# Standalone Applications

To follow this tutorial you should have finished the previous chapter, Custom Apps and Plugins.

BPS standalone applications are exe programs that can run without the BPS workplace. Some example of standard standalone applications are the `bps.exe` and `gui.exe` script interpreters, or `reportspooler.exe`.

A regular exe becomes a BPS application by using the library `bpscore` or `bpsgui`. The libbray link files are found in the `lib` subdirectory of the BPS installation, the include files are located in subdirectory `include` and the DLL's are found in the `bin` subdirectory.

Before we start with our basic test lets create some more feature files to let the subprojects find the include and lib files.

#### bpscore.prf

Adds the `bpscore` library. Use this for command line (non-GUI) standalone applications.

```
load(bpsinit.prf)
LIBS += "$$bpsdir/lib/bpscore.lib"
INCLUDEPATH += $$bpsdir/include
```

#### bpsgui.prf

Adds the `bpsgui` library. Use this for all plugins and standalone applications with a GUI interface.

```
load(bpscore.prf)
LIBS += "$$bpsdir/lib/bpsgui.lib"
INCLUDEPATH += $$bpsdir/include
```

#### bpsexe.prf

Makes that a built exe file is copied to the `bin` folder of the proper bps installation.

```
load(bpsinit.prf)
QMAKE_POST_LINK += \
    xcopy /y /q $$shell_path($$DESTDIR/$$join(TARGET,,,.exe))
$$shell_path($$bpsdir/bin/*)
```

## Hello EXE

- Right-click on the main project (`custom`) and run *New Subproject...* to start the *New Subproject* wizard.

- Page *Choose a template*
  - `Application`
  - `Qt Widgets Application`
  - *Choose...*
- Page *Introduction and Project Location*
  - Name: `hello`
  - Create in: `C:\dev\mybps\custom`
  - *Next*
- Page *Class Information*
  - Class name: `MainWindow`
  - Base class: `QMainWindow`
  - Header file: `mainwindow.h`
  - Source file: `mainwindow.cpp`
  - Generate form: [ ] (no)
  - *Next*
- Page *Project Management*
  - *Finish*

This creates the new subproject `hello` with the qmake file `hello.pro` and the source files `main.cpp`, `mainwindow.cpp` and `mainwindow.h`.

Edit `hello.pro` to:

```
TARGET = hello
TEMPLATE = app

QT += core gui widgets

CONFIG += bpsexe bpsgui

SOURCES += \
    main.cpp\
    mainwindow.cpp

HEADERS += \
    mainwindow.h
```

By adding `bpsexe` and `bpsgui` to the `CONFIG` variable we include the feature files `bpsexe.prf` and `bpsgui.prf` directly, and the feature files `bpscore.prf` and `bpsinit.prf` indirectly.

Edit `main.cpp` to:

```
#include "mainwindow.h"
#include <bpsapplication.h>

int main(int argc, char *argv[])
{
    BpsApplication a(argc, argv);
    MainWindow w;
    w.show();
    return a.exec();
```

```
}
```

We here just exchange `QApplication` by `BpsApplication`. Technically this very simple example might also work without this change, but we generally should use `BpsApplication` in our standalone BPS applications to be able to fully use all BPS methods and functions.

