

KBSW190930 SLAMWARE ROS SDK (en)

This document introduces the SLAMWARE ROS SDK.

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Get Started

Download and install SDK

Please visit [Support and Download](#) section at Slamtec official website to download proper ROS SDK and extract it to your disk.

Directory Structure

Slamware ROS SDK is composed of resources and codes might be required in the development of Slamware and ROS based applications, and organized as following:

Directory	Description
docs	Reference documents
src	Source code
--slamware_ros_sdk	Source code of Slamware ROS SDK
--slamware_sdk	Headers and libraries of Slamware C++ SDK

Development Environment

- Ubuntu 16.04 amd64
- ROS packages

Hardware Requirements

A Slamware-based mobile robot is required to use Slamware ROS SDK. It should be switched on and configured with proper IP address, which will be connected to from the `slamware_ros_sdk_server_node` ROS node.

Hello World

1.Create workspace

Put source code directory `src` into an empty workspace. Eg. [catkin_ws](#), use `catkin` utility to initialize workspace.

```
cd catkin_ws/src
catkin_init_workspace
```

2.Compile

```
cd ../catkin_make
```

3.Setup workspace environment

```
source devel/setup.bash
```

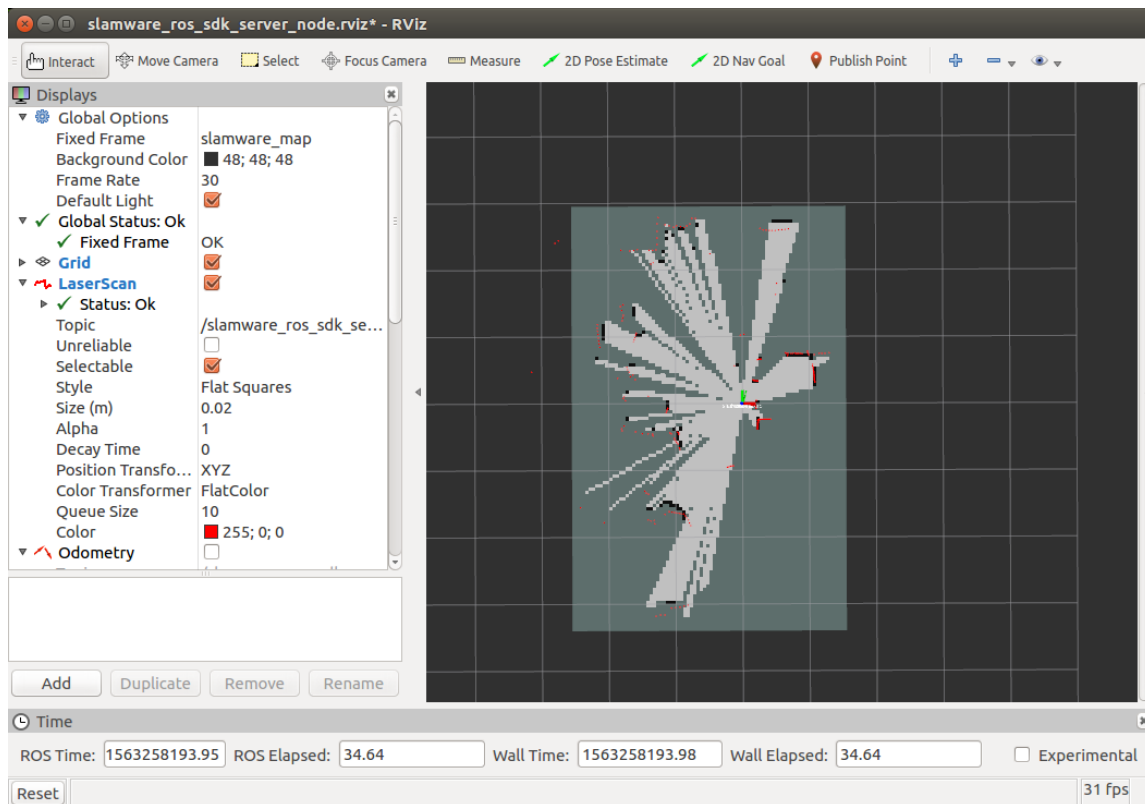
4.Start Node

Please connect to the WiFi hot spot provided by the mobile robot if it is configured in AP mode, and start ROS node:

```
roslaunch slamware_ros_sdk slamware_ros_sdk_server_node.launch ip_address:=192.168.11.1
```

View by rviz:

```
roslaunch slamware_ros_sdk view_slamware_ros_sdk_server_node.launch
```



Nodes

Node	Comments
slamware_ros_sdk_server_node Node	Publish maps, robot pose and status, receives control commands

slamware_ros_sdk_server_node Node

slamware_ros_sdk_server_node node connects to Slamware-based robots, publishes maps, poses, status, and receives control commands.

