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

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

**Agenda Item: 16.2**

**Source: Ericsson, Huawei, China Telecom, Nokia, ZTE, Xiaomi, LG Electronics, CMCC**

**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 specified in section 16.x.5.

5./6. Upon receiving the response(s) 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.

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 >>>>>>>>>>>>>>>>>>>>