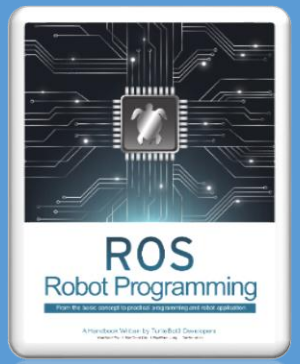
# Configuring the ROS Development Environment

ROBOTIS KAIST

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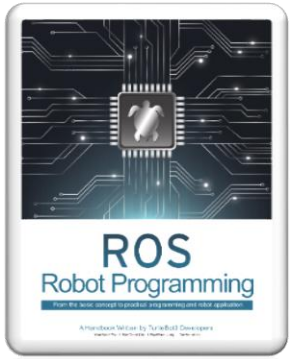



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# ROS Installation & Test

# ROS 1 Line Installation (1line is a little longer...)

```
wget https://raw.githubusercontent.com/ROBOTIS-GIT/robotis_tools/master/install_ros_kinetic.sh && chmod 755 ./install_ros_kinetic.sh && bash ./install_ros_kinetic.sh
```

# ROS 1 Line Installation (1line is a little longer...)

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wget https://raw.githubusercontent.com/ROBOTIS-GIT/robotis_tools/master/install_ros_kinetic.sh && chmod 755 ./install_ros_kinetic.sh && bash ./install_ros_kinetic.sh
```

***How about it, easy?***

# ROS Manual Installation

- ROS Installation
  - http://wiki.ros.org/kinetic/Installation/Ubuntu

- ROS Environment Setting
  - http://wiki.ros.org/ROS/Tutorials/InstallingandConfiguringROSEnvironment

# ROS Environment Setting

‘ $ nano ~/.bashrc ’ or ‘ $ eb ’

```
alias eb  =‘nano ~/.bashrc'
alias sb  ='source ~/.bashrc'
alias cw ='cd ~/catkin_ws'
alias cs  ='cd ~/catkin_ws/src'
alias cm ='cd ~/catkin_ws && catkin_make'