1. Subscribed Topics

/cmd_vel (geometry_msgs/Twist)

Linear and angular speed command to robot

/move_base_simple/goal (geometry_msgs/PoseStamped)

Specify the goal of robot (with yaw control, precise mode)

sync_map (slamware_ros_sdk/SyncMapRequest)

Sync whole map from Slamware

slamware_ros_sdk/SyncMapRequest

File
slamware_ros_sdk/msg/SyncMapRequest.msg
Definition
None

set_pose (geometry_msgs/Pose)

Set current pose of the robot

recover_localization (slamware_ros_sdk/RecoverLocalizationRequest)

Trigger relocalization operation of the robot

slamware_ros_sdk/RecoverLocalizationRequest		
File		
slamware_ros_sdk/msg/RecoverLocalizationRequest.msg		
Definition		
Field	Data type	Comments
area	slamware_ros_sdk/RectFlt32	Search area
options	slamware_ros_sdk/LocalizationOptions	Relocalization options

slamware_ros_sdk/RectFlt32		
File		
slamware_ros_sdk/msg/RectFlt32.msg		
Definition		
Field	Data type	Comments
x	float32	x of origin
y	float32	y of origin
w	float32	width
h	float32	height

slamware_ros_sdk/LocalizationOptions		
File		
slamware_ros_sdk/msg/LocalizationOptions.msg		
Definition		
Field	Data type	
max_time_ms	slamware_ros_sdk/OptionalInt32	Timeout of relocalization (in ms)
mvmt_type	slamware_ros_sdk/OptionalLocalizationMovement	Behaviour of relocalization

slamware_ros_sdk/OptionalInt32	
File	

slamware_ros_sdk/msg/OptionalInt32.msg		
Definition		
Field	Data type	Comments
is_valid	bool	is the value valid
value	int32	value

slamware_ros_sdk/OptionalLocalizationMovement		
File		
slamware_ros_sdk/msg/OptionalLocalizationMovement.msg		
Definition		
Field	Data type	Comments
is_valid	bool	is the value valid
value	slamware_ros_sdk/LocalizationMovement	Relocalization behaviour

slamware_ros_sdk/LocalizationMovement		
File		
slamware_ros_sdk/msg/LocalizationMovement.msg		
Definition		
Field	Data type	Comments
type	int8	Unknown=-1, Static=0, Rotation only=1, Any movement=2

clear_map (slamware_ros_sdk/ClearMapRequest)

Clear current built map

slamware_ros_sdk/ClearMapRequest		
File		
slamware_ros_sdk/msg/ClearMapRequest.msg		
Definition		
Field	Data type	Comments
kind	slamware_ros_sdk/MapKind	Map kind

slamware_ros_sdk/MapKind		
File		
slamware_ros_sdk/msg/MapKind.msg		
Definition		
Field	Data type	Comments
kind	int8	Unknown=-1, EXPLORERMAP=0, ...

set_map_update (slamware_ros_sdk/SetMapUpdateRequest)

Enable or disable map update

slamware_ros_sdk/SetMapUpdateRequest		
File		
slamware_ros_sdk/msg/SetMapUpdateRequest.msg		
Definition		
Field	Data type	Comments
enabled	bool	Enable of disable map update
kind	slamware_ros_sdk/MapKind	Map kind

slamware_ros_sdk/MapKind		
File		
slamware_ros_sdk/msg/MapKind.msg		
Definition		
Field	Data type	Comments
kind	int8	Unknown=-1EXPLORERMAP=0...

set_map_localization (slamware_ros_sdk/SetMapLocalizationRequest)

Enable or disable localization

slamware_ros_sdk/SetMapLocalizationRequest		
File		
slamware_ros_sdk/msg/SetMapLocalizationRequest.msg		
Definition		
Field	Data type	Comments
enabled	bool	Enable or disable map localization

move_by_direction (slamware_ros_sdk/MoveByDirectionRequest)

Manually control robot to move by direction

slamware_ros_sdk/MoveByDirectionRequest		
File		
slamware_ros_sdk/msg/MoveByDirectionRequest.msg		
Definition		
Field	Data type	Comments
direction	slamware_ros_sdk/ActionDirection	Direction of movement
options	slamware_ros_sdk/MoveOptions	Options of movements

slamware_ros_sdk/ActionDirection		
File		
slamware_ros_sdk/msg/ActionDirection.msg		
Definition		

