

S1: Skimmer Description

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A Skimmer is a ship that is meant to clean up an oil spill that has occurred on the ocean. The Skimmer implemented in our simulation has equipment to skim 1 nm of ocean off the starboard side of the ship. Like the other types of ships, a Skimmer can be created using the “create” command using the “skimmer” ship type. A Skimmer behaves just like the other types of ships in terms of movement unless it is told to start skimming at a certain location.

To tell the Skimmer to start skimming, use the “start_skimming <x> <y> <size>” command. In this command, (<x>, <y>) is the south west corner of the spill, while <size> is the width and height of the square to be skimmed. Since the Skimmer’s equipment supports skimming 1 nm of ocean at a time, we only accept integer values for the size of the cleanup area. After the “start_skimming” command is called, as long as the size is greater than zero, the skimmer will start traveling to the provided (x, y) coordinate at max speed. Once it reaches the provided coordinate, the Skimmer starts traveling in a square, clockwise, inward spiral pattern around the spill, cleaning the oil as it spirals towards the center of the spill. Once it has cleaned the area of the spill, the Skimmer will stop and awaits its next command.

If on its way to start skimming or during a skimming operation the Skimmer receives a navigational command (“position”, “destination”, “course”, or “stop”), the skimming operation is canceled and the Skimmer performs the requested action as any other ship would.

Demo1 provides an detailed example of the spiral pattern that is used to skim the requested area, but below is a simple drawing of the path that is taken for a spill with a size of 4 nm: