**3GPP TSG-SA5 Meeting #162 *S5-253908***

Stor-Göteborg, Sweden, 25th August 2025 - 29th August 2025

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| --- |
| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
|  |
|  | **28.623** | **CR** | **0552** | **rev** | **1** | **Current version:** | **19.4.0** |  |
|  |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network | **x** | Core Network |  |

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|  |
| ***Title:***  | Rel-19 CR TS 28.623 Continuous MDT |
|  |  |
| ***Source to WG:*** | Ericsson, Deutsche Telekom |
| ***Source to TSG:*** | S5 |
|  |  |
| ***Work item code:*** | TraceQoE\_OAM |  | ***Date:*** | 2025-08-22 |
|  |  |  |  |  |
| ***Category:*** | B |  | ***Release:*** | Rel-19 |
|  | *Use one of the following categories:****F*** *(correction)****A*** *(mirror corresponding to a change in an earlier release)****B*** *(addition of feature),* ***C*** *(functional modification of feature)****D*** *(editorial modification)*Detailed explanations of the above categories canbe found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)…Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)Rel-20 (Release 20)* |
|  |  |
| ***Reason for change:*** | In consideration of the incoming LS R3‑253958 and SA5 discussion in DP (S5‑251222), this change request proposes the specification of Continuous Management-Based MDT based on the following principles:* Reuse of the existing Management-Based MDT framework, with minimal impact on the current architecture and procedures.
* Introduction of an OAM-triggered activation mechanism toward participating NG-RAN nodes, enabling identification of a continuous MDT job through specific Trace Reference(s).
* No impact to 5GC functionality.
* No impact to the UE, ensuring that UE behaviour remains unchanged.
* Use of Trace Reference (TR) and Trace Recording Session Reference (TRSR) to support correlation of MDT measurements collected across nodes, including UE transitions between RRC states and UE mobility.

This CR proposes the stage 3 YANG specification for the Continuous Management-Based MDT procedure. |
|  |  |
| ***Summary of change:*** | Defining the stage 3 YANG model for supporting Continuous MDT procedure |
|  |  |
| ***Consequences if not approved:*** | Unable to support Continuous MDT procedure as requested by RAN3 |
|  |  |
| ***Clauses affected:*** |  Forge |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **x** |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** |  | **x** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ... |
|  |  |
| ***Other comments:*** | Forge MR link: <https://forge.3gpp.org/rep/sa5/MnS/-/merge_requests/1789> at commit b6dc3f943489c3615fd72d44caf2a3af2bb0dbd1 |
|  |  |
| ***This CR's revision history:*** |  |

\*\*\* START OF CHANGE 1 \*\*\*

\*\*\* yang-models/\_3gpp-common-trace.yang \*\*\*

<CODE BEGINS>

module \_3gpp-common-trace {

 yang-version 1.1;

 namespace "urn:3gpp:sa5:\_3gpp-common-trace";

 prefix "trace3gpp";

 import \_3gpp-common-top { prefix top3gpp; }

 import \_3gpp-common-yang-extensions {prefix yext3gpp; }

 import ietf-inet-types { prefix inet; }

 import \_3gpp-common-files { prefix files3gpp; }

 import \_3gpp-common-yang-types { prefix types3gpp; }

 import \_3gpp-5g-common-yang-types {prefix types5g3gpp; }

 organization "3GPP SA5";

 contact "https://www.3gpp.org/DynaReport/TSG-WG--S5--officials.htm?Itemid=464";

 description "Trace handling

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 TTA, TTC). All rights reserved.";

 reference "3GPP TS 28.623

 Generic Network Resource Model (NRM)

 Integration Reference Point (IRP);

 Solution Set (SS) definitions

 3GPP TS 28.622

 Generic Network Resource Model (NRM)

 Integration Reference Point (IRP);

 Information Service (IS)" ;

 revision 2025-08-07 { reference "CR-0552" ; }

 revision 2025-05-07 { reference "CR-0532 CR-0536 CR-0540" ; }

 revision 2025-02-07 { reference "CR-0504" ; }

 revision 2025-02-05 { reference "CR-0461" ; }

 revision 2024-11-25 { reference "CR-0492" ; }

 revision 2024-11-07 { reference "CR-0480"; }

 revision 2024-10-01 { reference "CR-0457"; }

 revision 2024-08-13 { reference "CR-0387 CR-0377"; }

 revision 2024-08-07 { reference "CR-0405 CR-0421 CR-0379"; }

 revision 2024-05-12 { reference "CR-0401"; }

 revision 2024-05-06 { reference CR-0359; }

 revision 2024-04-06 { reference "CR-0342"; }

 revision 2024-01-29 { reference "CR-0316"; }

 revision 2023-11-06 { reference "CR-0290 CR-0294"; }

 revision 2023-11-03 { reference CR-0302 ; }

 revision 2023-09-18 { reference CR-0271 ; }

 revision 2023-08-10 { reference CR-0261; }

 revision 2023-04-26 { reference CR-0250; }

 revision 2023-02-18 { reference "CR-0234"; }

 revision 2023-02-16 { reference "CR-0233"; }

 revision 2022-09-30 { reference CR-0191 ; }

 revision 2022-04-27 { reference "CR-0159"; }

 revision 2021-10-18 { reference "CR-0139"; }

 revision 2021-07-22 { reference "CR-0137"; }

 revision 2021-01-25 { reference "CR-0122"; }

 revision 2020-11-16 { reference "CR-0117"; }

 revision 2020-08-06 { reference "CR-0102"; }

 feature FilesUnderTraceJob {

 description "Files shall be contained under TraceJob";

 }

 grouping FreqInfoGrp {

 description "Represents the FreqInfo dataType.