Field	Data type	Comments
direction	int8	Unknown=-1, Forward=0, Backward=1, Turn Right=2, Turn Left=3

slamware_ros_sdk/MoveOptions		
File		
slamware_ros_sdk/msg/MoveOptions.msg		
Definition		
Field	Data type	Comments
opt_flags	slamware_ros_sdk/MoveOptionFlag	Move options
speed_ratio	slamware_ros_sdk/OptionalFlt64	Max speed limit ratio

slamware_ros_sdk/MoveOptionFlag		
File		
slamware_ros_sdk/msg/MoveOptionFlag.msg		
Definition		
Field	Data type	Comments
flags	uint32	Flag options
Enumeration		
Enumeration	Value	Comments
NONE	0x00000000	No option
APPENDING	0x00000001	Append the goal to current goal queue, or replace the whole goal queue
MILESTONE	0x00000002	Deprecated
NO_SMOOTH	0x00000004	Do not smooth the path
KEY_POINTS	0x00000008	Move via virtual tracks
PRECISE	0x00000010	Move to goal precisely
WITH_YAW	0x00000020	Turn to specific heading when reached target location
RETURN_UNREACHABLE_DIRECTLY	0x00000040	If the goal is occupied, return unreachable directly, or find a nearby place as alternative goal
KEY_POINTS_WITH_OA	0x00000080	Move with virtual-track-priority mode

slamware_ros_sdk/OptionalFlt64		
File		
slamware_ros_sdk/msg/OptionalFlt64.msg		
Definition		
Field	Data type	Comments
is_valid	bool	is the value valid
value	float64	value

move_by_theta (slamware_ros_sdk/MoveByThetaRequest)

Manually control robot to move by track ball

slamware_ros_sdk/MoveByThetaRequest		
File		
slamware_ros_sdk/msg/MoveByThetaRequest.msg		
Definition		
Field	Data type	Comments
theta	float32	Direction of track ball
options	slamware_ros_sdk/MoveOptions	Movement options

slamware_ros_sdk/MoveOptions		
File		
slamware_ros_sdk/msg/MoveOptions.msg		
Definition		
Field	Data type	Comments
opt_flags	slamware_ros_sdk/MoveOptionFlag	Move options
speed_ratio	slamware_ros_sdk/OptionalFlt64	Max speed limit ratio

slamware_ros_sdk/MoveOptionFlag		
File		
slamware_ros_sdk/msg/MoveOptionFlag.msg		
Definition		
Field	Data type	Comments
flags	uint32	Flag options
Enumeration		
Enumeration	Value	Comments
NONE	0x00000000	No option
APPENDING	0x00000001	Append the goal to current goal queue, or replace the whole goal queue
MILESTONE	0x00000002	Deprecated
NO_SMOOTH	0x00000004	Do not smooth the path
KEY_POINTS	0x00000008	Move via virtual tracks
PRECISE	0x00000010	Move to goal precisely
WITH_YAW	0x00000020	Turn to specific heading when reached target location
RETURN_UNREACHABLE_DIRECTLY	0x00000040	If the goal is occupied, return unreachable directly, or find a nearby place as alternative goal
KEY_POINTS_WITH_OA	0x00000080	Move with virtual-track-priority mode

slamware_ros_sdk/OptionalFlt64	
File	
slamware_ros_sdk/msg/OptionalFlt64.msg	
Definition	

Field	Data type	Comments
is_valid	bool	is the value valid
value	float64	value

move_to (slamware_ros_sdk/MoveToRequest)

Request autonomous navigation to specific goal, and heading

slamware_ros_sdk/MoveToRequest		
File		
slamware_ros_sdk/msg/MoveToRequest.msg		
Definition		
Field	Data type	Comments
location	geometry_msgs/Point	The goal location
options	slamware_ros_sdk/MoveOptions	Move options
yaw	float32	Ending robot heading

slamware_ros_sdk/MoveOptions		
File		
slamware_ros_sdk/msg/MoveOptions.msg		
Definition		
Field	Data type	Comments
opt_flags	slamware_ros_sdk/MoveOptionFlag	Move options
speed_ratio	slamware_ros_sdk/OptionalFlt64	Max speed limit ratio

slamware_ros_sdk/MoveOptionFlag		
File		
slamware_ros_sdk/msg/MoveOptionFlag.msg		
Definition		
Field	Data type	Comments
flags	uint32	Flag options
Enumeration		
Enumeration	Value	Comments
NONE	0x00000000	No option
APPENDING	0x00000001	Append the goal to current goal queue, or replace the whole goal queue
MILESTONE	0x00000002	Deprecated
NO_SMOOTH	0x00000004	Do not smooth the path
KEY_POINTS	0x00000008	Move via virtual tracks
PRECISE	0x00000010	Move to goal precisely
WITH_YAW	0x00000020	Turn to specific heading when reached target location

