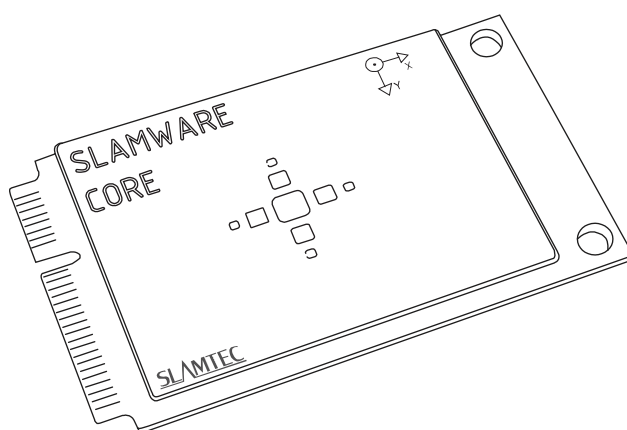


SLAMWARE

Modular Autonomous Robot Localization and Navigation Solution

Slamware_console Application Note



CONTENTS	2
SLAMWARE CONSOLE USAGE.....	3
FORMAT.....	3
AVAILABLE OPTIONS	3
COMMAND & USAGE.....	4
AVAILABLE COMMAND.....	4
BEACON.....	4
BUMPER.....	5
CONFIG.....	5
EVENT	8
MONITOR.....	9
MOTOR.....	11
POLL	11
RUN(FOR TWO-WHEEL DIFFERENTIAL MOTOR ONLY)	12
SENSOR	14
STATUS	15
TEST.....	15
VRUN(FOR TWO-WHEEL DIFFERENTIAL MOTOR AND THREE-WHEEL OMNI-DIRECTIONAL WHEEL).....	17
REVISION HISTORY	19

Format

slamware_console base [options] <command> [cmd_arguments]

Available Options

Option Name	Short Name	Description	Note
--channel	-c channel	The communication channel with the base, supported channels: serial, tcp	
--help	-h help	Show this message	
--port	-p port	Trace communication between host and base	
--trace-comm	-t trace comm	Trace communication between host and base	
--version	-v print version number	Print version number	
--host	host	The host used to communicate with the base (required for tcp channel)	

Available Command

Command Name	Description	Note
beacon	Read auto home IR beacon data	
bumper	Read bumper, cliff sensor data	
config	Read configuration from base	
event	Send Event Cmd	
monitor	Continuously read sensor data and output to the console	
motor	Read motor information, such as wheels' odometry	
poll	Poll Base Cmd	
run	Make motor run	
sensor	Read distance sensors' data, such as ultrasonic data	
status	Read base status, such as battery, charging status and etc.	
test	Test base control bus protocol	
vrun	Vector run. vrun <vx> <vy> <omega> <time>. Units: m/s m/s rad/s s	

Note: all the serial ports in the following samples are assumed as COM3.

Beacon

Read auto home IR beacon data.

Command Format

```
C:\Users\LW\Desktop\tools\slamware_console_tool>slamware_console.exe
base -c serial -p COM3 beacon
```

Returned Data Format

```
[rp.slamware.test.SlamwareConsoleApplication] [INFO] Slamware Console
1.7.0
[rp.slamware.utils.ChannelFactory] [INFO] Connecting to serial:COM3...
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Connected to
Control Bus Device at serial:COM3
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Model: ref
base
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Firmware
Version: 1.83
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Hardware
version: 0.1
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Serial Number:
C47DDDC6F19575BD90AB43C0
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Found 3
beacons and 3 probes
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Probe #0: 0:
1: 2:
```

```
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Probe #1: 0:
1:      2:

[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Probe #2: 0:
1:      2:

[rp.slamware.test.SlamwareConsoleApplication]      [INFO]      Successfully
executed command
```

Bumper

Read bumper/cliff sensor data.

