

Starcraft Environment Manual

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Contents

1	Percepts	2
1.1	Percepts for all units	3
1.1.1	Generic unit percepts	3
1.1.2	Map percepts	4
1.1.3	Enemy percepts	5
1.1.4	Player unit percepts	5
1.2	Building percepts	6
1.2.1	Available Resources	6
1.2.2	Queue size	7
1.2.3	Build unit	7
1.3	Refinery percepts	8
1.3.1	Worker activity	8
1.4	Attack unit percepts	9
1.4.1	Attacking units	9
1.5	Worker percepts	10
1.5.1	Available Resources	10
1.5.2	Builder unit	10
1.5.3	Gatherer unit	11
1.6	Transporter percepts	12
1.6.1	Transporter	12
1.7	Command center percepts	13
1.7.1	Idle workers	13
1.7.2	Worker activity	13

Chapter 1

Percepts

This section will list all the percepts that are usable in the Starcraft environment. The percepts vary per unit, for example: an attacking unit will not percept the amount of resources available to the player as he does not need them. For the implementation of these percepts in your GOAL code, please refer to the GOAL manual.

1.1 Percepts for all units

These percepts are available to all the units and buildings.

1.1.1 Generic unit percepts

Idle percept

Description	If this percept is perceived, this unit is currently idling.
Type	Send on change
Syntax	idle
Parameters	This percept has no parameters.

ID percept

Description	The ID of this unit, ID's are unique.
Type	Send once
Syntax	id(<ID>)
Parameters	<ID>: The id of this unit, this is a numeral value.

Unit type percept

Description	The Type of this unit, for example "Terran Marine".
Type	Send once
Syntax	unitType(<Type>)
Parameters	<Type>: The type of this unit, this is a string value.

Is being constructed percept

Description	If this percept is perceived, this unit is not yet ready.
Type	Send on change
Syntax	isBeingConstructed
Parameters	This percept has no parameters.

Position percept

Description	The position of this unit in the world.
Type	Send on change
Syntax	position(<X>,<Y>)
Parameters	<X>: The X value of the position in the world. <Y>: The Y value of the position in the world.

Build tile position percept

Description	The position of the build tile this unit is currently standing on.
Type	Send on change
Syntax	buildTilePosition(<X>,<Y>)
Parameters	<X>: The X value of the build tile position in the world. <Y>: The Y value of the build tile position in the world.

1.1.2 Map percepts**Map percept**

Description	Percepts the width and the height of the map.
Type	Send once
Syntax	map(<Width>,<Height>)
Parameters	<Width>: The width of the map. <Height>: The height of the map.

Base percept

Description	Percepts the base locations present on the map.
Type	Send once
Syntax	base(<X>,<Y>,<IsStart>,<RegionID>)
Parameters	<X>,<Y>: The coordinates of the baselocation. <IsStart>: 'true' when the location is a starting point, else 'false'. <RegionID>: The ID of the region this location is in.

Chokepoint percept

Description	Percepts the chokepoints present on the map.
Type	Send once
Syntax	chokepoint(<X>,<Y>)
Parameters	<X>,<Y>: The coordinates of the chokepoint.

1.1.3 Enemy percepts**Enemy percept**

Description	Percepts the enemies that are currently visible to the player.
Type	Send on change
Syntax	enemy(<Name>,<ID>,<WX>,<WY>,<BX>,<BY>)
Parameters	<Name>: The name of the unit. <ID>: The ID of the unit. <WX>,<WY>: The world coordinates of the unit. <BX>,<BY>: The build tile coordinates of the unit.

1.1.4 Player unit percepts**Friendly percept**

Description	Percepts all the friendly units.
Type	Send on change
Syntax	friendly(<Name>,<Type>,<ID>,<WX>,<WY>,<BX>,<BY>)
Parameters	<Name>: The agent name of the unit. <Type>: The type of the unit. <ID>: The ID of the unit. <WX>,<WY>: The world coordinates of the unit. <BX>,<BY>: The build tile coordinates of the unit.

1.2 Building percepts

These percepts are available to buildings.

1.2.1 Available Resources

Minerals percept

Description	Percepts the amount of minerals currently available to the player.
Type	Send on change
Syntax	minerals(<Quantity>)
Parameters	<Quantity>: The amount of minerals available.

Gas percept

Description	Percepts the amount of gas currently available to the player.
Type	Send on change
Syntax	gas(<Quantity>)
Parameters	<Quantity>: The amount of gas available.

Supply percept

Description	Percepts the amount of supply used and the maximum amount of supply. NOTE: supply is multiplied by 2, so 10 supply in game corresponds with 20 supply in the environment.
Type	Send on change
Syntax	supply(<Current>,<Max>)
Parameters	<Current>: The amount of supply currently in use. <Max>: The maximum amount of supply that is available at this moment.