source /opt/ros/kinetic/setup.bash
source ~/catkin_ws/devel/setup.bash

export ROS_MASTER_URI=http://localhost:11311
export ROS_HOSTNAME=localhost

#export ROS_MASTER_URI=http://192.168.1.100:11311
#export ROS_HOSTNAME=192.168.1.100
```

# ROS Operation Test

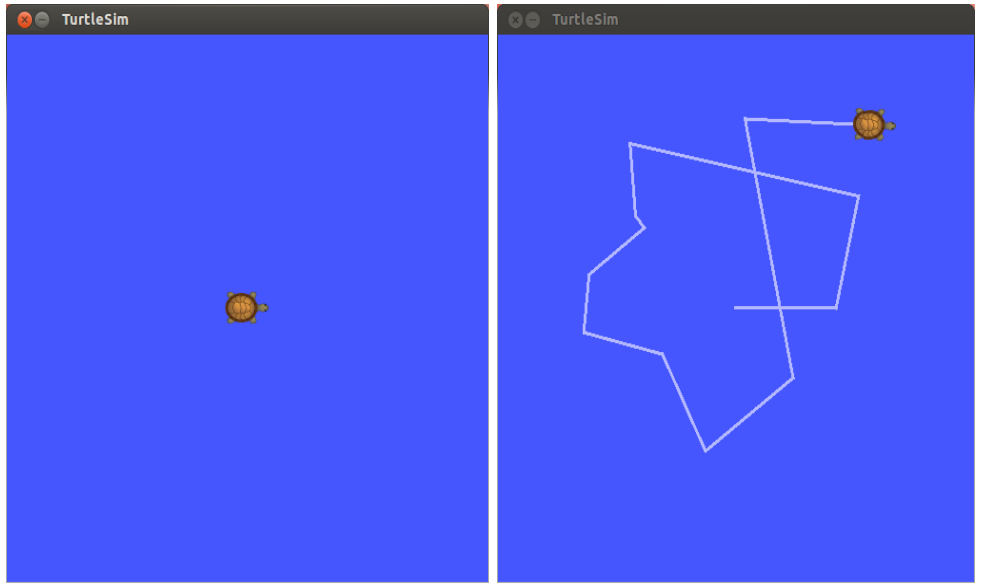
- **turtlesim package**

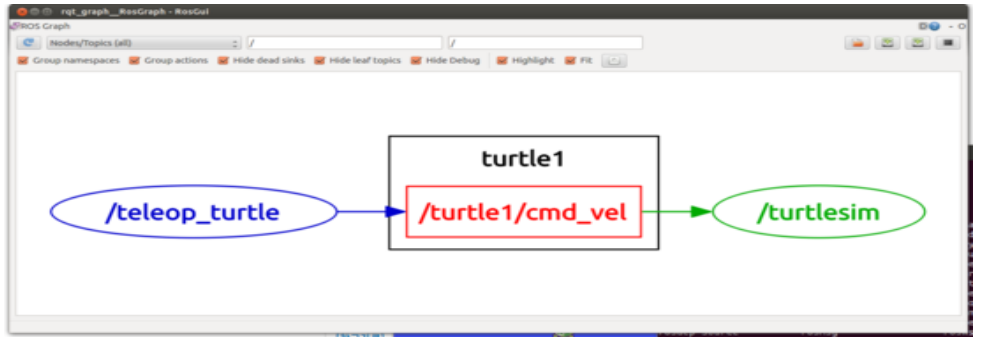
  - roscore

  - rosrun turtlesim turtlesim_node

  - rosrun turtlesim turtle_teleop_key

  - rosrun rqt_graph rqt_graph



# Integrated Development Environment (IDE)

# Available on ROS

# Integrated Development Environment(IDE) available on ROS

- http://wiki.ros.org/IDEs

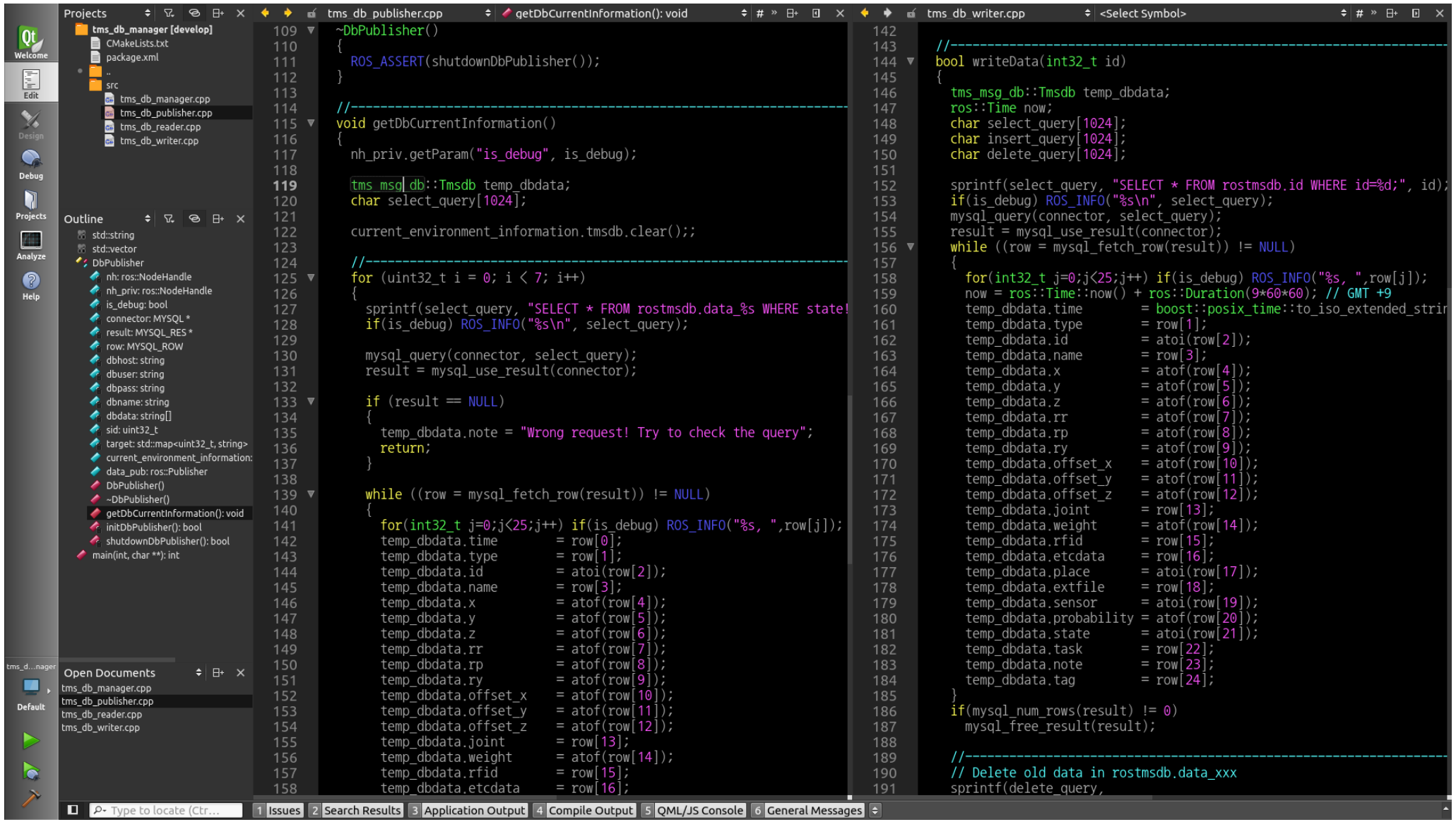
- Recommendation 1 : **Qtcreator** + Qt Creator Plugin for ROS
  - Install: sudo apt-get install qtcreator
  - Advantage: Can be Used as 'CmakeLists.txt', Easy to develop 'rqt plug-in' & 'GUI'

- Recommendation 2 : **Visual Studio Code** + ROS Extension
  - Install: https://code.visualstudio.com/
  - Advantage: A light text editor oriented, Fast
  - Similar to 'Atom', 'Sublime Text', 'Clion' etc.

- Recommendation 3 : **Eclipse**
  - Install: http://www.eclipse.org/
  - Advantage: A familiar IDE that many people use (but, Heavy!)

http://wiki.ros.org/IDEs

# Integrated Development Environment(IDE) available on ROS