RETURN_UNREACHABLE_DIRECTLY	0x00000040	If the goal is occupied, return unreachable directly, or find a nearby place as alternative goal
KEY_POINTS_WITH_OA	0x00000080	Move with virtual-track-priority mode

slamware_ros_sdk/OptionalFlt64		
File		
slamware_ros_sdk/msg/OptionalFlt64.msg		
Definition		
Field	Data type	Comments
is_valid	bool	is the value valid
value	float64	value

move_to_locations (slamware_ros_sdk/MoveToLocationsRequest)

Request autonomous navigation to a series of goals

slamware_ros_sdk/MoveToLocationsRequest		
File		
slamware_ros_sdk/msg/MoveToLocationsRequest.msg		
Definition		
Field	Data type	Comments
locations	geometry_msgs/Point[]	The goal location
options	slamware_ros_sdk/MoveOptions	Move options
yaw	float32	Ending robot heading

slamware_ros_sdk/MoveOptions		
File		
slamware_ros_sdk/msg/MoveOptions.msg		
Definition		
Field	Data type	Comments
opt_flags	slamware_ros_sdk/MoveOptionFlag	Move options
speed_ratio	slamware_ros_sdk/OptionalFlt64	Max speed limit ratio

slamware_ros_sdk/MoveOptionFlag		
File		
slamware_ros_sdk/msg/MoveOptionFlag.msg		
Definition		
Field	Data type	Comments
flags	uint32	Flag options
Enumeration		
Enumeration	Value	Comments

NONE	0x00000000	No option
APPENDING	0x00000001	Append the goal to current goal queue, or replace the whole goal queue
MILESTONE	0x00000002	Deprecated
NO_SMOOTH	0x00000004	Do not smooth the path
KEY_POINTS	0x00000008	Move via virtual tracks
PRECISE	0x00000010	Move to goal precisely
WITH_YAW	0x00000020	Turn to specific heading when reached target location
RETURN_UNREACHABLE_DIRECTLY	0x00000040	If the goal is occupied, return unreachable directly, or find a nearby place as alternative goal
KEY_POINTS_WITH_OA	0x00000080	Move with virtual-track-priority mode

slamware_ros_sdk/OptionalFlt64		
File		
slamware_ros_sdk/msg/OptionalFlt64.msg		
Definition		
Field	Data type	Comments
is_valid	bool	is the value valid
value	float64	value

rotate_to (slamware_ros_sdk/RotateToRequest)

Request rotation to specific heading

slamware_ros_sdk/RotateToRequest		
File		
slamware_ros_sdk/msg/RotateToRequest.msg		
Definition		
Field	Data type	Comments
orientation	geometry_msgs/Quaternion	Specifying the orientation
options	slamware_ros_sdk/MoveOptions	Move options

slamware_ros_sdk/MoveOptions		
File		
slamware_ros_sdk/msg/MoveOptions.msg		
Definition		
Field	Data type	Comments
opt_flags	slamware_ros_sdk/MoveOptionFlag	Move options
speed_ratio	slamware_ros_sdk/OptionalFlt64	Max speed limit ratio

slamware_ros_sdk/MoveOptionFlag		
File		

slamware_ros_sdk/msg/MoveOptionFlag.msg		
Definition		
Field	Data type	Comments
flags	uint32	Flag options
Enumeration		
Enumeration	Value	Comments
NONE	0x00000000	No option
APPENDING	0x00000001	Append the goal to current goal queue, or replace the whole goal queue
MILESTONE	0x00000002	Deprecated
NO_SMOOTH	0x00000004	Do not smooth the path
KEY_POINTS	0x00000008	Move via virtual tracks
PRECISE	0x00000010	Move to goal precisely
WITH_YAW	0x00000020	Turn to specific heading when reached target location
RETURN_UNREACHABLE_DIRECTLY	0x00000040	If the goal is occupied, return unreachable directly, or find a nearby place as alternative goal
KEY_POINTS_WITH_OA	0x00000080	Move with virtual-track-priority mode

slamware_ros_sdk/OptionalFlt64		
File		
slamware_ros_sdk/msg/OptionalFlt64.msg		
Definition		
Field	Data type	Comments
is_valid	bool	is the value valid
value	float64	value

rotate (slamware_ros_sdk/RotateRequest)