Command Format

```
C:\Users\LW\Desktop\tools\slamware_console_tool>slamware_console.exe
base -c serial -p COM3 beacon
```

Returned Data Format

```
[rp.slamware.test.SlamwareConsoleApplication] [INFO] Slamware Console
1.9.0_rc1
[rp.slamware.utils.ChannelFactory] [INFO] Connecting to serial:COM3...
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Connected to
Control Bus Device at serial:COM3
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Model:  ref
base
[rp.slamware.test.SlamwareBaseConsoleApplication]      [INFO]      Firmware
Version: 0.90
[rp.slamware.test.SlamwareBaseConsoleApplication]      [INFO]      Hardware
version: 0.1
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Serial Number:
C47BDDC1F79072BD90B041C7
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Bumper/Cliff
Values:
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO]      [ ] #0
X:12.7 cm Y:10.5 mm Z:-5.0 mm Yaw:40.0deg
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO]      [ ] #2
X:16.5 cm Y:0.0 mm Z:-5.0 mm Yaw:0.0deg
[rp.slamware.test.SlamwareConsoleApplication]      [INFO]      Successfully
executed command
```

Config

Read configuration data from the base.

Command Format

```
C:\Users\LW\Desktop\tools\slamware_console_tool>slamware_console.exe
base -c serial -p COM3 config
```

Returned Data Format

```
[rp.slamware.test.SlamwareConsoleApplication] [INFO] Slamware Console
1.9.0_rc1
[rp.slamware.utils.ChannelFactory] [INFO] Connecting to serial:COM3...
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Connected to
Control Bus Device at serial:COM3
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Model:  ref
base
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Firmware
Version: 0.90
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Hardware
version: 0.1
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Serial Number:
C47BDDC1F79072BD90B041C7
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Parsed JSON:
{
  "base" : {
    "hardware_version" : 1,
    "high_battery_percentage_for_charging" : 0.6999999880790710,
    "low_battery_auto_homing" : true,
    "low_battery_percentage_for_charging" : 0.3000000119209290,
    "manufacture_id" : 255,
    "manufacture_name" : "Slamtec",
    "model_id" : 4096,
    "model_name" : "Slamware SDP",
    "robot_size" : 0.3300000131130219,
    "sensors" : [
      {
        "id" : 0,
        "installation_pose" : {
          "x" : 0.1270000040531158,
          "y" : 0.1049999967217445,
          "yaw" : 0.6981316804885864,
          "z" : -0.05000000074505806
        },
        "type" : "bumper"
      },
      {
        "id" : 1,
```

```

        "installation_pose" : {
            "x" : 0.1199999973177910,
            "y" : 0.1000000014901161,
            "yaw" : 0.6981316804885864,
            "z" : 0.05000000074505806
        },
        "type" : "sonar"
    },
]
},
"features" : {
    "has_ir_docking_tower" : false
},
"lidar" : {
    "installation_pose" : {
        "x" : 0.1099999994039536,
        "yaw" : 3.141592741012573
    }
},
"motion_plan" : {
    "bump_handle_strategy" : "default",
    "side_margin" : 0.1000000014901161
}
}
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Base Info
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO]
Manufacture: Slamtec (00FF)
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Model:
Slamware SDP (1000)
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Hardware
Version: 1
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Robot
Diameter: 33.0 cm
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Lidar
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO]
Installation Pose: 11.0 cm, 0.0 cm, 180.0 deg
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Sensors: 6
sensors
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Sensor #0:
Bumper at (12.7 cm, 10.5 cm, 40.0 deg)

```

```
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO]      Sensor #1:
Sonar at (12.0 cm, 10.0 cm, 40.0 deg)

[rp.slamware.test.SlamwareBaseConsoleApplication]      [INFO]      Motion
Planning

[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO]      Side
Margin: 10.0 cm

[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO]      Bumper
Policy: default

[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Features

[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO]      Has IR
Tower: No

[rp.slamware.test.SlamwareConsoleApplication]      [INFO]      Successfully
executed command
```

Event

Send event code to the base.

