DBUS

Sources: Wikipedia, D-Bus Specification, Cardinal Peak

D-BUS is an Inter-Process Communication (IPC) specification. Communication is possible via multiple Transports (e.g., Unix sockets, systemd, TCP sockets).

Default D-Bus message buses:

- System-wide instance / message bus (see `/usr/share/dbus-1/system.conf` or `dbus-monitor --system`)
- User-session-specific instance / message bus (see `/usr/share/dbus-1/session.conf` or `dbus-monitor --session`)

Monitor DBUS signals: `dbus-monitor`

DBUS Implementations

- GDBus (Gnome)
- QT/KDE D-Bus
- dbus-broker (default on Arch)

dbus-broker

Source: dbus-broker package

- Each dbus-broker instance provides a message bus
- Each dbus-broker instance gets started by a parent process (*Controller*) (e.g., dbus-broker-launch)
- dbus-broker only implements message mediation (bus setup and external communication needs to be handled by the *Controller*.
- The *Controller* hands over a unix socket (as file descriptor *FD*) to the dbus-broker instance (`--controller=FD`)
- The unix socket is used by dbus-broker to accept control commands from the *Controller* and to create interfa

dbus-broker on Arch Linux

Source: Arch Wiki

dbus

Desktop Notifications

- Send desktop notification: `notify-send test`
- Send desktop notification with icon: `notify-send -i face-glasses "test"` (icons are located in `/usr/share/icons/`)
- Monitor DBUS desktop notifications: `dbus-monitor "interface='org.freedesktop.Notifications'"`

Desktop Notification Daemons

Primary source

Daemons:

- dunst
- NotifyOSD / notify-osd

Depending on the Desktop Environment, notification daemons are built-in (Cinnamon, Gnome, KDE). Notification daemons can started standalone for other environments (e.g. i3wm). Standalone is possible via XDG autostart or as DBUS service.

Typically, DBUS service files are shipped with notification daemons, e.g., `/usr/share/dbus-1/services/org.freedesktop.Notifications.service`

Troubleshooting

Tools:

- Bustle: Recording D-Bus communication, drawing sequence diagrams, inspecting communication
- D-Spy: Inspect buses/interfaces/properties/signals.methods, execute methods (e.g., send test desktop notifications)

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