Request rotation by specific angle

slamware_ros_sdk/RotateRequest		
File		
slamware_ros_sdk/msg/RotateRequest.msg		
Definition		
Field	Data type	Comments
orientation	geometry_msgs/Quaternion	Specifying the rotation
options	slamware_ros_sdk/MoveOptions	Move options

slamware_ros_sdk/MoveOptions		
File		
slamware_ros_sdk/msg/MoveOptions.msg		
Definition		

Field	Data type	Comments
opt_flags	slamware_ros_sdk/MoveOptionFlag	Move options
speed_ratio	slamware_ros_sdk/OptionalFlt64	Max speed limit ratio

slamware_ros_sdk/MoveOptionFlag		
File		
slamware_ros_sdk/msg/MoveOptionFlag.msg		
Definition		
Field	Data type	Comments
flags	uint32	Flag options
Enumeration		
Enumeration	Value	Comments
NONE	0x00000000	No option
APPENDING	0x00000001	Append the goal to current goal queue, or replace the whole goal queue
MILESTONE	0x00000002	Deprecated
NO_SMOOTH	0x00000004	Do not smooth the path
KEY_POINTS	0x00000008	Move via virtual tracks
PRECISE	0x00000010	Move to goal precisely
WITH_YAW	0x00000020	Turn to specific heading when reached target location
RETURN_UNREACHABLE_DIRECTLY	0x00000040	If the goal is occupied, return unreachable directly, or find a nearby place as alternative goal
KEY_POINTS_WITH_OA	0x00000080	Move with virtual-track-priority mode

slamware_ros_sdk/OptionalFlt64		
File		
slamware_ros_sdk/msg/OptionalFlt64.msg		
Definition		
Field	Data type	Comments
is_valid	bool	is the value valid
value	float64	value

go_home (slamware_ros_sdk/GoHomeRequest)

Request robot to go back to the charge station

slamware_ros_sdk/GoHomeRequest
File
slamware_ros_sdk/msg/GoHomeRequest.msg
Definition
None

cancel_action (slamware_ros_sdk/CancelActionRequest)

Abort current movement action

slamware_ros_sdk/CancelActionRequest
File
slamware_ros_sdk/msg/CancelActionRequest.msg
Definition
None

add_line (slamware_ros_sdk/AddLineRequest)

Add a line (virtual wall, virtual track, and etc.)

slamware_ros_sdk/AddLineRequest		
File		
slamware_ros_sdk/msg/AddLineRequest.msg		
Definition		
Field	Data type	Comments
usage	slamware_ros_sdk/ArtifactUsage	Line type
line	slamware_ros_sdk/Line2DFlt32	Line position

slamware_ros_sdk/ArtifactUsage		
File		
slamware_ros_sdk/msg/ArtifactUsage.msg		
Definition		
Field	Data type	Comments
usage	int8	Unknown=-1, Virtual Walls=0, Virtual Tracks=1

slamware_ros_sdk/Line2DFlt32		
File		
slamware_ros_sdk/msg/Line2DFlt32.msg		
Definition		
Field	Data type	Comments
id	uint32	Line segment id
start	slamware_ros_sdk/Vec2DFlt32	Start point of line segment
end	slamware_ros_sdk/Vec2DFlt32	End point of line segment

slamware_ros_sdk/Vec2DFlt32		
File		
slamware_ros_sdk/msg/Vec2DFlt32.msg		
Definition		
Field	Data type	Comments

x	float32	x
y	float32	y

add_lines (slamware_ros_sdk/AddLinesRequest)

Add multiple lines (virtual wall, virtual track, and etc.)

slamware_ros_sdk/AddLinesRequest		
File		
slamware_ros_sdk/msg/AddLinesRequest.msg		
Definition		
Field	Data type	Comments
usage	slamware_ros_sdk/ArtifactUsage	Line type
line	slamware_ros_sdk/Line2DFlt32[]	Positions of lines

slamware_ros_sdk/ArtifactUsage		
File		
slamware_ros_sdk/msg/ArtifactUsage.msg		
Definition		
Field	Data type	Comments
usage	int8	Unknown=-1, Virtual Walls=0, Virtual Tracks=1

slamware_ros_sdk/Line2DFlt32		
File		
slamware_ros_sdk/msg/Line2DFlt32.msg		
Definition		
Field	Data type	Comments
id	uint32	Line segment id
start	slamware_ros_sdk/Vec2DFlt32	Start point of line segment
end	slamware_ros_sdk/Vec2DFlt32	End point of line segment

slamware_ros_sdk/Vec2DFlt32		
File		
slamware_ros_sdk/msg/Vec2DFlt32.msg		
Definition		
Field	Data type	Comments
x	float32	x
y	float32	y

remove_line (slamware_ros_sdk/RemoveLineRequest)