Command Format

```
C:\Users\LW\Desktop\tools\slamware_console_tool>slamware_console.exe
base -c serial -p COM3 event 97
```

Returned Data Format

```
[rp.slamware.test.SlamwareConsoleApplication] [INFO] Slamware Console
1.9.0_rc1

[rp.slamware.utils.ChannelFactory] [INFO] Connecting to serial:COM3...

[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Connected to
Control Bus Device at serial:COM3

[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Model:  ref
base

[rp.slamware.test.SlamwareBaseConsoleApplication]      [INFO]      Firmware
Version: 0.90

[rp.slamware.test.SlamwareBaseConsoleApplication]      [INFO]      Hardware
version: 0.1

[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Serial Number:
C47BDDC1F79072BD90B041C7

[rp.slamware.test.SlamwareConsoleApplication]      [INFO]      Successfully
executed command
```

Currently supported event code are as below:

Note: the event should be a decimal number. The event 97 in the above code is event 97.

Event Code	Decimal	Command Name	Description
0x61	97	LIDAR_CONN_FAIL	LIDAR connection fail.
0x62	98	LIDAR_RAMPUP_FAIL	LIDAR launch fail.
0x63	99	SYSTEM_UP_OK	The system launch successfully.
0x64	100	FIRMWARE_UPDATE	The system firmware update.
0x65	101	CORE_DISCONNECT	The system disconnected.
0x66	102	FIRMWARE_UPDATE_OK	The system firmware update successfully.
0x80	128	START_SWEEP	Inform the external system start sweeping(for vaccum robot edition only).
0x81	129	END_SWEEP	Inform the external system end sweeping(for vaccum robot edition only).

Monitor

Read sensor data continuously and display them in the terminal.

a) Read motor data

Command Format

```
C:\Users\LW\Desktop\tools\slamware_console_tool>slamware_console.exe
base -c serial -p COM3 monitor motor
```

Returned Data Format

```
[rp.slamware.test.SlamwareConsoleApplication] [INFO] Slamware Console
1.9.0_rc1
[rp.slamware.utils.ChannelFactory] [INFO] Connecting to serial:COM3...
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Connected to
Control Bus Device at serial:COM3
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Model: ref
base
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Firmware
Version: 0.90
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Hardware
version: 0.1
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Serial Number:
C47BDDC1F79072BD90B041C7
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Left Wheel:
0.0 mm Right Wheel: 0.0 mm
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Left Wheel:
0.0 mm Right Wheel: 0.0 mm
```

b) Read Bumper/cliff

Command Format

```
C:\Users\LW\Desktop\tools\slamware_console_tool>slamware_console.exe
base -c serial -p COM3 monitor bumper
```

Returned Data Format

```
[rp.slamware.test.SlamwareConsoleApplication] [INFO] Slamware Console
1.9.0_rc1
[rp.slamware.utils.ChannelFactory] [INFO] Connecting to serial:COM3...
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Connected to
Control Bus Device at serial:COM3
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Model: ref
base
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Firmware
Version: 0.90
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Hardware
version: 0.1
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Serial Number:
C47BDDC1F79072BD90B041C7
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Bumper/Cliff
Values:
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] [ ] #0
X:12.7 cm Y:10.5 mm Z:-5.0 mm Yaw:40.0deg
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] [ ] #1
X:12.7 cm Y:-10.5mm Z:-5.0 mm Yaw:320.0deg
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] [ ] #2
X:16.5 cm Y:0.0 mm Z:-5.0 mm Yaw:0.0deg
```

c) Read sonar

Command Format

```
C:\Users\LW\Desktop\tools\slamware_console_tool>slamware_console.exe
base -c serial -p COM3 monitor sensor
```

Returned Data Format

```
[rp.slamware.test.SlamwareConsoleApplication] [INFO] Slamware Console
1.9.0_rc1
[rp.slamware.utils.ChannelFactory] [INFO] Connecting to serial:COM3...
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Connected to
Control Bus Device at serial:COM3
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Model: ref
base
```

```
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Firmware
Version: 0.90
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Hardware
version: 0.1
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Serial Number:
C47BDDC1F79072BD90B041C7
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Sensor Values:
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO]          3 :
127.0mm
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO]          4 : 0.0
mm
```

Motor

Read motor odometer data.

