- Step 2: reboot into the updated system

Advantages:

- If something fails at step 1 you won't reboot into a broken system
- Updates are atomic, only one reboot
- No need for rescue partitions or BTRFS snapshots
- Ability to reboot into older version in case of regressions
- Same workflow for upgrades to the new OS release
Hawaii: philosophy

- Only support Wayland
- Minimalist UI
- Adapt to different devices and form factors
- Modular desktop with components
- Easy styling and theming thanks to QML
- Promote third party applications
- Collaborate with upstream when possible
- Reuse other libraries when possible
KDE Frameworks

- Less dependencies (especially with tier 1 libs)
- Code ready to be used, less duplication
- More people involved, more stable code
- Larger userbase
Low memory footprint

Consumes approximately 60:70 MB

Process 24817 - hawaii-desktop-shell

Summary

The process hawaii-desktop-shell (with pid 24817) is using approximately 63.7 MB of memory. It is using 58.1 MB privately, and a further 5.6 MB that is, or could be, shared with other programs. Dividing up the shared memory between all the processes sharing that memory we get a reduced shared memory usage of 28.8 MB. Adding that to the private usage, we get the above mentioned total memory footprint of 63.7 MB.

Library Usage

The memory usage of a process is found by adding up the memory usage of each of its libraries, plus the process’s own heap, stack and any other mappings, plus the stack of its 10 threads.

<table>
<thead>
<tr>
<th>Library Usage</th>
<th>Private</th>
<th>Shared</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>42496 KB</td>
<td>4524 KB</td>
</tr>
<tr>
<td>/lib/libQV8.so.5.2.0</td>
<td>9440 KB</td>
<td>3392 KB</td>
</tr>
<tr>
<td>/usr/lib/libLLVM-3.2svn.so</td>
<td>2448 KB</td>
<td>2280 KB</td>
</tr>
<tr>
<td>/usr/lib/libLLVM-3.2svn.so</td>
<td>1144 KB</td>
<td>2128 KB</td>
</tr>
<tr>
<td>/opt/hawaii/libexec/hawaii-desktop-shell</td>
<td>324 KB</td>
<td>2056 KB</td>
</tr>
</tbody>
</table>

Totals

<table>
<thead>
<tr>
<th>Total Usage</th>
<th>Private</th>
<th>Shared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>59488 KB</td>
<td>29492 KB</td>
</tr>
<tr>
<td>(clean)</td>
<td>(= 1372 KB clean + 58096 KB dirty)</td>
<td>(= 29492 KB clean + 0 KB dirty)</td>
</tr>
<tr>
<td>RSS</td>
<td>88960 KB</td>
<td>29492 KB</td>
</tr>
<tr>
<td>(Private + Shared)</td>
<td>(= Private + Shared)</td>
<td>(= Private + Shared)</td>
</tr>
<tr>
<td>PSS</td>
<td>65231 KB</td>
<td>29492 KB</td>
</tr>
<tr>
<td>(Private + Shared/Number of Processes)</td>
<td>(= Private + Shared)</td>
<td>(= Private + Shared)</td>
</tr>
</tbody>
</table>
Convergence

- Single code base
- Different layout for different devices
- QFileSelector and QQmlAbstractUrlInterceptor
Overlay styles

```qml
import QtQuick 2.0
import Hawaii.Shell.Styles.Base 1.0

OverlayStyle {
    textColor: "white"
    textShadowColor: Qt.rgba(0, 0, 0, 0.7)
    panel: Rectangle {
        border.color: Qt.rgba(0, 0, 0, 0.5)
        gradient: Gradient {
            GradientStop { position: 0.0; color: Qt.rgba(0.13, 0.13, 0.13, 0.7) }
            GradientStop { position: 0.5; color: Qt.rgba(0, 0, 0, 0.7) }
            GradientStop { position: 1.0; color: Qt.rgba(0, 0, 0, 0.7) }
        }
        radius: 6
        antialiasing: true
    }
}
```
import QtQuick 2.0
import QtGraphicalEffects 1.0
import Fluid.Ui 1.0
import Hawaii.Shell.Styles.Base 1.0

PopupStyle {
    padding { left: 8; top: 8; right: 8; bottom: 8 }
    panel: Item {
        Rectangle {
            id: border
            anchors { fill: parent; margins: 8 }
            border.color: "#999"
            radius: 6
            gradient: Gradient {
                GradientStop { position: 0.0; color: "#f4f4f4" }
                GradientStop { position: 1.0; color: "#dcdcdc" }
            }
            visible: false
        }
    }
}
Popup style 2/2

```qml
NoiseBackground {
    anchors { fill: parent; margins: 3 }
    gradient: Gradient {
       GradientStop { position: 0.0; color: "#f4f4f4" }
       GradientStop { position: 1.0; color: "#dcdcdc" }
    }
}

DropShadow {
    anchors.fill: border; source: border
    radius: 8; samples: 16
    fast: true
    spread: 0
    color: Qt.rgba(0, 0, 0, 0.5)
    transparentBorder: true
}
```
Features on 0.2.0

- Multiple screens support without primary and secondary outputs
- Launcher, Panel and AppChooser on multiple pages
- Background with crossfade effect
- Modal dialogs, overlays and popups
- Multiple workspaces and switcher
- Windows switcher and Exposé-like presentation
- Lock screen
- PolicyKit agent
- Notifications
- Volume control keys
- Grouped indicators and consolidated menu
- Style API 0.1
Features for upcoming version

- Switch between different layouts
- First step towards desktop and mobile convergence
- Customizable layouts
- Loadable elements
- Replaceable components (lock screen, ...)
- More modularization
- Screen saver
- Animated wallpapers
- Workspaces overview
- Dropdown windows
- Weston 1.4 support
- Possibly more core apps: Weather and Cinema
What's next?

- Port SDDM to Wayland
- Improved applications and task management
- Freedesktop.org Notifications 1.2
- More preference modules: keyboard, mouse, screens, ...
How do I get it?

- Sources: github.com/mauios
- AUR packages for Arch Linux
- Binary packages for Arch Linux (x86_64) always updated
- On going effort on Mer
- Fedora: coming soon
What you can do to contribute

- Coding (Qt, QML, C/C++)
- UI, styles and Web design
- Graphics (icon themes and such)
- Wallpapers
- Writing documentation (HIG, wiki, manuals, ...)
- Web site (HTML and CSS)
- Help organizing a community space with forums
- Videos and marketing stuff
- Spread the word
- Donate some money
- Donate hardware, server, hosting
- Sponsor development
Thank You!

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