BATTLESPACE SIMULATIONS INC.

Use Case Scripting (UCSN2501)

Landing Zones

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Contents

Introduction

Overview

This use case scripting document shows how to use the MACE Script Editor to automate helicopter landing activity.

Scripting Items Covered

TRIGGERS	ACTIONS	OTHER
Entity Waypoint Arrival	Tactic – Land	Buttonized – Instant
Entity Proximity	Set Landing Zone	Buttonized – User Input
	Delay Until (Trigger)	
	Detonate Munition	
	Set Surface Wind	
	Create Platform	
	Delete Platform	
	Delay	

Script String Variables Used
- <Scripted Platform>
- <Script String Variable – This Script>

Accompanying Tutorial Video

A narrated YouTube video is available: https://www.youtube.com/watch?v=VyhmpVL5fUk

Video Key Scenes

1. (00:15) Mission setup with 2 x helicopters and some known points which will be the landing zones

2. (04:10) Manual runtime use of landing zones using MACE entity controls

3. (06:25) Simple mission-specific landing script using the landing zone in the platform properties

4. (09:01) Simple mission-specific landing script assigning new landing zone in script actions

5. (13:48) Same script but with automatic smoke detonation near the LZ based on helicopter proximity to the LZ

6. (17:40) Buttonized script to allow user to select an existing landing zone or known point on the map which helicopter then lands at

7. (22:45) Buttonized script to create a landing zone at a user selected map location and delete it after helicopter has landed there

Script Description 1 – Land at Platform Properties LZ

A script that uses waypoint triggers to instruct 2 specific entities (JEFF-11 and JON-12) to land at whatever landing zone callsign it they already have in platform properties.

Note: if there is no landing zone callsign, the helicopter will land straight ahead.

When either JEFF-11 or JON-12 arrive at their respective waypoint number 1, both aircraft are instructed to land at their landing zone as entered in their platform properties.

```
Assign tactic land to JON-12,JEFF-11. (Wait for action to finish.)
```

Triggers

Type: **OR**

Trigger 1 [Entity] – Waypoint Arrival

- <u>Platform</u>: "JEFF-11"

- <u>Waypoint Index</u>: "1"

- <u>Persist Met</u>: ☐

Trigger 2 [Entity] – Waypoint Arrival

- <u>Platform</u>: "JON-12"

- <u>Waypoint Index</u>: "1"

- <u>Persist Met</u>: ☐

Note: Persist Met is not required for either trigger as these are configured as OR triggers; as soon as one of them is met the actions list is executed.

Actions

Action 1 [Navigation] – Tactic – Land

- <u>Assigned To Platforms</u>: "JEFF-11, JON-12"

- <u>Wait for action to finish before executing next</u>: ☑

- **Note:** Wait for action to finish selection is irrelevant as there are no following actions.

Script Description 2 – Land at Prescribed LZ

A script that uses waypoint triggers to instruct 2 specific entities (JEFF-11 and JON-12) to set new landing zones to an entity within the mission (JEFF-LZ-2 and JON-LZ-2), then assigns both aircraft to land at their assigned landing zones.

```
Set landing zone of JEFF-11 to JEFF-LZ-2 and clear parking location.
Set landing zone of JON-12 to JON-LZ-2 and clear parking location.
Assign tactic land to JON-12,JEFF-11. (Wait for action to finish.)
```

Triggers

Type: **AND**

Trigger 1: [Entity] – Waypoint Arrival

- Platform: "JEFF-11"

- Waypoint Index: "1"

- Persist Met: ☑

Trigger 2 [Entity] – Waypoint Arrival

- Platform: "JON-12"

- Waypoint Index: "1"

- Persist Met: ☑

Note: Persist Met is required else both platforms would need to arrive at their waypoints at the same time to trigger the actions. With persist met the trigger stays triggered; when both are triggered the actions list is executed.