Command Format

```
C:\Users\LW\Desktop\tools\slamware_console_tool>slamware_console.exe
base -c serial -p COM3 motor
```

Returned Data Format

```
[rp.slamware.test.SlamwareConsoleApplication] [INFO] Slamware Console
1.9.0_rc1
[rp.slamware.utils.ChannelFactory] [INFO] Connecting to serial:COM3...
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Connected to
Control Bus Device at serial:COM3
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Model: ref
base
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Firmware
Version: 0.90
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Hardware
version: 0.1
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Serial Number:
C47BDDC1F79072BD90B041C7
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Left Wheel:
0.0 mm Right Wheel: 0.0 mm
[rp.slamware.test.SlamwareConsoleApplication] [INFO] Successfully
executed command
```

Poll

Command Format

```
C:\Users\LW\Desktop\tools\slamware_console_tool>slamware_console.exe
base -c serial -p COM3 poll
```

Returned Data Format

```
[rp.slamware.test.SlamwareConsoleApplication] [INFO] Slamware Console
2.0.0_dev
[rp.slamware.utils.ChannelFactory] [INFO] Connecting to
serial:...\\.COM4...
[rp.slamware.utils.ChannelFactory] [DEBUG] Channel established
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Connected to
Control Bus Device at serial:...\\.COM4
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Model: zeus
base
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Firmware
Version: 1.90
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Hardware
version: 2.2
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Serial Number:
C47EDDC6F19575BD90AB41E9
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Base cmd
pending: ff
[rp.slamware.test.SlamwareConsoleApplication] [INFO] Successfully
executed command
```

External system command list:

External System Command Code	Command Name	Description
0x51	GET_INFO	Get SLAMWARE CORE system information including software and hardware version, network configuration, etc.
0x52	RESET_WIFI	Reset SLAMWARE CORE wireless network.
0x53	FW_UPGRADING	Update SLAMWARE CORE firmware.
0x80	START_SWEEP	Start sweeping(for vaccum robot edition only).
0x81	STOP_SWEEP	End sweeping(for vaccum robot edition only).
0x82	SPOT_SWEEP	Spot sweeping(for vaccum robot edition only).
0x90	GET_HEALTH	Get health status.
0xA0	MOVE_FORWARD	Make the robot move forward.
0xA1	MOVE_BACKWARD	Make the robot move backward.
0xA2	TURN_LEFT	Make the robot turn left.
0xA3	TURN_RIGHT	Make the robot turn right.
0xAF	CANCEL_ACTION	Cancel the operation in the last step.

Run(For two-wheel differential motor only)

Control the motor moving.

Parameters: (left wheel speed mm/s, right wheel speed mm/s, runtime s)

Command Format

```
C:\Users\LW\Desktop\tools\slamware_console_tool>slamware_console.exe
base -c serial -p COM3 run 100 100 5
```

Returned Data Format

```
[rp.slamware.test.SlamwareConsoleApplication] [INFO] Slamware Console
1.9.0_rc1
[rp.slamware.utils.ChannelFactory] [INFO] Connecting to serial:COM3...
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Connected to
Control Bus Device at serial:COM3
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Model: ref
base
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Firmware
Version: 0.90
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Hardware
version: 0.1
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Serial Number:
C47BDDC1F79072BD90B041C7
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] dl= 0.00000
dr=40.00000 pose:( 0.00000, 0.00000, 0.0deg)->(2
0.00000, 0.00000, 6.9deg)
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] dl= 0.00000
dr=40.00000 pose:(20.00000, 0.00000, 6.9deg)->(3
9.41518, 4.80113, 13.9deg)
```

To test whether the motor works properly, please follow the following steps:

- a) run 50 50 5, when the speed is set as 50, the motor will respond properly;
- b) run 100 100 5, when the speed is set as 100, the motor will run steadily.
- c) Test whether the odometer works correctly.

