

# GOAL-N<sub>ao</sub> API

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## **Abstract**

This document describes the API through which the GOAL and Nao clients communicate with each other.

## 0.1 Connection Establishment

Connection to the GOAL client is established through port 6474.

## 0.2 Events

Communication consists of units called events: The transmission of an event begins by transmitting its unique byte-code, optionally followed by any additional arguments specific to that event.

Some events are sent by the Nao client, others by the GOAL client. Each GOAL-to-Nao command generates either a Success, Failure or Error events in return. These are initialised by the Nao client and sent over to GOAL in order to report the status of the original command.

### 0.2.1 GOAL to Nao

The following events are sent exclusively from the GOAL client to the Nao one.

Event	Code	Arguments	Description
Exit	0x0	<i>None</i>	The Nao will sit down, terminate the connection and exit its program.
GoTo	0x1	<b>MarkerID</b> <b>Distance</b>	The Nao will walk towards the marker with ID <i>MarkerID</i> and stop <i>Distance</i> rooms in front of it. Emits a Failure event if the marker cannot be spotted.
PickUp	0x2	<b>ObjectID</b>	The Nao will position itself in front of the object with ID <i>ObjectID</i> and then pick it up. Emits a failure event if the object cannot be spotted or if it is unreachable.
PutDown	0x3	<i>None</i>	The Nao will gently lay down the object it currently holds. Emits a Failure event if the Nao is not holding anything.
Halt	0x4	<i>None</i>	The Nao will stop moving. Emits a Failure event if the Nao is currently in the process of grabbing an object or putting it down.

### 0.2.2 Nao to GOAL

The following events are sent exclusively from the Nao client to the GOAL one.

Event	Code	Arguments	Description
Error	0x8	<i>None</i>	A fatal error has occurred in the Nao. Its current state is unknown.
Success	0x81	<b>Code</b>	The last GOAL-to-Nao event with code <i>Code</i> has been executed successfully.
Failure	0x82	<b>Code</b>	The last GOAL-to-Nao event with code <i>Code</i> has failed its execution.
Location	0x89	<b>MarkerID</b>	The Nao is currently at the room with marker ID <i>MarkerID</i>
See	0x8A	<b>MarkerID</b> <b>Distance</b>	The Nao spotted the marker with ID <i>MarkerID</i> at <i>Distance</i> rooms away. If <i>Distance</i> == 0 the Nao is in the same room as the object.
Dropped	0x8C	<b>ObjectID</b>	The Nao has either dropped or put down the object with ID <i>ObjectID</i>
Holding	0x8D	<b>ObjectID</b>	The Nao has picked up the object with ID <i>ObjectID</i>
Agent	0x8E	<b>AgentID</b>	This Nao instance has ID <i>AgentID</i>
State	0x8F	<b>State</b>	This Nao is in state <i>State</i> . Where <i>State</i> = 0 = <i>halted</i> . <i>State</i> = 1 = <i>walking</i> . Sent on change.