Actions

Action 1 [Navigation] – Assign Landing Zone

- Touchdown: "JEFF-LZ-2"

- Assigned To Platforms: "JEFF-11"

- Action is instantaneous

Action 2 [Navigation] – Assign Landing Zone

- Touchdown: "JON-LZ-2"

- ▪ <u>Assigned To Platforms</u>: "JON-12"

- ▪ Action is instantaneous

Action 3 [Navigation] – Tactic – Land

- ▪ <u>Assigned To Platforms</u>: "JEFF-11, JON-12"

- ▪ <u>Wait for action to finish before executing next</u>: ☑

- ▪ **Note:** Wait for action to finish selection is irrelevant as there are no following actions.

Script Description 3 – Land at Prescribed LZ and Smoke

A script that uses waypoint triggers to instruct 2 specific entities (JEFF-11 and JON-12) to set new landing zones to an entity within the mission (JEFF-LZ-2 and JON-LZ-2), then assigns both aircraft to land at their assigned landing zones. As the JEFF-11 gets within 500m of the LZ, smoke is detonated at a location near the LZs.

```
Set landing zone of JEFF-11 to JEFF-LZ-2 and clear parking location.
Set landing zone of JON-12 to JON-LZ-2 and clear parking location.
Assign tactic land to JON-12,JEFF-11.
Delay Until Platform Proximity JEFF-11 is within 500 meters of JEFF-LZ-2. (Wait for a...
Set surface winds to 335 deg at 7 kts.
Detonate munition Smoke Grenade (Orange) on 10T ET 92516 59003.
```

Triggers

Type: **AND**

Trigger 1: [Entity] – Waypoint Arrival

- Platform: "JEFF-11"
- Waypoint Index: "1"
- Persist Met: ☑

Trigger 2 [Entity] – Waypoint Arrival

- Platform: "JON-12"
- Waypoint Index: "1"
- Persist Met: ☑

Note: Persist Met is required else both platforms would need to arrive at their waypoints at the same time to trigger the actions. With 'persist met' the trigger stays triggered; when both are triggered the actions list is executed.

Actions

Action 1 [Navigation] – Assign Landing Zone

- Touchdown: "JEFF-LZ-2"
- Assigned To Platforms: "JEFF-11"

- Action is instantaneous

Action 2 [Navigation] – Assign Landing Zone

- <u>Touchdown</u>: "JON-LZ-2"

- <u>Assigned To Platforms</u>: "JON-12"

- Action is instantaneous

Action 3 [Navigation] – Tactic – Land

- <u>Assigned To Platforms</u>: "JEFF-11, JON-12"

- <u>Wait for action to finish before executing next</u>: ☐

- **Note:** Wait for action to finish selection must be unticked if the next action (smoke detonation) is to occur before the aircraft have landed

Action 4 – [Delay Until] – Platform Proximity

- <u>Platform</u>: "JEFF-11"

- <u>Location</u>: "JEFF-LZ-2"

- <u>Is Within</u>: "500m"

- <u>Ignore Elevation Difference</u>: ☑

Note: Ignore Elevation Difference – means this will be the plan view distance, not slant range.

Action 5 – [Environment] Set Winds

- <u>Surface Direction</u>: "335"

- <u>Speed</u>: "7" kts

- Action is instantaneous

Action 6 – [Mission 1] – Detonate Munition

- <u>Munition</u>: "Smoke Grenade (Orange)

- <u>Target</u>: "10T ET 92516 590003" – picked from map

- <u>Assigned To Platforms</u>: Not required

Script Description 4 – (Buttonized) Land at user picked LZ

An instantaneous buttonized script, when selected the user is given a map selection tool that allows selection of a platform or location. Once selected the platform which was selected when the button was pressed, lands at the user selected site.

Note: When a buttonized script is executed, it creates a unique new script in the Script Editor (dependent on visibility setting when saving the script), and changes the <Scripted Platform> field to be that of the entity that was selected at the time the button was pressed. If a user input was specified (dependent on setting when saving the script) it will be placed in the String Variable or Number field as appropriate.

```
Set landing zone of <Script Platform> to <Script String Variable - Script #0> and cle...
Assign tactic land to <Script Platform>.
```

Triggers

None – this is an instantaneous buttonized script that executes immediately when the button is pressed

Actions

Action 1 [Navigation] – Assign Landing Zone

- Touchdown: "<Script String Variable – This Script>"

- Assigned To Platforms: "<Scripted Platform>"

- Action is instantaneous

Note 1: The <Script String Variable> is the input received from the user when the script is activated; they use the map selection tool to select a location or an entity. The location or callsign is then transferred into the <Script String Variable> field in the script editor for the script.