```
~DbPublisher()
{
  ROS_ASSERT(shutdownDbPublisher());
}

//---------------------------------------------------------------------
void getDbCurrentInformation()
{
  nh_priv.getParam("is_debug", is_debug);

  tms_msg_db::Tmsdb temp_dbdata;
  char select_query[1024];

  current_environment_information.tmsdb.clear();;

  //---------------------------------------------------------------------
  for (uint32_t i = 0; i < 7; i++)
  {
    sprintf(select_query, "SELECT * FROM rostmsdb.data_%s WHERE state!
    if(is_debug) ROS_INFO("%s\n", select_query);

    mysql_query(connector, select_query);
    result = mysql_use_result(connector);

    if (result == NULL)
    {
      temp_dbdata.note = "Wrong request! Try to check the query";
      return;
    }

    while ((row = mysql_fetch_row(result)) != NULL)
    {
      for(int32_t j=0;j<25;j++) if(is_debug) ROS_INFO("%s, ",row[j]);
      temp_dbdata.time        = row[0];
      temp_dbdata.type        = row[1];
      temp_dbdata.id          = atoi(row[2]);
      temp_dbdata.name        = row[3];
      temp_dbdata.x           = atof(row[4]);
      temp_dbdata.y           = atof(row[5]);
      temp_dbdata.z           = atof(row[6]);
      temp_dbdata.rr          = atof(row[7]);
      temp_dbdata.rp          = atof(row[8]);
      temp_dbdata.ry          = atof(row[9]);
      temp_dbdata.offset_x    = atof(row[10]);
      temp_dbdata.offset_y    = atof(row[11]);
      temp_dbdata.offset_z    = atof(row[12]);
      temp_dbdata.joint       = row[13];
      temp_dbdata.weight      = atof(row[14]);
      temp_dbdata.rfid        = row[15];
      temp_dbdata.etcdata     = row[16];
```