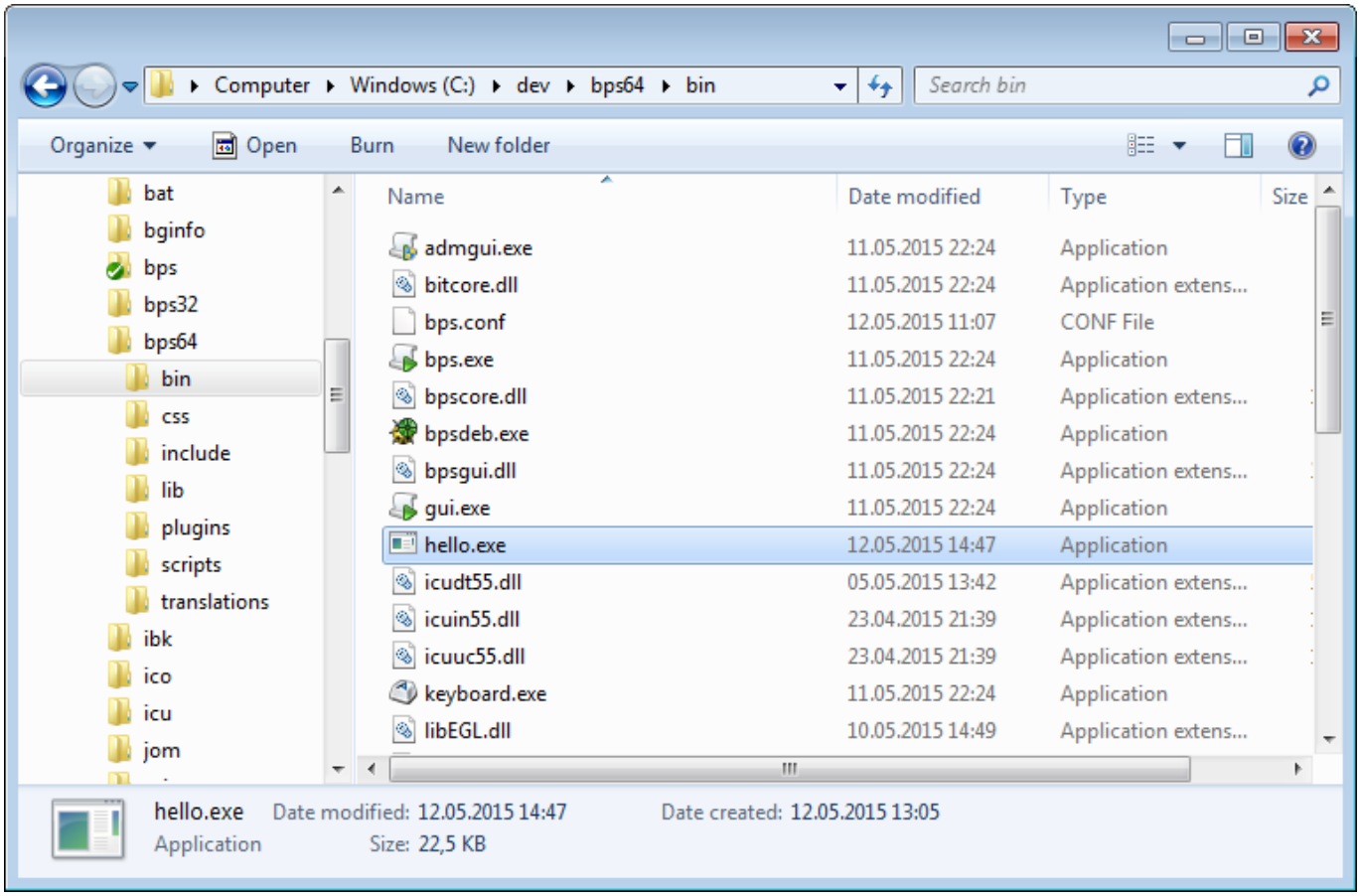
Edit `mainwindow.cpp` to:

```
#include "mainwindow.h"
#include <bpsgui.h>
#include <QLabel>

MainWindow::MainWindow(QWidget *parent)
    : QMainWindow(parent)
{
    setWindowTitle(tr("Hello BPS"));
    QLabel* label = new QLabel;
    label->setPixmap(bpsGui->pixmap(bStr("gears_run"), 64));
    label->setAlignment(Qt::AlignCenter);
    setCentralWidget(label);
}

MainWindow::~MainWindow()
{
}
```

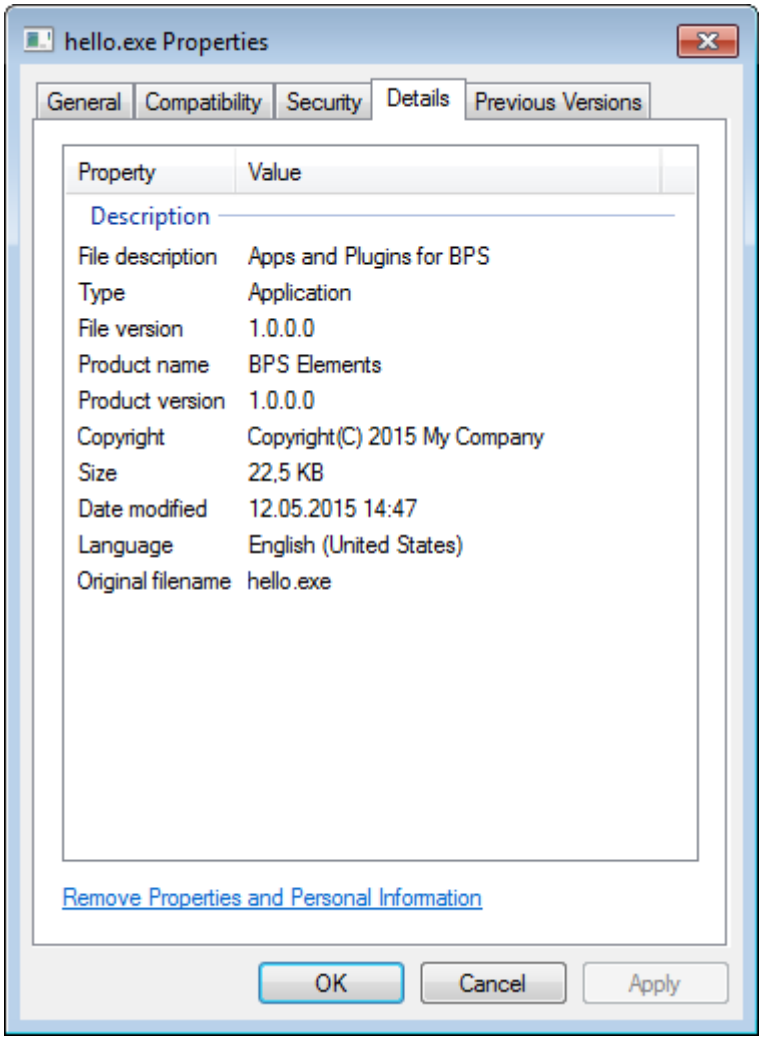
This looks a bit more interesting but you might not understand everything unless you are already familiar with Qt. The `bpsGui` class is used here to set the pixel map of a label, which is shown as the central widget of a main window.

