**3GPP TSG-RAN WG3 Meeting #129R3-255796**

**Bengaluru, India, 25th - 29th August 2025**

**Agenda Item: 16.2**

**Source: Ericsson, Huawei**

**Title: (TP to TS 38.300 BL CR) Detailed IE encoding and miscellaneous**

**Document for: Agreement**

# 1 Introduction

This TP follows discussions during online and offline discusisons at RAN3#129 and captures the following changes.

(The changes are performed with different "users" (tdoc number or topic) and highlighted in yellow.)

- "R3-255542":
orrect references to AS related protocol elements as suggested in R3-255542

- "mandatory D2R size":
implement the agreement " **Confirm that the Estimate of Expected D2R Message Size IE is mandatory provided in INVENTORY REQUEST.**", also removing Editor's Note 1.

- "command type":
no consensus on including a "command type"(" **Introduce Command Type (write, read, disable, …) in Command Request Transfer?**"), so the respective text and the FFS was removed

- " time interval":
implement the agreement " **Introduce Time Interval as Inventory Assistance Information.**", also removing Editor's Note 2.

# 2 Text Proposal (changes against 38.300 BL CR in R3-255072)

<<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

### 16.xx.x3 Inventory procedure

Figure 16.xx.x3-1 depicts the basic communication between the gNB and the A-IoT CN node for the Inventory procedure.



Figure 16.xx.x3-1: Inventory procedure

1. The A-IoT CN node initiates the Inventory procedure over NG-C by sending the Inventory Request message to the gNB. The Inventory Request message includes a Correlation ID and A-IOTF Identifier to identify the inventory session. The Inventory Request message also includes an A-IoT Device Identification Requested corresponding to the A-IoT device(s) which are targeted for the inventory. The A-IoT Device Identification Requested may indicate inventory for a single device, a group of devices or for all devices.

 The Inventory Request message also includes Requested Service Area Information (list of A-IoT Area IDs and/or reader list) and Inventory Assistance Information. The Inventory Assistance information includes the expected D2R message size and may also include e.g., approximate number of Target A-IoT devices, time interval.

 The Inventory Request message may also include a follow-on command indicator to indicate that at least for one of the targeted A-IoT device(s) a Command procedure will follow.

2. The gNB allocates and co-ordinates the usage of A-IoT radio resources.

3. The gNB confirms the request from the A-IoT CN node by replying with the Inventory Response message. The Inventory Response message includes the AIOTF Identifier and the Correlation ID received in the Inventory Request message.

NOTE 2: If the gNB is not able to perform the Inventory procedure, it rejects the request and sends an Inventory Failure message to the A-IoT CN node.

4. The Inventory procedure over the A-IoT radio interface is performed, i.e A-IoT paging, A-IoT Access Procedure and D2R data transmission, as sepcified in section 16.x.5 A-IoT MAC Layer Functions.

5./6. Upon receiving the response(s) from A-IoT paging from the A-IoT device(s), the gNB sends the Inventory Report message to the A-IoT CN node. If the Inventory procedure concerns multiple A-IoT devices, multiple Inventory Report messages may be sent to the A-IoT CN node.

 The Inventory Report message includes the AIOTF Identifier and the Correlation ID received in the Inventory Request message and further includes the A-IoT NAS PDU(s) carrying the inventoried A-IoT device ID(s).

 If a follow-on Command indicator was received at step 1, the Inventory Report message also includes a RAN A-IoT device NGAP ID for each A-IoT device which was inventoried.

NOTE 3: If the Inventory procedure concerns multiple A-IoT devices, an Inventory Report may include reports from multiple A-IoT devices.7. Upon completion of the inventory procedure the gNB may send an Inventory Complete Indication.

Editor’s Note 3: It is FFS whether this inventory complete indication is done via a new procedure or introducing indication IE in the current Inventory Report message.

### 16.xx.x4 Command procedure

Figure 16.xx.x4-1 depicts the basic communication between the gNB and the A-IoT CN node for the Command procedure.



Figure 16.xx.x4-1: Command procedure

The Command procedure addresses only one A-IoT device.

1. Prior to the Command procedure, the Inventory procedure is performed involving the concerned device and potentially other A-IoT devices.

NOTE 4: the step 2 may happen in parallel of the Inventory procedure involving other A-IoT devices or in parallel to other command procedures targeting other A-IoT devices within the same session.

2. The A-IoT CN node initiates the Command procedure over NG-C by sending the Command Request message to the gNB in order to send a command to a single A-IoT device. The Command Request message includes the same Correlation ID and AIOTF Identifier as the ones used in its corresponding inventory procedure.

 The Command Request also includes the RAN A-IoT device NGAP ID and the A-IoT NAS PDU corresponding to the targeted A-IoT device and may include some command assistance information. This command assistance information may contain the estimate of expected D2R message size.

3. The gNB allocates and co-ordinates the usage of A-IoT radio resources and performs the command procedure over the A-IoT radio interface, i.e., R2D and D2R data transmission, as specified in section 16.x.5 A-IoT MAC Layer Functions.

4. The gNB replies to the Command Request with the Command Response messageincluding the AIOTF Identifier the Correlation ID and the RAN A-IoT device NGAP ID received in the Command Request, and the A-IoT NAS PDU received from the device.

NOTE 5: If the gNB is not able to perform the Command procedure, it rejects the request and sends a Command Failure message to the A-IoT CN node.

<<<<<<<<<<<<<<<<<<<< End of Changes >>>>>>>>>>>>>>>>>>>>