1.2.2 Queue size

Queue size percept

Description	The queue size of the building, this indicates how many units are currently being build by this building.
Type	Send on change
Syntax	queueSize(<Quantity>)
Parameters	<Quantity>: The amount of units currently being trained.

1.2.3 Build unit

Build unit percept

Description	The id of the unit that is currently being built.
Type	Send on change
Syntax	buildUnit(<ID>)
Parameters	<ID>: The ID of the unit.

1.3 Refinery percepts

These percepts are available to refineries.

1.3.1 Worker activity

Worker activity percept

Description	Information on what workers are currently doing.
Type	Send on change
Syntax	<code>workerActivity(<ID>,<Activity>)</code>
Parameters	<code><ID></code> : The ID of the worker. <code><Activity></code> : The activity that the worker is currently doing, one of the following: <code>gatheringGas</code> , <code>gatheringMinerals</code> , <code>constructing</code> or <code>idling</code> .

1.4 Attack unit percepts

These percepts are available to units that can attack.

1.4.1 Attacking units

Attacking percept

Description	Indicates which units are the targets of friendly units.
Type	Send on change
Syntax	attacking(<ID>,<TargetID>)
Parameters	<ID>: The ID of a friendly unit. <TargetID>: The ID of the enemy unit that the friendly unit is attacking.

1.5 Worker percepts

These percepts are available to SCV's.

1.5.1 Available Resources

Minerals percept

Description	Percepts the amount of minerals currently available to the player.
Type	Send on change
Syntax	minerals(<Quantity>)
Parameters	<Quantity>: The amount of minerals available.

Gas percept

Description	Percepts the amount of gas currently available to the player.
Type	Send on change
Syntax	gas(<Quantity>)
Parameters	<Quantity>: The amount of gas available.

Supply percept

Description	Percepts the amount of supply used and the maximum amount of supply. NOTE: supply is multiplied by 2, so 10 supply in game corresponds with 20 supply in the environment.
Type	Send on change
Syntax	supply(<Current>,<Max>)
Parameters	<Current>: The amount of supply currently in use. <Max>: The maximum amount of supply that is available at this moment.

1.5.2 Builder unit

Constructing percept

Description	Percepts whether or not this unit is constructing.
Type	Send on change
Syntax	constructing
Parameters	This percept does not have any parameters

1.5.3 Gatherer unit

Carrying percept

Description	Percepts whether or not this unit is carrying resources.
Type	Send on change
Syntax	carrying
Parameters	This percept does not have any parameters

Gathering percept

Description	Percepts if the unit is gathering and what the unit is gathering.
Type	Send on change
Syntax	<code>gathering(<Resource>)</code>
Parameters	<code><Resource></code> : The resource that is being gathered, either 'vespene' or 'mineral'.

Gathering percept (Other unit)

Description	Percepts if another unit is gathering and what the other unit is gathering.
Type	Send on change
Syntax	<code>gathering(<ID>,<Resource>)</code>
Parameters	<code><ID></code> : The ID of the unit. <code><Resource></code> : The resource that is being gathered, either 'vespene' or 'mineral'.

Vespene geyser percept

Description	Percepts a vespene geyser on the map.
Type	Send on change
Syntax	<code>vespeneGeyser(<ID>,<Resources>,<ResourceGroup>,<X>,<Y>)</code>
Parameters	<code><ID></code> : The ID of the geyser. <code><Resources></code> : The amount of resources left in the geyser. <code><ResourceGroup></code> : The resource group. <code><X>,<Y></code> : The coordinates of the geyser, a refinery can be built at this position.

1.6 Transporter percepts

These percepts are available to units with transport capabilities.

1.6.1 Transporter

Space provided percept

Description	Information about the maximum transport capacity and the current load.
Type	Send on change
Syntax	spaceProvided(<Used>,<Max>)
Parameters	<Used>: The amount of units this vehicle is currently carrying. <Max>: The maximum carrying amount of this vehicle.

Unit loaded percept

Description	Information about the units that are currently inside this vehicle.
Type	Send on change
Syntax	unitLoaded(<ID>,<Type>)
Parameters	<ID>: The ID of the unit. <Type>: The type of the unit.

1.7 Command center percepts

These percepts are available to command centers.

1.7.1 Idle workers

Idle worker percept

Description	Lists the workers that are idle.
Type	Send on change
Syntax	idleWorker(<Name>)
Parameters	<Name>: The name of the unit.

1.7.2 Worker activity

Worker activity percept

Description	Information on what workers are currently doing.
Type	Send on change
Syntax	workerActivity(<ID>,<Activity>)
Parameters	<ID>: The ID of the worker. <Activity>: The activity that the worker is currently doing, one of the following: gatheringGas, gatheringMinerals, constructing or idling.