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UI Widgets in MITK

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- many UI components are needed in multiple applications
- thus, creating reusable UI components will avoid duplicated code and save time/effort for programmers
- new widgets can easily be implemented by using the concept of QT widgets
- using widgets is also simple by using the QT designer

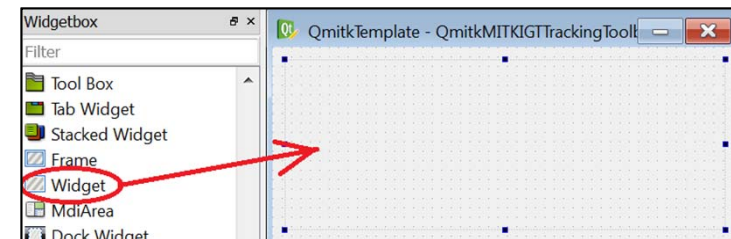


- How to use UI Widgets in MITK
- How to create UI Widgets in MITK
- Overview of Widgets currently available

1. Remember class name and header file of the widget you want use

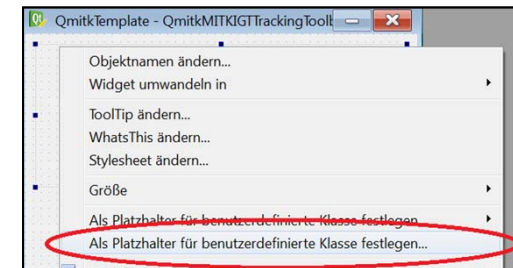
```
header: QmitkTrackingDeviceConfigurationWidget.h  
class: QmitkTrackingDeviceConfigurationWidget
```

2. Open the UI file of your MITK Plugin where you want to use the widget

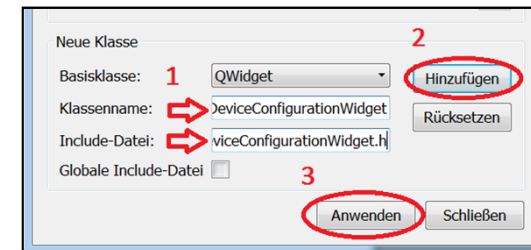


3. Insert a placeholder for the widget, e.g. a QT Widget

4. Right click on your placeholder and click „Use as placeholder for userdefined class“



5. (1) Fill in file header and class name, (2) click „add“, (3) click „use“



➔ *You can access your widget object in the source code of your Plugin via `m_Controls->[NameOfThePlaceholder]`*

1. Create a class which inherits from QWidget
2. Create a corresponding UI file
3. Add your class files and your UI file to the „files.cmake“ of your module / bundle

```
#include <QWidget>
#include "MitkIGTUIExports.h" //this widget is for the module IGTUI
#include "ui_QmitkYourWidgetControls.h"

/** Documentation:
 * \brief DO YOUR DOCUMENTATION HERE! */
class MitkIGTUI_EXPORT QmitkYourWidget : public QWidget
{
    Q_OBJECT

public:
    static const std::string VIEW_ID;

    QmitkYourWidget(QWidget* parent = 0, Qt::WindowFlags f = 0);
    ~QmitkYourWidget();
};
```

example header file

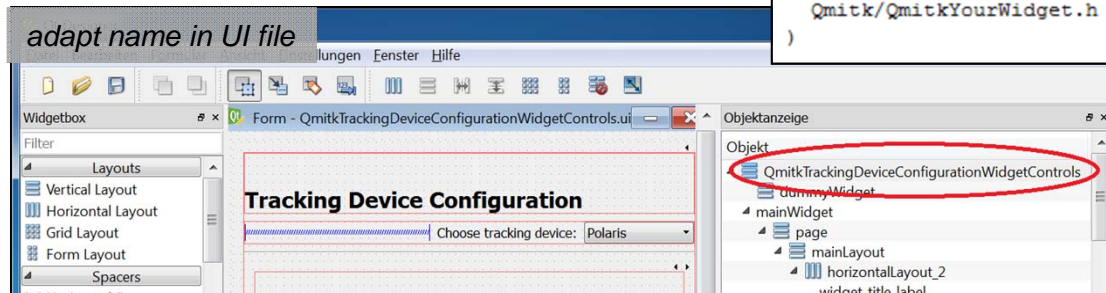
```
SET(CPP_FILES
[...]
    Qmitk/QmitkYourWidget.cpp
)

SET(UI_FILES
[...]
    Qmitk/QmitkYourWidget.ui
)

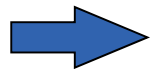
SET(MOC_H_FILES
[...]
    Qmitk/QmitkYourWidget.h
)
```

example files.cmake

this says the compiler to create the ui_.controls.h*

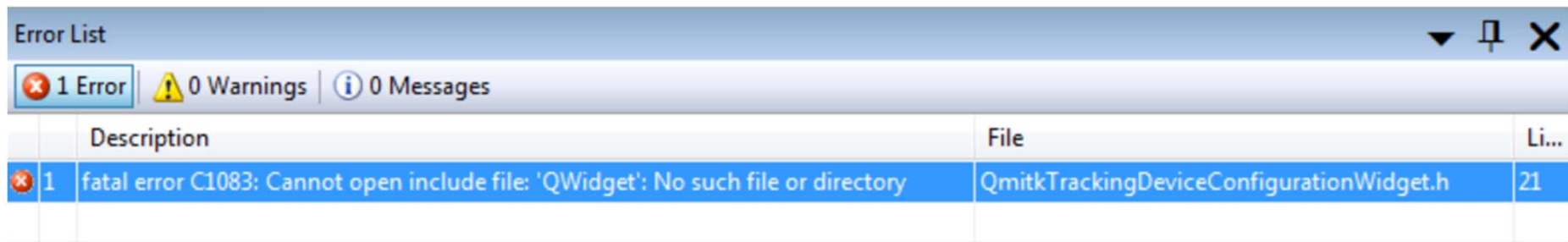


- Module CoreUI: basic MITK widgets
- Module ToFUI: widgets for Time of Flight cameras / ToF image processing
- Module IGTUI: widgets for Image Guided Surgery (e.g. tracking systems)
- Module RigidRegistrationUI: widgets for rigid image registration
- Module DeformableRegistrationUI: widgets for deformable image registration
- Bundle org.mitk.gui.qt.diffusionimaging: widgets for diffusion imaging



Don't forget included libraries which may also have widgets which you can use easily (e.g. CTK widgets)

A new widget was added to a module (assume that the header and class file are ok) ... but an error occurred while compiling:



The screenshot shows an IDE window titled "Error List". At the top, it indicates "1 Error", "0 Warnings", and "0 Messages". Below this is a table with the following content:

	Description	File	Li...
1	fatal error C1083: Cannot open include file: 'QWidget': No such file or directory	QmitkTrackingDeviceConfigurationWidget.h	21

What is the problem?

1. Cmake didn't run before compiling.
2. The module dependency „Qmitk“ is missing.
3. The UI file is missing.
4. The cmake variable MITK_USE_QT was false