

02/19/18 Joint States and Endpoints

```
[baxter - http://192.168.11.200:11311] tlharmanphd@D125-43873:~/ros_ws$ rostopic type /robot/joint_states sensor_msgs/JointState
```

```
[baxter - http://192.168.11.200:11311] tlharmanphd@D125-43873:~/ros_ws$ rosmmsg show sensor_msgs/JointState std_msgs/Header header uint32 seq time stamp string frame_id string[] name float64[] position float64[] velocity float64[] effort
```

sensor_msgs/JointState Message

File: sensor_msgs/JointState.msg

Raw Message Definition

```
# This is a message that holds data to describe the state of a set of torque controlled joints.
#
# The state of each joint (revolute or prismatic) is defined by:
# * the position of the joint (rad or m),
# * the velocity of the joint (rad/s or m/s) and
# * the effort that is applied in the joint (Nm or N).
#
# Each joint is uniquely identified by its name
# The header specifies the time at which the joint states were recorded. All the joint states
# in one message have to be recorded at the same time.
#
# This message consists of a multiple arrays, one for each part of the joint state.
# The goal is to make each of the fields optional. When e.g. your joints have no
# effort associated with them, you can leave the effort array empty.
#
# All arrays in this message should have the same size, or be empty.
# This is the only way to uniquely associate the joint name with the correct
# states.
```

Header header

string[] name
float64[] position
float64[] velocity
float64[] effort

Compact Message Definition

std_msgs/Header header
string[] name
float64[] position
float64[] velocity
float64[] effort

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Display All:

```
[baxter - http://192.168.11.200:11311] tlharmanphd@D125-43873:~/ros_ws$ rostopic echo /robot/joint_states -n 1
header:
  seq: 349509
  stamp:
    secs: 1519081184
    nsecs: 950857374
  frame_id: ""
name: ['head_nod', 'head_pan', 'left_e0', 'left_e1', 'left_s0', 'left_s1', 'left_w0', 'left_w1', 'left_w2', 'right_e0', 'right_e1', 'right_s0', 'right_s1', 'right_w0', 'right_w1', 'right_w2', 'torso_t0']

position: [0.0, -0.09203884727312482, -1.188068120217253, 1.9416361822659625, -0.08130098175792692, -1.0013059592922038, 0.668432128321069, 1.0281506230801987, -0.49700977527487405, 1.1654419035959431, 1.9435536582508193, 0.08436894333369775, -1.0070583872467742, -0.667281642730155, 1.0246991663074563, 0.4973932704718454, -12.565987119160338]

velocity: [0.0, 0.008246680714126275, 0.01021017612225158, 0.007461282550876154, 0.011780972448751823, 0.010995574285501701, -0.0019634954081253035, 0.007853981632501214, -0.004319689897875668, 0.022383847652628464, 0.0027488935713754254, 0.00510508806112579, 0.003141592653000486, 0.009032078877376396, 0.028274333877004374, -0.008246680714126275, 0.0]
effort: [0.0, 0.0, -9.196, -10.184, 0.84, -5.5, 0.448, 0.188, 0.204, 10.372, -10.764, -0.152, -6.432, 0.016, 0.2, 0.336, -20.48]
---
```

Display Names

```
[baxter - http://192.168.11.200:11311] tlharmanphd@D125-43873:~/ros_ws$ rostopic echo /robot/joint_states/name -n 1
```

```
['head_nod', 'head_pan', 'left_e0', 'left_e1', 'left_s0', 'left_s1', 'left_w0', 'left_w1', 'left_w2', 'right_e0', 'right_e1', 'right_s0', 'right_s1', 'right_w0', 'right_w1', 'right_w2', 'torso_t0']  
---
```

Display Position

```
[baxter - http://192.168.11.200:11311] tlharmanphd@D125-43873:~/ros_ws$ rostopic echo /robot/joint_states/position
```

```
[0.0, -0.09203884727312482, -1.1884516154142244, 1.9424031726599051, -0.08206797215186963, -1.0013059592922038, 0.6680486331240977, 1.0281506230801987, -0.49777676566881673, 1.1646749132020005, 1.9431701630538478, 0.08628641931855452, -1.007825377640717, -0.6661311571392409, 1.0246991663074563, 0.4973932704718454, -12.565987119160338]
```

Display Position of head_nod

```
[baxter - http://192.168.11.200:11311] tlharmanphd@D125-43873:~/ros_ws$ rostopic echo /robot/joint_states/position[0]
```

```
0.0  
---  
0.0  
---  
0.0  
---  
0.0  
--^C
```

Endpoints

```
[baxter - http://192.168.11.200:11311] tlharmanphd@D125-43873:~/ros_ws$ rostopic type
/robot/limb/left/endpoint_state
  baxter_core_msgs/EndpointState
```

```
[baxter - http://192.168.11.200:11311] tlharmanphd@D125-43873:~/ros_ws$ rosmmsg show
baxter_core_msgs/EndpointState
  std_msgs/Header header
    uint32 seq
    time stamp
    string frame_id
  geometry_msgs/Pose pose
    geometry_msgs/Point position
      float64 x
      float64 y
      float64 z
    geometry_msgs/Quaternion orientation
      float64 x
      float64 y
      float64 z
      float64 w
  geometry_msgs/Twist twist
    geometry_msgs/Vector3 linear
      float64 x
      float64 y
      float64 z
    geometry_msgs/Vector3 angular
      float64 x
      float64 y
      float64 z
  geometry_msgs/Wrench wrench
    geometry_msgs/Vector3 force
      float64 x
      float64 y
      float64 z
    geometry_msgs/Vector3 torque
      float64 x
      float64 y
      float64 z
```

```
[baxter - http://192.168.11.200:11311] tlharmanphd@D125-43873:~/ros_ws$ rostop echo
/robot/limb/left/endpoint_state
  header:
    seq: 605538
```

stamp:
secs: 1519083748
nsecs: 733392845
frame_id: "
pose:
position:
x: 0.579550812268
y: 0.183232206399
z: 0.10349304144
orientation:
x: 0.141358295801
y: 0.989579733963
z: 0.00953789121206
w: 0.0256673132292
twist:
linear:
x: -0.0160796523741
y: -0.00637216132426
z: -0.0051111817381
angular:
x: 0.00701126134922
y: 0.0223532177882
z: -0.0313644178707
wrench:
force:
x: -6.65309095383
y: 3.68954634666
z: 4.70780134201
torque:
x: -0.845745682716
y: -2.70209908485
z: -0.0257167369127
