

# GammaRay

Volker Krause

[volker.krause@kdab.com](mailto:volker.krause@kdab.com)

@VolkerKrause



# Runtime introspection for Qt applications

<insert live demo here>

- GammaRay probe must match target Qt ABI
- Usually requires a self-compiled GammaRay

## What can I do with GammaRay?

<insert more live demo here>

- Signals not being emitted, or emitted too often
- Non-unique connections

- Monitor signal emissions
- Trigger signal emissions
- Inspect existing connections

- Events don't reach the desired Item
- Invisible but active Items



- Inspect item hierarchy
- Item picking
- Live property editing

- Unbatched elements
- Batches with unmerged elements

## Qt Quick 2 Scene Graph: Batch Merging

```
canMerge = (g->drawingMode() == GL_TRIANGLES || g->drawingMode() == [...])
    && b->positionAttribute >= 0
    && g->indexType() == GL_UNSIGNED_SHORT
    && (flags & (QSGMaterial::CustomCompileStep | QSGMaterial_FullMatrix)) == 0
    && ((flags & QSGMaterial::RequiresFullMatrixExceptTranslate) == 0
        || b->isTranslateOnlyToRoot())
    && b->isSafeToBatch();
```

- Inspect scene graph
- Live editing of transformations
- Runtime enabling of Qt debug output

- Widget picking
- Layout overlay
- Live property editor

- Widget picking
- Per widget paint analysis

- State machine visualization
- Live display of state machine configuration

- Buffer inspection
- Geometry visualization
- Control over backface culling
- Normal vector visualization



## Where do I get GammaRay?

- <http://www.kdab.com/gammaray/>
- Dual license: GPL/commercial
- Part of Qt Automotive Suite

Questions?