- 1) run 300 300 5

Return value pose(displacement on X axis, displacement on Y axis, angular displacement)

Unit(mm, mm, degree)

The positive direction of X axis is the forwarding direction of the robot, the positive direction of Y axis is the left of the robot. Angle is the anti-clockwise angular displacement with X axis direction set as 0.

Compare the difference between the actual measurement and the return value from original position(pose(0, 0)) to ending position.

The ending position in the following code is pose(1302.15056, 190.48846, 6.8deg)

```
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] dl= 5.00000
dr=5.00000 pose:(1297.28958, 189.31762, 6.8deg) ->(1302.15056,
190.48846, 6.8deg)
```

2) run 300 0 5 make the left wheel run only(the angular displacement when the robot run clockwise) and test the difference.

3) run 0 300 5 make the right wheel run only(the angular displacement when the robot run anti-clockwise) and test the difference.

Note: the difference should be lower than 5%, or the robot will behave abnormally and there is error in robot navigation.

Sensor

Read range sensor(such as ultrasonic sensor) data.

Command Format

```
C:\Users\LW\Desktop\tools\slamware_console_tool>slamware_console.exe
base -c serial -p COM3 sensor
```

Returned Data Format

```
[rp.slamware.test.SlamwareConsoleApplication] [INFO] Slamware Console
1.9.0_rc1
[rp.slamware.utils.ChannelFactory] [INFO] Connecting to serial:COM3...
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Connected to
Control Bus Device at serial:COM3
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Model: ref
base
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Firmware
Version: 0.90
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Hardware
version: 0.1
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Serial Number:
C47BDDC1F79072BD90B041C7
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Sensor Values:
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] 3 :
125.0mm
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] 4 : 0.0
mm
```

```
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] 5 :
878.0mm

[rp.slamware.test.SlamwareConsoleApplication] [INFO] Successfully
executed command
```

Status

Read base status

Command Format:

```
C:\Users\LW\Desktop\tools\slamware_console_tool>slamware_console.exe
base -c serial -p COM3 status
```

Returned Data Format

```
[rp.slamware.test.SlamwareConsoleApplication] [INFO] Slamware Console
1.9.0_rc1

[rp.slamware.utils.ChannelFactory] [INFO] Connecting to serial:COM3...

[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Connected to
Control Bus Device at serial:COM3

[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Model: ref
base

[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Firmware
Version: 0.90

[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Hardware
version: 0.1

[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Serial Number:
C47BDDC1F79072BD90B041C7

[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Battery: 67%

[rp.slamware.test.SlamwareBaseConsoleApplication] [WARN] Charging
Status: Charging (you are using legacy protocol, please specify
DcConnected or OnChargingBase bit field

[rp.slamware.test.SlamwareConsoleApplication] [INFO] Successfully
executed command
```

Test

Test base ctrl bus protocol.

Command Format

```
C:\Users\LW\Desktop\tools\slamware_console_tool>slamware_console.exe
base -c serial -p COM3 test
```