This is a good time to start learning the details and dive into general Qt development and the special BPS classes. The Qt documentation is integrated in the help of Qt Creator and is also available online. The BPS C++ documentation is also available online.

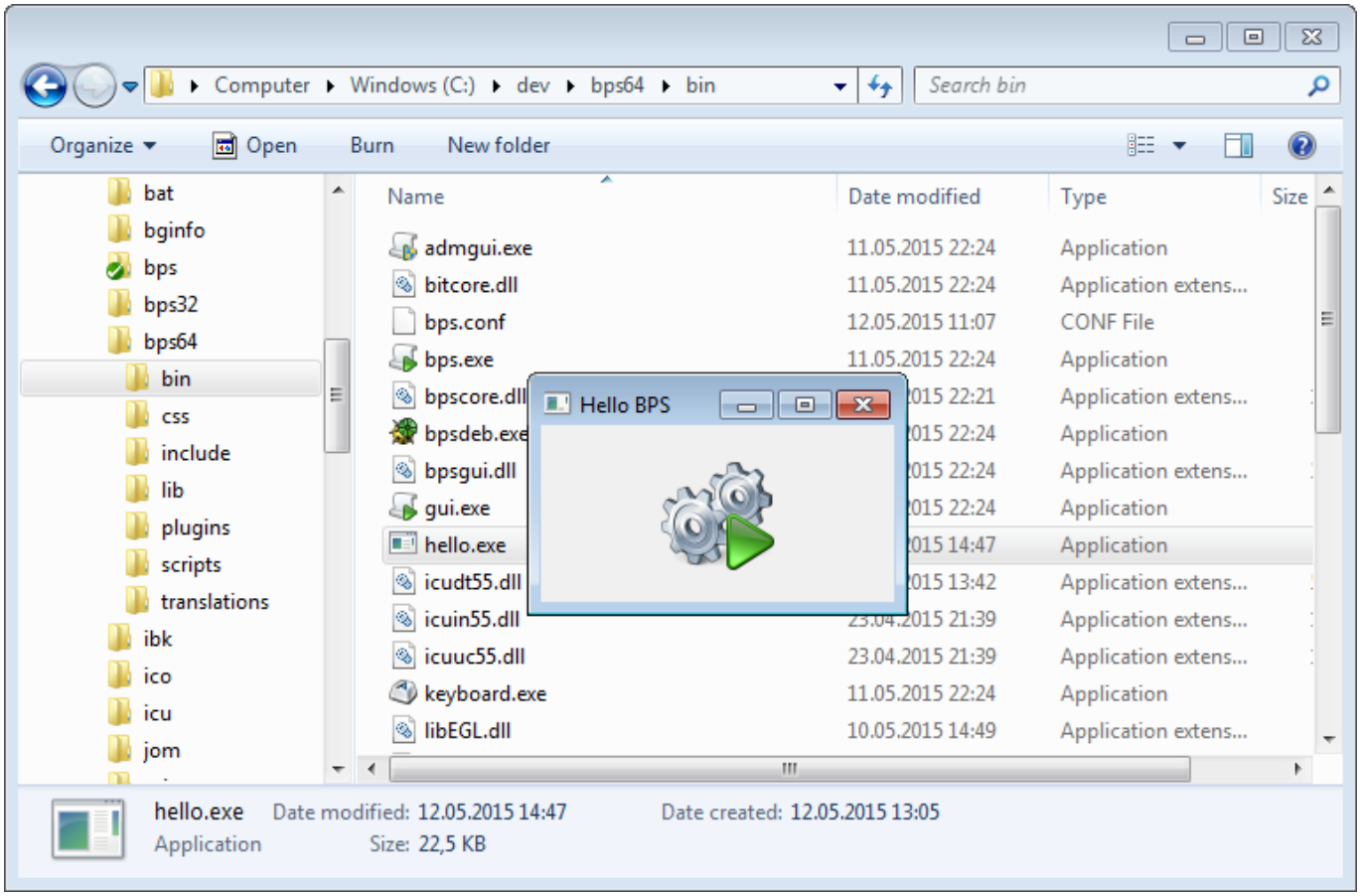
Press Ctrl+Shift+B to build all. Try to resolve possible issues by checking that you really followed all instructions exactly. Finally the program `hello.exe` should be created in the `bin` directory of your BPS installation:




In the *Details* of the files properties you can find some information that we have set in `bpsinit.prf`:




Finally run the new application to see if it works:




Congratulation, you have successfully created your first BPS application.

Continue from here with Application Plugins.

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