Crcl 2 Ros Workspace

This repository contains C++ code that provides a CRCL XML streaming and parsing component, that maps command and status motion primitives from CRCL to ROS, then uses ROS moveit to plan motion trajectories that are then simulated in Gazebo.

# Requirements

* Ubuntu 16.04 Trusty
* Gazebo 7 (to allow gazebo\_ros\_api packages)
* ROS 1 Kinetic
* CodeSynthesis, Xerces XML tools
* Gnu C++ compiler
* moveit

# Installation

Clone the crcl2ros repository and change to its main subfolder.

# Building

> catkin build -DCMAKE\_BUILD\_TYPE=Debug

It is suggested to use a Debug compilation so you can then attach to the running crclapp in Qt IDE to debug.

# Running

> source devel/setup.bash

> roslaunch fanuc\_lrmate200id\_support top.launch

# Notes on CRCL XML C++ Components

# Installing Xerces C with Ubuntu

<https://www.daniweb.com/hardware-and-software/linux-and-unix/threads/409769/ubuntu-11-10-xerces-c> As far as I'm aware libxerces is the same as pretty much any other library in Debian based systems. It should be available in the repositories (the exact version will depend on which version of Ubuntu you're running).

You can use apt-get to install the packages for the library and the dev files. Then to use them in your C/C++ programs you simply #include the appropriate headers and link with the library when compiling/linking.

sudo apt-get update

apt-cache search libxerces

sudo apt-get install libxerces-c3.1 libxerces-c-dev

Need include file path CMakeLists.txt:

include\_directories(/usr/include/xercesc)

Link library in CMakeLists.txt:

link\_directories(/usr/lib/x86\_64-linux-gnu/)

Need to link against libxerces.a in CMakeLists.txt:

target\_link\_libraries(nist\_fanuc

libxerces-c.a

${catkin\_LIBRARIES}

${Boost\_LIBRARIES}

)

## Installing CodeSynthesis XSD

<http://www.codesynthesis.com/products/xsd/download.xhtml>

1. Chose the linux deb install file that matches your computer (below 64 bit amd).
2. Download xsd\_4.0.0-1\_amd64.deb and it will say open with Ubuntu Software Center
3. Click to install, authenticate and add /usr/include/xsd/cxx/xml as include path.

Need include file path in CMakeLists.txt:

include\_directories(/usr/include/xsd/cxx/xml)

If you cannot run Ubuntu software centerto install CodeSynthesis, you can download the source and install it. You need to go to the web page: <http://www.codesynthesis.com/products/xsd/download.xhtml> and select:

xsd-4.0.0-x86\_64-linux-gnu.tar.bz2

It will be saved into /usr/local/downloads, but you can save it anywhere. Then cd to where you saved it, and do this:

tar --bzip2 -xvf xsd-4.0.0-x86\_64-linux-gnu.tar.bz2 (dash-dash bzip2, dash-xvf)

It will create a directory xsd-4.0.0-x86\_64-linux-gnu.

Make a symbolic link:

ln -s <path/to/xsd-4.0.0-x86\_64-linux-gnu/libxsd/xsd /usr/local/include/xsd

e.g., ln -s /usr/local/xsd-4.0.0-x86\_64-linux-gnu/libxsd/xsd /usr/local/include/xsd