

# Bug Squashing Display Geometry & Interaction Legacy



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# Removing the DisplayGeometry

## What will be missing?

- Controlling device for all display parameters:
  - Zoomfactor, panning
  - Panning constraints
  - Automatic fitting
  - → All cameraparameters required to readjust the camera before rendering
- Methods for transforming between display and world coordinates

# Removing the DisplayGeometry

## How is it replaced?

- **New methods in CameraController:**
  - `MoveCameraToPoint(const Point2D &planePoint)`
  - `Zoom(ScalarType factor, const Point2D &zoomPointInMM)`
  - `Fit()`
  - `ScalarType GetMmPerDisplayUnits()`
  - `AdjustCameraToPlane()`
- **New methods in BaseRenderer:**
  - `DisplayToWorld(const Point2D& displayPoint, Point3D& worldIndex)`
  - `DisplayToPlane(const Point2D& displayPoint, Point2D& planePointInMM)`
  - `WorldToDisplay(const Point3D& worldIndex, Point2D& displayPoint)`
  - `PlaneToDisplay(const Point2D& planePointInMM, Point2D& displayPoint)`

# Removing the DisplayGeometry

## Example

The new usage will be:

```
renderer->WorldToDisplay(p, pt2d);
```

to replace the old code:

```
displayGeometry->Project(p, projected_p);  
displayGeometry->Map(projected_p, pt2d);  
displayGeometry->WorldToDisplay(pt2d, pt2d);
```

# Interaction – Legacy Removal I

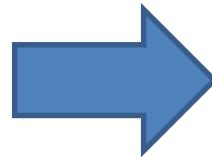
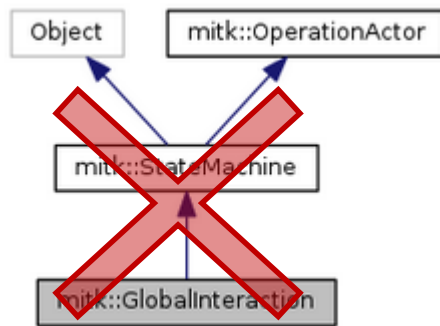
```
void QmitkRenderWindow::mousePressEvent(QMouseEvent *me)
{
    //Get mouse position in vtk display coordinate system. me contains qt display infos...
    mitk::Point2D displayPos = GetMousePosition(me);

    mitk::MouseEvent::Pointer mPressEvent = mitk::MouseEvent::New(m_Renderer,
                                                                    displayPos,
                                                                    GetButtonState(me),
                                                                    GetModifiers(me), GetEventButton(me));

    if (!this->HandleEvent(mPressEvent.GetPointer()))
    {
        QTKWidget::mousePressEvent(me);
    }

    if (m_ResendQtEvents)
        me->ignore();
}
```

# Interaction – Legacy Removal II



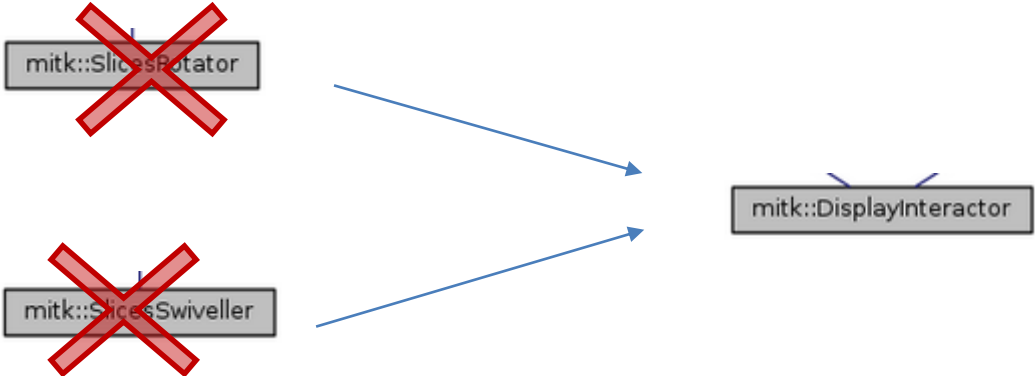
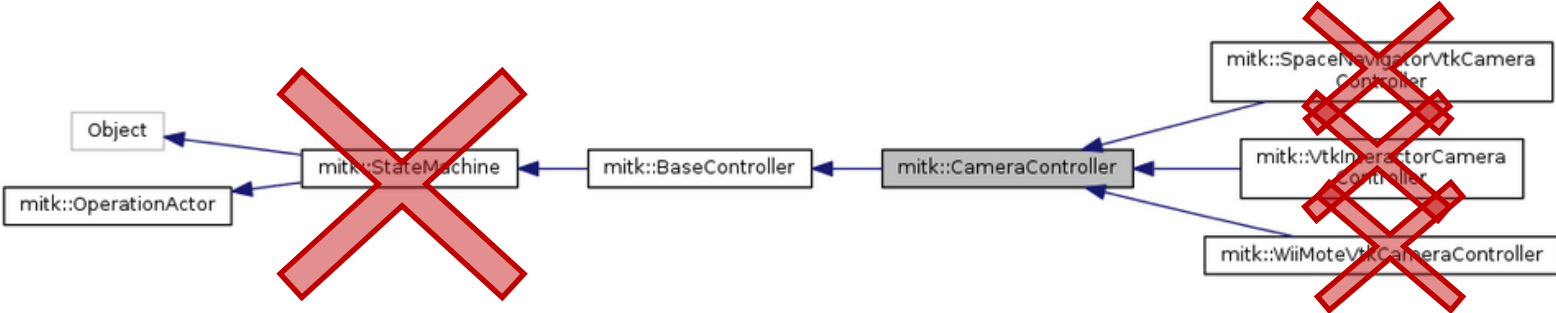
mitk::Dispatcher  
mitk::DataInteractor

How to use „new“ System

<http://docs.mitk.org/nightly-qt4/InteractionMigration.html>

<http://docs.mitk.org/nightly-qt4/Step10Page.htm>

# Interaction – Legacy Removal „while we’re at it ...“



Basic Interaction with 2d RenderWindows is controlled in one place.

## After successful testing the next steps are

- Master Integration
- Documentation Updates
- Automated Testing



A photograph of the German Cancer Research Center (DKFZ) building, a modern multi-story structure with a central glass tower and balconies. In the foreground, there is a paved courtyard with several water fountains and orange benches. The sky is blue with some clouds.

Thank you  
for your attention!

Further information on [www.dkfz.de](http://www.dkfz.de)

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