Remove specific line (virtual wall, virtual track, and etc.)

slamware_ros_sdk/RemoveLineRequest		
File		
slamware_ros_sdk/msg/RemoveLineRequest.msg		
Definition		
Field	Data type	Comments
usage	slamware_ros_sdk/ArtifactUsage	Line type
id	uint32	Line segment id

slamware_ros_sdk/ArtifactUsage		
File		
slamware_ros_sdk/msg/ArtifactUsage.msg		
Definition		
Field	Data type	Comments
usage	int8	Unknown=-1, Virtual Walls=0, Virtual Tracks=1

clear_lines (slamware_ros_sdk/ClearLinesRequest)

Clear all lines (virtual wall, virtual track, and etc.)

slamware_ros_sdk/ClearLinesRequest		
File		
slamware_ros_sdk/msg/ClearLinesRequest.msg		
Definition		
Field	Data type	Comments
usage	slamware_ros_sdk/ArtifactUsage	Line segment type

slamware_ros_sdk/ArtifactUsage		
File		
slamware_ros_sdk/msg/ArtifactUsage.msg		
Definition		
Field	Data type	Comments
usage	int8	Unknown=-1, Virtual Walls=0, Virtual Tracks=1

move_line (slamware_ros_sdk/MoveLineRequest)

Move specific line (virtual wall, virtual track, and etc.)

slamware_ros_sdk/MoveLineRequest		
File		
slamware_ros_sdk/msg/MoveLineRequest.msg		
Definition		
Field	Data type	Comments

usage	slamware_ros_sdk/ArtifactUsage	Line segment type
line	slamware_ros_sdk/Line2DFlt32	New position of line segments

slamware_ros_sdk/ArtifactUsage		
File		
slamware_ros_sdk/msg/ArtifactUsage.msg		
Definition		
Field	Data type	Comments
usage	int8	Unknown=-1, Virtual Walls=0, Virtual Tracks=1

slamware_ros_sdk/Line2DFlt32		
File		
slamware_ros_sdk/msg/Line2DFlt32.msg		
Definition		
Field	Data type	Comments
id	uint32	Line segment id
start	slamware_ros_sdk/Vec2DFlt32	Start point of line segment
end	slamware_ros_sdk/Vec2DFlt32	End point of line segment

slamware_ros_sdk/Vec2DFlt32		
File		
slamware_ros_sdk/msg/Vec2DFlt32.msg		
Definition		
Field	Data type	Comments
x	float32	x
y	float32	y

move_lines (slamware_ros_sdk/MoveLinesRequest)

Move multiple lines (virtual wall, virtual track, and etc.)

slamware_ros_sdk/MoveLinesRequest		
File		
slamware_ros_sdk/msg/MoveLinesRequest.msg		
Definition		
Field	Data type	Comments
usage	slamware_ros_sdk/ArtifactUsage	Line segment type
line	slamware_ros_sdk/Line2DFlt32[]	New positions of line segments

slamware_ros_sdk/ArtifactUsage		
File		
slamware_ros_sdk/msg/ArtifactUsage.msg		

Definition		
Field	Data type	Comments
usage	int8	Unknown=-1, Virtual Walls=0, Virtual Tracks=1

slamware_ros_sdk/Line2DFlt32		
File		
slamware_ros_sdk/msg/Line2DFlt32.msg		
Definition		
Field	Data type	Comments
id	uint32	Line segment id
start	slamware_ros_sdk/Vec2DFlt32	Start point of line segment
end	slamware_ros_sdk/Vec2DFlt32	End point of line segment

slamware_ros_sdk/Vec2DFlt32		
File		
slamware_ros_sdk/msg/Vec2DFlt32.msg		
Definition		
Field	Data type	Comments
x	float32	x
y	float32	y

2. Published Topics

scan (sensor_msgs/LaserScan)

LIDAR scan, updated periodically

odom (nav_msgs/Odometry)

Robot pose, updated periodically

map_metadata (nav_msgs/MapMetaData)

Map metadata (resolution, size, origin), updated periodically

map (nav_msgs/OccupancyGrid)

Map data, updated periodically

basic_sensors_info (slamware_ros_sdk/BasicSensorInfoArray)

