C++ Code Generation with GRC

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About Me

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- ESA Summer of Code in Space participant, summer 2017

GRC

- A graphical tool to build GNU Radio applications
- Flowgraphs
- .grc file format
- Generates Python files

GRC

- A graphical tool to build GNU Radio applications
- Flowgraphs
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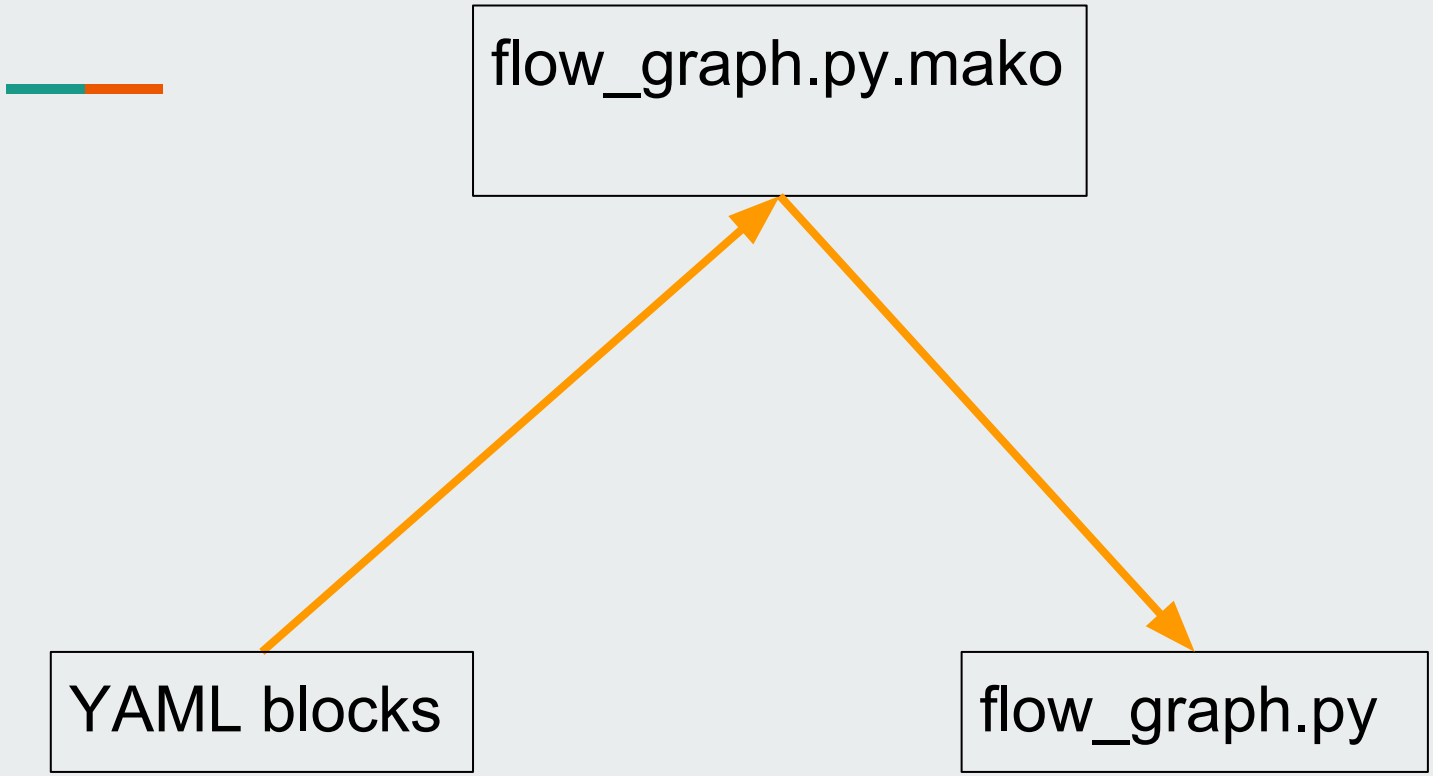
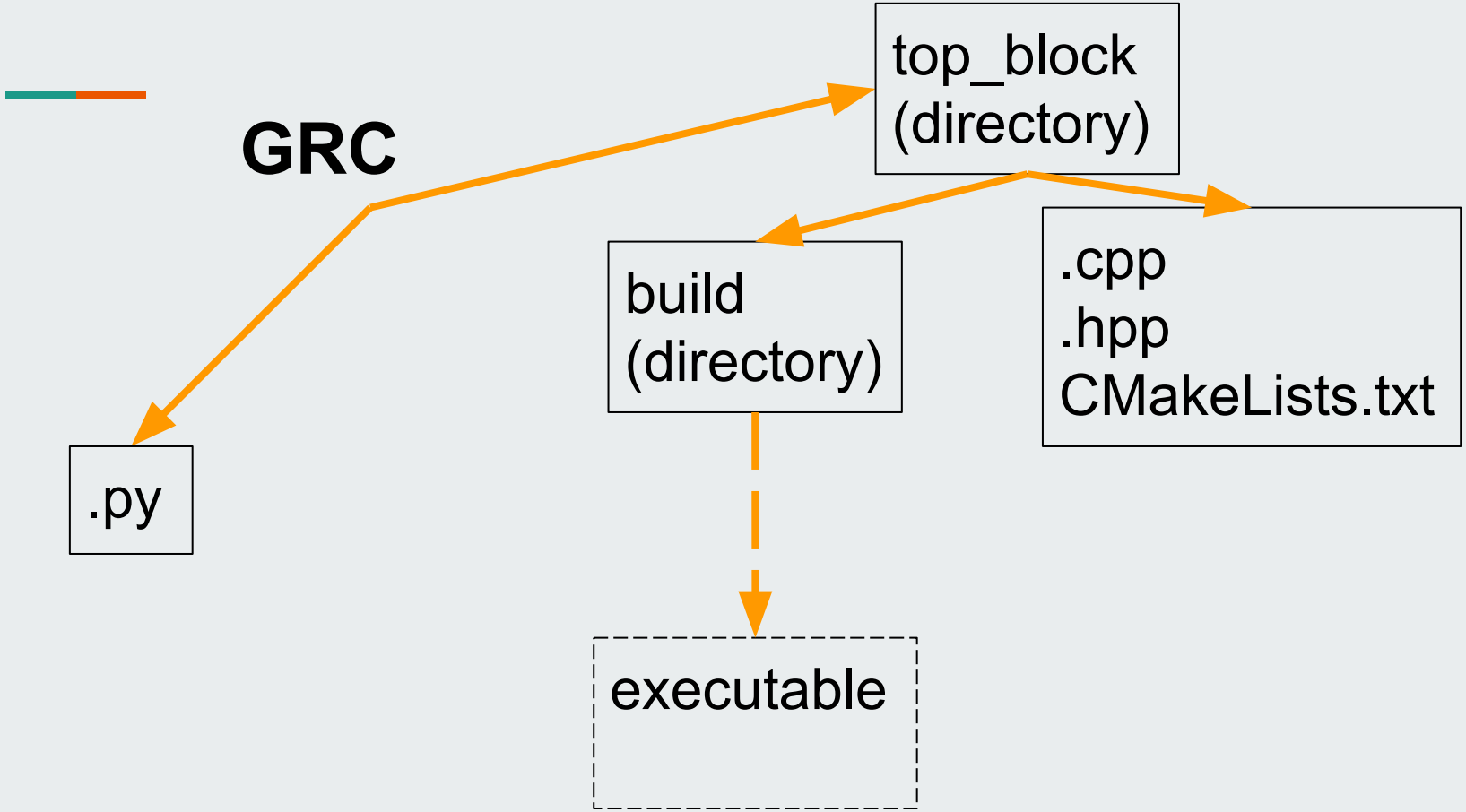
- Generates Python **and C++** files


flow_graph.py.mako
YAML blocks
flow_graph.py


GRC
top_block
(directory)
build
(directory)
.cpp
.hpp
CMakeLists.txt
.py
executable

```
templates:
    imports: from gnuradio import blocks
    make: blocks.add_v${type.fcn}(${vlen})

cpp_templates:
    includes: ['#include <gnuradio/blocks/add_v${type.fcn}.h>']
    declarations: 'blocks::add_v${type.fcn}::sptr ${id};'
    make: 'this->${id} = blocks::add_v${type.fcn}::make(${vlen});'
```

C++

```
{
    this->blocks_add_xx_0 = blocks::add_vcc::make(1);
}
```

Python

```
self.blocks_add_xx_0 = blocks.add_vcc(1)
self.analog_sig_source_x_1 = analog.sig_source_c(samp_rate, analog.GR_COS_WAVE, 1000, 1, 0)
```

More on cpp_templates

- Callbacks
- Link
- Translations

What Doesn’t Work Yet?

- Hierarchical blocks
- QT, UHD
- Large block tree

~~So Now We Can Stop Using Python :)~~

Demo