

JTLS-2017-13132 Allow HRUs To Gather Intel From DSAs

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1.0 Summary of Model Change Request

High Resolution Units (HRUs) perform intelligence gathering missions within JTLS-GO. Under the HRU Tasking Order, an HRU can be directed to Patrol a location or an area to collect essential elements of information (EEI) that are reported to the intelligence player. Directed Search Areas (DSAs) are established for use by reconnaissance air missions to collect intelligence within the specified area or location. Depending on the sensor type carried by the air mission, an intelligence report is also generated. This ECP requests that HRUs be allowed to use DSAs and generate a Non-Theater DSA Intelligence Report similar to air missions.

2.0 Design Summary

2.1 Current Capabilities

This design document describes how HRU capabilities can be expanded to utilize DSAs and generate a Non-Theater DSA Collection Report, also known as an Intelligence Information Report (IIR).

Currently, only reconnaissance air missions may be assigned to collect intelligence information from a DSA. The mission must carry appropriate ground search sensors to detect objects within the DSA and generate a corresponding Non-Theater DSA Collection Report. Specifically, the sensor(s) must have a detection method of DETECTION INSTANTANEOUS to create a report. If the detection method is DETECTION OBSERVED, missions do not need to have an assigned DSA to create a report.

HRUs can own ground sensors that enable detection of nearby objects. If an EEI list is specified in the tasking order, the HRU breaks radio silence and provides an HRU Urgent Status Report when an object from the list is detected. Otherwise, the HRU will generate only a routine HRU Intelligence Report on a periodic basis.

2.2 Design Approach

This design envisions enhancing JTLS-GO to permit a DSA to be assigned to an HRU that is ordered to perform a Patrol task. The DSA name will be added to the HRU Task order as an optional entry for the Patrol task. The DSA specified must exist. The Patrol task must specify a Patrol location that places the HRU within sensor range of the DSA region. The HRU will then move to the Patrol location and search only the specified DSA, using whatever sensor targets it

owns. If the HRU sensor target has a detection method of DETECTION INSTANTANEOUS, a Non-Theater DSA Collection Report will be generated. Note: The sensor usage type must be SURFACE SEARCH and the sensor collection mode cannot be ELINT.

3.0 Detailed Design

To implement the proposed DSA search capability for HRUs, enhancements are necessary in the Combat Events Program (CEP), HRU Task order, and message templates. Implementation will attempt to leverage the existing air mission DSA searching and reporting algorithms as much as possible.

3.1 DSA Search and Report Process

After the HRU Task Patrol order is received, the model will confirm the existence of the specified DSA when the execution time arrives. If the DSA does not exist at execution time, the Patrol task will be canceled with a player message. Next, the HRU will move to the DSA region or location (i.e. the DSA may be a single point or a BE Facility). The HRU will then search within (or at) the DSA and attempt to detect any objects present. The HRU will search within the range limitations of its ground sensor targets, which may or may not cover the entire DSA. Only objects that fall within the DSA will be subject to detection and reporting. Each time the HRU moves, or an object within the DSA moves, the detection process occurs.

The existing HRU search algorithm selects the “best” sensor owned by the HRU based on longest range. The range is added to the HRU’s radius to obtain the search distance. The algorithm gathers all objects within that distance. If the HRU has an assigned DSA, new logic will be added to exclude objects that are not within or associated with the DSA. If any gathered objects remain, the sensor’s probability of detection (modified for object type, weather, jamming, and day/night) determines if a detection is actually made.

Note: Collected information about the detected objects are placed in the HRU’s Information Set. The Information Set contains individual structures known as Update Data entities, which hold collected information about each detected object. The Update Data entities are included in an Update Information event that updates the owning force side’s battlefield perception as displayed on the WHIPs. The model schedules the Update Information event at the same time the routine HRU Intelligence Report or HRU Urgent Status Report is sent.

If the HRU has the appropriate ground sensor, a Non-Theater DSA Collection Report (also referred to as an IIR) containing the detected DSA objects will be generated for the intel player. The required sensor attribute values to generate a Non-Theater DSA Collection Report are

summarized in [Table 1](#). Also, the DSA USE FLAG must be set to TACTICAL ASSET.

Table 1. Sensor Settings For DSA Report

SENSOR ATTRIBUTE	VALUE
ST USE	SURFACE SEARCH
ST DETECTION METHOD	DETECTION INSTANTANEOUS
ST COLLECTION MODE	Any except ELINT

The HRU IIR will be scheduled to be sent at the same time the routine HRU Intelligence Report or HRU Urgent Status Report is sent. If the HRU makes additional detections of DSA objects before the HRU IIR is sent, those updates will be included in the IIR.

For example, assume the HRU collects information on DSA objects at 0200z and schedules the Non-Theater DSA Collection Report to be sent at 0600z with the periodic HRU Intelligence Report. The HRU moves again (or an object within the DSA moves) which triggers another round of detections at 0400z. Those detections are more current than the detections made at 0200z and the updated information will be included in the HRU IIR at 0600z. This process ensures the Non-Theater DSA Collection Report contains the latest collected information.

If any of the HRU detected DSA objects are on the EEI list, the Non-Theater DSA Collection Report will be generated immediately and sent with the HRU Urgent Status Report.

The Non-Theater DSA Collection Report will be a modified copy of the existing report generated from air missions. At a minimum, mission-specific information will be replaced with information related to the patrolling HRU. There is also a Non-Theater DSA Negative Collection Report that is generated when there is nothing significant noted. Both versions of the collection report templates will be tailored for the HRU detector where appropriate.

3.2 Limitations And Constraints

HRUs will only report on objects detected within the assigned DSA. Objects within sensor range outside of the DSA will be ignored entirely.

Unlike air missions, where multiple DSAs can be assigned to a single mission, only one DSA will be assignable to a single HRU. If the intent is to search more than one DSA with the same HRU, the player can simply submit a separate HRU Task order for each DSA. This technique will allow the player to stack Patrol orders to be completed sequentially by the HRU and manage them separately.

4.0 Data Changes

4.1 HRU.DSA.NAME

- Dimension: Variable - Entity Attribute
- Mode: Text
- Unit of Measure: N/A
- Range: The characters #, &, \$, @, /, {, }, <, >, ', and embedded spaces are prohibited. Maximum of 20 characters.
- Default Value: None
- Definition: HRU DSA NAME is an attribute of the HIGH RESOLUTION UNIT temporary entity. It is the name of a Directed Search Area (DSA) the HRU is assigned to search.
- Relationships: If the HRU DSA NAME holds the name of an existing DSA, an HRU tasked to Patrol within sensor range of the DSA will search for objects in the DSA.

5.0 Order Changes

The HRU Task player order will be modified. A new input field, DSA Name, will be added to the Restrictions Tab. The field will be used to specify the name of an existing DSA that the HRU is assigned to search while on Patrol. The field will be ignored for all other HRU tasks. If a non-existent DSA is submitted, the order will be rejected with a player message.

6.0 JODA Changes

No JODA Data System parameter, structure, or protocol changes are required to implement this design.

7.0 Test Plan

TBD. Depends on which aspects of the design are changed/approved.

7.1 Test 1 Title

Purpose: *[Describe the specific feature, function, or behavior to be tested or measured.]*

Step 1: Text

Step 2: Text

Expected Results: *[Describe the specific model behavior to be observed.]*

7.2 Test 2 Title

Purpose: *[Describe the specific feature, function, or behavior to be tested or measured.]*

Step 1: Text

Step 2: Text

Expected Results: *[Describe the specific model behavior to be observed.]*