Sensor metadata (id, type, digital/analog, installation pose, refresh rate), updated on change

slamware_ros_sdk/BasicSensorInfoArray

File		
slamware_ros_sdk/msg/BasicSensorInfoArray.msg		
Definition		
Field	Data type	Comments
sensors_info	slamware_ros_sdk/BasicSensorInfo[]	Sensor information

slamware_ros_sdk/BasicSensorInfo		
File		
slamware_ros_sdk/msg/BasicSensorInfo.msg		
Definition		
Field	Data type	Comments
id	int32	Sensor ID
sensor_type	slamware_ros_sdk/SensorType	Sensor Type
impact_type	slamware_ros_sdk/ImpactType	Signal type (digital/analog)
install_pose	geometry_msgs/Pose	Installation pose
refresh_freq	float32	Refresh rate

slamware_ros_sdk/SensorType		
File		
slamware_ros_sdk/msg/SensorType.msg		
Definition		
Field	Data type	Comments
type	int8	Unknown=-1, Bumper=0, Cliff=1, Sonar,=2, Depth Camera=3, Wall Following Sensor=4, Meganet Tape=5

slamware_ros_sdk/ImpactType		
File		
slamware_ros_sdk/msg/ImpactType.msg		
Definition		
Field	Data type	Comments
type	int8	Unknown=-1Digital=0Analog=1

basic_sensors_values (slamware_ros_sdk/BasicSensorValueDataArray)

Sensor data, updated periodically

slamware_ros_sdk/BasicSensorValueDataArray		
File		
slamware_ros_sdk/msg/BasicSensorValueDataArray.msg		
Definition		
Field	Data type	Comments
values_data	slamware_ros_sdk/BasicSensorValueData[]	Sensor data

slamware_ros_sdk/BasicSensorValueData		
File		
slamware_ros_sdk/msg/BasicSensorValueData.msg		
Definition		
Field	Data type	Comments
info	slamware_ros_sdk/BasicSensorInfo	Sensor information
value	slamware_ros_sdk/BasicSensorValue	Sensor value

slamware_ros_sdk/BasicSensorValue		
File		
slamware_ros_sdk/msg/BasicSensorValue.msg		
Definition		
Field	Data type	Comments
is_in_impact	bool	Sensor is activated or not
value	float32	Sensor analog value

slamware_ros_sdk/BasicSensorInfo		
File		
slamware_ros_sdk/msg/BasicSensorInfo.msg		
Definition		
Field	Data type	Comments
id	int32	Sensor ID
sensor_type	slamware_ros_sdk/SensorType	Sensor Type
impact_type	slamware_ros_sdk/ImpactType	Signal type (digital/analog)
install_pose	geometry_msgs/Pose	Installation pose
refresh_freq	float32	Refresh rate

slamware_ros_sdk/SensorType		
File		
slamware_ros_sdk/msg/SensorType.msg		
Definition		
Field	Data type	Comments
type	int8	Unknown=-1, Bumper=0, Cliff=1, Sonar=2, Depth Camera=3, Wall Following Sensor=4, Meganet Tape=5

slamware_ros_sdk/ImpactType		
File		
slamware_ros_sdk/msg/ImpactType.msg		
Definition		
Field	Data type	Comments

type	int8	Unknown=-1Digital=0Analog=1
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global_plan_path (nav_msgs/Path)

Global planned path, updated periodically

robot_basic_state (slamware_ros_sdk/RobotBasicState)

Robot status (map update switch, localization switch, motherboard temperature, charging status, battery), updated periodically

slamware_ros_sdk/RobotBasicState		
File		
slamware_ros_sdk/msg/RobotBasicState.msg		
Definition		
Field	Data type	Comments
is_map_building_enabled	bool	Map update is enabled or not
is_localization_enabled	bool	Localization is enabled or not
localization_quality	int32	Localization quality
board_temperature	int32	Motherboard temperature
battery_percentage	int32	Battery percentage
is_dc_in	bool	Is the DC cord connected
is_charging	bool	Is charging

virtual_walls (slamware_ros_sdk/Line2DFlt32Array)

Virtual walls, updated periodically

slamware_ros_sdk/Line2DFlt32Array		
File		
slamware_ros_sdk/msg/Line2DFlt32Array.msg		
Definition		
Field	Data type	Comments
lines	slamware_ros_sdk/Line2DFlt32[]	Multiple line segments

slamware_ros_sdk/Line2DFlt32		
File		
slamware_ros_sdk/msg/Line2DFlt32.msg		
Definition		
Field	Data type	Comments
id	uint32	Line segment id
start	slamware_ros_sdk/Vec2DFlt32	Start point of line segment
end	slamware_ros_sdk/Vec2DFlt32	End point of line segment

slamware_ros_sdk/Vec2DFlt32		
File		
slamware_ros_sdk/msg/Vec2DFlt32.msg		
Definition		
Field	Data type	Comments
x	float32	x
y	float32	y

virtual_tracks (slamware_ros_sdk/Line2DFlt32Array)