Returned Data Format

```

[rp.slamware.test.SlamwareConsoleApplication] [INFO] Slamware Console
1.9.0_rc1
[rp.slamware.utils.ChannelFactory] [INFO] Connecting to serial:COM3...
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Connected to
Control Bus Device at serial:COM3
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Model: ref
base
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Firmware
Version: 0.90
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Hardware
version: 0.1
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Serial Number:
C47BDDC1F79072BD90B041C7
[rp.slamware.test] [INFO] Test Fixture: ControlBus
[rp.slamware.test] [INFO] Testing connect...
[rp.slamware.test] [INFO] pass
[rp.slamware.test] [INFO] Testing getConfig...
[rp.slamware.test] [INFO] pass
[rp.slamware.test] [INFO] Testing getStatus...
[rp.slamware.test] [INFO] pass
[rp.slamware.test] [INFO] Testing getMotorData...
[rp.slamware.test] [INFO] pass
[rp.slamware.test] [INFO] Testing getSensorData...
[rp.slamware.test] [INFO] pass
[rp.slamware.test] [INFO] Testing getBumperData...
[rp.slamware.test] [INFO] pass
[rp.slamware.test] [INFO] Testing getAutoHomeData...
[rp.slamware.test] [INFO] fail:
(int)dev_->getAutoHomeData(req, (uint8_t*)&response,
&responseSize)==(int)RESULT_OK: actual -2147450876 != 0
[rp.slamware.test] [INFO] Testing setMotor...
[rp.slamware.test] [INFO] pass
[rp.slamware.test] [INFO] Testing sendEvent...
[rp.slamware.test] [INFO] pass
[rp.slamware.test] [INFO] ControlBus: 9 total, 0 skipped, 8 pass, 1
failed
[rp.slamware.test.SlamwareConsoleApplication] [INFO] Execute command
failed: 00000001

```


Vrun(For two-wheel differential motor and three-wheel omni-directional wheel)

Control the move of the motor.

Parameters: vrun speed on X axis(m/s) speed on Y axis(m/s) Angular speed(rad/s) runtime s

Command Format

```
C:\Users\LW\Desktop\tools\slamware_console_tool>slamware_console.exe
base -c serial -p COM3 vrun 0.1 0.1 0 5
```

Returned Data Format

```
[rp.slamware.test.SlamwareConsoleApplication] [INFO] Slamware Console
1.9.0_rc1
[rp.slamware.utils.ChannelFactory] [INFO] Connecting to serial:COM3...
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Connected to
Control Bus Device at serial:COM3
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Model: ref
base
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Firmware
Version: 0.90
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Hardware
version: 0.1
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] Serial Number:
C47BDDC1F79072BD90B041C7
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] dx= 0.00023
dy=201.64026 dtheta=201.7deg pose:( 0.00000, 0.000
00, 0.0deg)->( 0.00023, 201.64026, 201.7deg)
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] dx= 0.00023
dy=201.64026 dtheta=201.7deg pose:( 0.00023, 201.64
026, 201.7deg)->(74.40319, 14.22896, 403.3deg)
```

To test whether the motor works properly, please follow the following steps:

- a) vrun 0.05 0 0 5, when the robot speed is set as 0.05m/s, the motor will respond properly;
- b) vrun 0.1 0 0 5, when the robot speed is set as 0.05m/s, the motor will run steadily.
- c) Test whether the odometer works correctly.
 - 1) vrun 0.3 0 0 5

Return value pose(displacement on X axis, displacement on Y axis, angular displacement)

Unit(mm, mm, degree)

The positive direction of X axis is the forwarding direction of the robot, the positive direction of Y axis is the left of the robot. Angle is the anti-clockwise angular displacement with X axis direction set as 0.

Compare the difference between the actual measurement and the return value from original position(pose(0, 0)) to ending position.

The ending position in the following code is pose(1302.15056, 190.48846, 6.8deg)

```
[rp.slamware.test.SlamwareBaseConsoleApplication] [INFO] dl= 5.00000
dr=5.00000  pose:(1297.28958, 189.31762, 6.8deg) ->(1302.15056,
190.48846, 6.8deg)
```

2) vrun 0 0 1 5

The robot will run anti-clockwise. Please test the difference.

Note: the difference should be lower than 5%, or the robot will behave abnormally and there is error in robot navigation.

Data	Version	Description
2016-10-17	0.1	Initial version