Note 2: The <Scripted Platform> is whatever platform(s) was selected at the time the button was pressed. This transfers the platform name into the <Scripted Platform> field in the script editor for the script.

Action 2 [Navigation] – Tactic – Land

- Assigned To Platforms: "<Scripted Platform>"

- Wait for action to finish before executing next: ☐

▪ **Note:** Wait for action to finish selection is irrelevant as there are no following actions.

Script Description 5 – (Buttonized) Land at user created LZ

An instantaneous buttonized script, when selected the user is given a map selection tool that allows selection of a location. Once selected, a known point is created at the location which is then allocated as the landing zone for the platform which was selected when the button was pressed. The platform lands at the user selected location, then the LZ is deleted.

Note: When a buttonized script is executed, it creates a unique new script in the Script Editor (dependent on visibility setting when saving the script), and changes the <Scripted Platform> field to be that of the entity that was selected at the time the button was pressed. If a user input was specified (dependent on setting when saving the script) it will be placed in the String Variable or Number field as appropriate.

Triggers

None – this is an instantaneous buttonized script that executes immediately when the button is pressed

Actions

Action 1 [Mission 1] – Create Platform

- Callsign: "LZ-00001"

- Platform: "Known Point"

- Location: <Script String Variable – This Script>

- Save New Platform Callsign to Script String Variable: ☑

- Other Parameters: unchanged

- Assigned To Platforms: Not applicable

- Action is instantaneous

Note: By saving the new platform callsign to the <Script String Variable> this allows it to be used when assigning the landing zone in the next action. It also allows the landing zone to

be moved after the command to land has been given, and to be deleted at the end of the script.

Action 2 [Navigation] – Assign Landing Zone

- <u>Touchdown</u>: "<Script String Variable – This Script>"

- <u>Assigned To Platforms</u>: "<Scripted Platform>"

- Action is instantaneous

Note 1: The <Script String Variable> is was originally input received from the user when the script is activated; they use the map selection tool to select a location or an entity. The location or callsign is then transferred into the <Script String Variable> field in the script editor for the script. However, in the action preceding this one the callsign of the newly created landing zone has now been saved as the <Script String Variable>.

Note 2: The <Scripted Platform> is whatever platform(s) was selected at the time the button was pressed. This transfers the platform name into the <Scripted Platform> field in the script editor for the script.

Action 3 [Navigation] – Tactic – Land

- <u>Assigned To Platforms</u>: "<Scripted Platform>"

- <u>Wait for action to finish before executing next</u>: ☐

- **Note:** Wait for action to finish selection is irrelevant as there are no following actions.

Action4 [Scripting 1] – Delay Until – Platform Proximity

- <u>Platform</u>: "<Scripted Platform>"

- <u>Location</u>: "<Script String Variable – This Script>"

    o Which is now the callsign of the LZ

- <u>Is Within</u>: "10m"

- <u>Ignore Elevation Difference</u>: ☑

Note 1: Delay until pauses the action list until the chosen trigger is met, then the actions continue. It is similar to a While (something is not true) loop.

Note 2: This is used instead of having a 'Wait for action to finish before executing' on Action 3 as to do so would prevent future expansion of the script to include things that happen before the landing e.g. smoke mark near the LZ.

Action 5 – [Scripting 1] – Delay

- <u>Delay Script</u>: "15" Seconds

Note: This is put in to ensure that the aircraft has actually touched down at the LZ before deleting it.

Action 6 [Mission 1] – Delete Entity

- <u>Assigned To Platforms</u>: "<Script String Variable – This Script >"
    - Which is now the callsign of the LZ