Virtual tracks, updated periodically

slamware_ros_sdk/Line2DFlt32Array		
File		
slamware_ros_sdk/msg/Line2DFlt32Array.msg		
Definition		
Field	Data type	Comments
lines	slamware_ros_sdk/Line2DFlt32[]	Multiple line segments

slamware_ros_sdk/Line2DFlt32		
File		
slamware_ros_sdk/msg/Line2DFlt32.msg		
Definition		
Field	Data type	Comments
id	uint32	Line segment id
start	slamware_ros_sdk/Vec2DFlt32	Start point of line segment
end	slamware_ros_sdk/Vec2DFlt32	End point of line segment

slamware_ros_sdk/Vec2DFlt32		
File		
slamware_ros_sdk/msg/Vec2DFlt32.msg		
Definition		
Field	Data type	Comments
x	float32	x
y	float32	y

3. Services

sync_get_stcm (slamware_ros_sdk/SyncGetStcm)

Fetch maps in stcm format

slamware_ros_sdk/SyncGetStcm		
File		
slamware_ros_sdk/srv/SyncGetStcm.srv		
Request		
None		
Response		
Field	Data type	Comments
raw_stcm	int8[]	stcm map data

sync_set_stcm (slamware_ros_sdk/SyncSetStcm)

Replace maps with specified stcm file

slamware_ros_sdk/SyncSetStcm		
File		
slamware_ros_sdk/srv/SyncGetStcm.srv		
Request		
Field	Data type	Comments
raw_stcm	int8[]	uploaded stcm map data
robot_pose	geometry_msgs/Pose	uploaded robot pose
Response		
None		

4. Parameters

Parameter	Data type	Default value	Description
ip_address	string	"192.168.11.1"	The IP address of the robot
robot_port	int	1445	The port of the robot
reconn_wait_ms	uint	3000	Time to reconnect, unit: ms
angle_compensate	bool	true	Angular compensation switch
fixed_odom_map_tf	bool	true	Fixed odometry of the robot
robot_frame	string	"/base_link"	Robot base frame name
laser_frame	string	"/laser"	Laser frame name
odom_frame	string	"/odom"	Odometry frame name
map_frame	string	"/map"	Map frame name
robot_pose_pub_period	float	0.05	Period to publish robot pose, unit: seconds
scan_pub_period	float	0.1	Period to publish LIDAR scan, unit: seconds
map_update_period	float	0.2	Period to update map from Slamware, unit: seconds
map_pub_period	float	0.2	Period to publish map, unit: seconds
basic_sensors_info_update_period	float	7.0	Period to update sensor metadata, unit: seconds
basic_sensors_values_pub_period	float	0.05	Period to publish sensor data, unit: seconds
path_pub_period	float	0.05	Period to publish global path, unit: seconds
robot_basic_state_pub_period	float	1.0	Period to publish robot status, unit: seconds

virtual_walls_pub_period	float	0.5	Period to publish virtual walls, unit: seconds
virtual_tracks_pub_period	float	0.5	Period to publish virtual tracks, unit: seconds
map_sync_once_get_max_wh	float	100.0	Max edge length of map on synchronizing, unit: meters
map_update_near_robot_half_wh	float	8.0	Partial map update distance, unit: meters
scan_topic	string	"scan"	Topic to publish LIDAR scan
odom_topic	string	"odom"	Topic to publish robot pose
map_topic	string	"map"	Topic to publish map
map_info_topic	string	"map_metadata"	Topic to publish map metadata
basic_sensors_info_topic	string	"basic_sensors_info"	Topic to publish sensor metadata
basic_sensors_values_topic	string	"basic_sensors_values"	Topic to publish sensor values
path_topic	string	"global_plan_path"	Topic to publish global path
vel_control_topic	string	"/cmd_vel"	Topic to subscribe manual control commands
goal_topic	string	"/move_base_simple/goal"	Topic to subscribe autonomous navigation goals

5. Required tf Transforms

None

6. Provided tf Transforms

laser -> map

Pose of LIDAR scan in the map

base_link -> odom

Pose estimation of the robot

odom -> map

Odometry information of the robot (maybe fixed or not provided according to the configuration)