RTT Cheat Sheet

RTT v2.5 / sheet v1.3

C++ Implementation

TaskContext

1 component type == 1 TaskContext

```
#include <rtt/RTT.hpp>
using namespace RTT;

class MyComp : public TaskContext
{
    public:
    MyComp(string name)
        : TaskContext(name,
                      PreOperational)
    {}
};

ORO_CREATE_COMPONENT(MyComp)
```

Defining Operations

```
// class member Function:
bool checkFoo(double arg) { .... }

// in constructor or configureHook():
addOperation("checkFoo",
             &MyComp::checkFoo, this)
             .doc("...").arg("arg","...");

// Add C function:
addOperation("cFoo",
             &cFoo)
             .doc("...").arg("arg","...");

// Execute in own thread:
addOperation("checkFoo",
             &MyComp::checkFoo, this
             OwnThread)
             .doc("...").arg("arg","...");
```

Calling Operations

```
// class member:
OperationCaller<bool(double)> cFoo;

// in configureHook():
if ( getPeer("Foo") )
   cFoo = getPeer("Foo")
        ->getOperation("checkFoo");

if ( cFoo.ready() )
   bool ret = cFoo( 1.234 );
```

Properties

```
// class member variable:
int myprop;

// in constructor or configureHook():
addProperty("myprop",myprop).doc("...");
```

Input Ports

```
// class member variable:
InputPort<Type> name;


// in constructor or configureHook():
addPort("name",name).doc("...");
addEventPort("name",name).doc("...");

Type sample;
if (name.read(sample) != RTT::NoData)
{
   // either a new, or an already-read
   // sample on name.
}
if (name.read(sample) == RTT::NewData)
{
   // there was a never-read sample
   // on name
}
if (name.connected())
{
   // do something only if the port
   // is connected
}
```

Output Ports

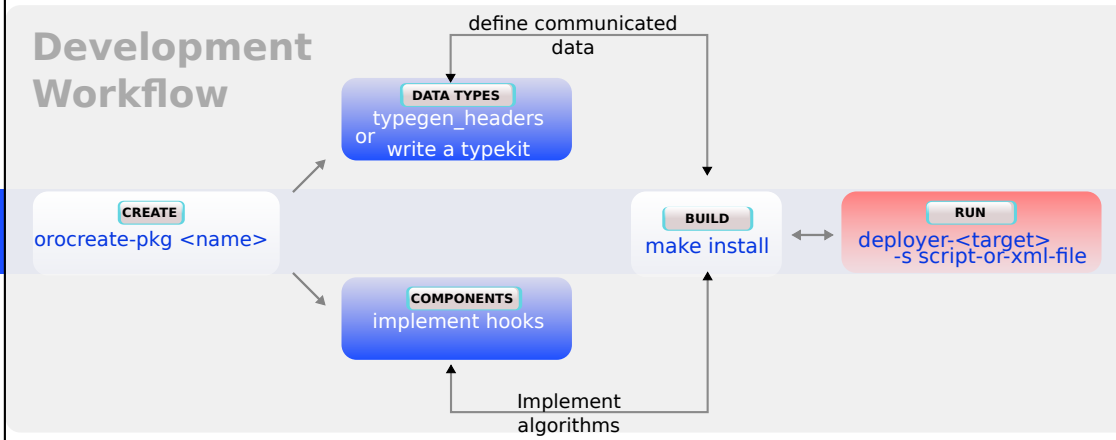
```
// class member variable:
OutputPort<Type> name;

// in constructor or configureHook():
addPort("name",name).doc("...");

Type sample;
// write data into 'sample'
name.write(sample);


if (name.connected())
{
   // do something only if the port
   // is connected
}
```

Development Workflow



UseOrocos-RTT.cmake

You may mix these Orocos specific macros with standard CMake commands. A CMake TARGET name is created for each 'name' argument.

orocos_component(name files.cpp)*
Creates a component library

orocos_install_headers(headers.hpp)*
Installs headers in include/orocos/projectname during 'make install'

orocos_typegen_headers(datatypes.hpp)
Creates one typekit from data types compatible with the typegen tool

orocos_library(name files.cpp)*
Creates a support library (no components)

orocos_service(name files.cpp)*
Creates a service library containing one service

orocos_plugin(name files.cpp)*
Creates a plugin library containing one plugin

orocos_typekit(name files.cpp)*
Compiles a hand written typekit

orocos_generate_package( )
Last statement which generates & installs a .pc file

*Takes optional INSTALL path argument.

Package Layout

```
prefix/
  include/orocos/package/headers.hpp
  lib/                          support libraries
     orocos/                    global components
       package/                 component package
          componentlib.so       component libraries
          types/                typekits and transports
          plugins/              services and plugins
```

import("package")
in RTT_COMPONENT_PATH or using path("prefix/lib/orocos")

Deployment scripts

import("package")
Imports all component libraries from a package located in your component path

path("prefix/lib/orocos")
Adds a directory to your component path

displayComponentTypes()
Prints all imported component types

loadComponent("Name","Type")
Creates a new component (or proxy to existing component if Type is "CORBA")

loadService("Component","Service")
Loads a service in a component

TaskBrowser

.types
Prints all known types

.services
Prints all known services

cd Name
Changes to a component

help [service|operation]
Help

ls [Peer]
Lists interface of current or peer component

.provide <servicename>
Adds a service to the current component