```
//---------------------------------------------------------------------
bool writeData(int32_t id)
{
  tms_msg_db::Tmsdb temp_dbdata;
  ros::Time now;
  char select_query[1024];
  char insert_query[1024];
  char delete_query[1024];

  sprintf(select_query, "SELECT * FROM rostmsdb.id WHERE id=%d;", id);
  if(is_debug) ROS_INFO("%s\n", select_query);
  mysql_query(connector, select_query);
  result = mysql_use_result(connector);
  while ((row = mysql_fetch_row(result)) != NULL)
  {
    for(int32_t j=0;j<25;j++) if(is_debug) ROS_INFO("%s, ",row[j]);
    now = ros::Time::now() + ros::Duration(9*60*60); // GMT +9
    temp_dbdata.time        = boost::posix_time::to_iso_extended_strir
    temp_dbdata.type        = row[1];
    temp_dbdata.id          = atoi(row[2]);
    temp_dbdata.name        = row[3];
    temp_dbdata.x           = atof(row[4]);
    temp_dbdata.y           = atof(row[5]);
    temp_dbdata.z           = atof(row[6]);
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    temp_dbdata.joint       = row[13];
    temp_dbdata.weight      = atof(row[14]);
    temp_dbdata.rfid        = row[15];
    temp_dbdata.etcdata     = row[16];
    temp_dbdata.place       = atoi(row[17]);
    temp_dbdata.extfile     = row[18];
    temp_dbdata.sensor      = atoi(row[19]);
    temp_dbdata.probability = atof(row[20]);
    temp_dbdata.state       = atoi(row[21]);
    temp_dbdata.task        = row[22];
    temp_dbdata.note        = row[23];
    temp_dbdata.tag         = row[24];
  }
  if(mysql_num_rows(result) != 0)
    mysql_free_result(result);

  //---------------------------------------------------------------------
  // Delete old data in rostmsdb.data_xxx
  sprintf(delete_query,
```

# Question Time!

# Advertisement #1


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✓ Language:

English, Chinese, Japanese, Korean


## “ROS Robot Programming”

## A Handbook is written by TurtleBot3 Developers

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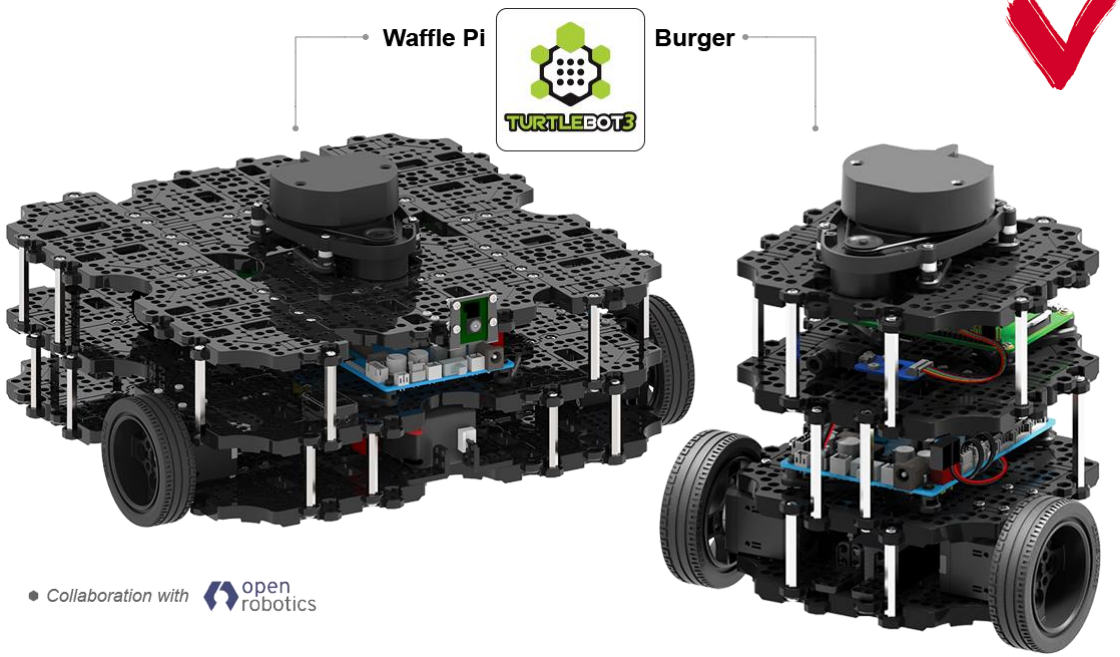

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**The ‘RobotSource’ community is the space for people making robots.**

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END.