 This <<dataType>> defines the RF reference frequency and the frequency

 operating bands used in a cell for a given direction (UL or DL) in FDD

 or for both UL and DL directions in TDD";

 leaf arfcn {

 type uint32 {

 range 0..3279165;

 }

 mandatory true;

 description "RF Reference Frequency as defined in TS 38.104,

 clause 5.4.2.1. The frequency provided identifies the absolute

 frequency position of the reference resource block (Common RB 0)

 of the carrier. Its lowest subcarrier is also known as Point A.";

 }

 leaf-list freqBands {

 type uint32 {

 range 1..1024;

 }

 min-elements 1;

 description "List of NR frequency operating bands. Primary NR

 Operating Band as defined in TS 38.104, clause 5.4.2.3.

 The value 1 corresponds to n1, value 2 corresponds to NR operating

 band n2, etc.";

 }

 }

 grouping AreaConfigGrp {

 description "Represents the AreaConfig dataType.

 This <<dataType>> defines the area for which measurement logging should

 be performed. It is described by a list of cells and a list of

 frequencies.";

 list freqInfo {

 key arfcn;

 min-elements 1;

 max-elements 32;

 description "It specifies the carrier frequency and bands used in

 a cell.";

 uses FreqInfoGrp ;

 }

 leaf-list pciList {

 type uint32 {

 range 0..1007;

 }

 min-elements 1;

 max-elements 32;

 description "List of neighbour cells subject for MDT scope.";

 }

 }

 grouping AreaScopeGrp {

 description "This <<dataType>> defines an area scope.";

 choice AreaScopeChoice {

 leaf-list eutraCellIdList {

 type string;

 min-elements 1;

 max-elements 32;

 description "List of E-UTRAN cells identified by E-UTRAN-CGI";

 }

 leaf-list nrCellIdList {

 type string;

 min-elements 1;

 max-elements 32;

 description "List of NR cells identified by NG-RAN CGI";

 }

 leaf-list tacList {

 type types3gpp:Tac;

 min-elements 1;

 max-elements 8;

 description "Tracking Area Code list";

 }

 list sliceIdList {

 description "Network Slice Id list";

 key idx;

 uses types5g3gpp:PLMNInfo;

 min-elements 1;

 max-elements 16384;

 leaf idx { type string; }

 }

 list taiList {

 description "Tracking Area Identity list";

 key idx;

 min-elements 1;

 max-elements 8;

 leaf idx { type string; }

 uses types3gpp:TaiGrp;

 }

 }

 list nPNIdentityList {

 description "list of NPN IDs of in NR. It is either a list of PNI-NPNs

 identified by CAG ID with associated plmn-Identity or a list of SNPN

 identified by Network ID with associated plmn-Identity";

 key idx;

 min-elements 1;

 uses types3gpp:NpnIdGrp;

 leaf idx { type string; }

 }

 }

 grouping ExcessPacketDelayThresholdsGrp {

 description "Represents the ExcessPacketDelayThresholds dataType.

 This <<dataType>> defines a excess packet delay threshold information

 to enable the calculation of the PDCP Excess Packet Delay in the

 uplink in case of M6 uplink measurements are requested. The excess

 packet delay threshold information is specified with the 5QI value

 and excess packet delay threshold value.";

 leaf fiveQIValue {

 type uint8;

 mandatory true;

 description "It indicates 5QI value.";

 }

 leaf excessPacketDelayThresholdValue {

 type decimal64 {

 fraction-digits 2;

 range 0.25|0.5|1|2|4|5|10|20|30|40|50|60|70|80|90|100|150|300|500 ;

 }

 mandatory true;

 units milliseconds;

 description "Value of excess packet delay threshold

 for M6 UL measurement in milliseconds.";

 }

 }

 grouping TraceReferenceGrp {

 description "Represents the TraceReference dataType.

 This <<dataType>> defines a globally unique identifier, which uniquely

 identifies the Trace Session that is created by the TraceJob. It is

 composed of the MCC, MNC (resulting in PLMN identifier) and the

 trace identifier.";

 uses types3gpp:PLMNId; // mcc+mnc

 leaf traceId {

 type string;

 mandatory true;

 description "An identifier, which identifies the Trace

 (together with MCC and MNC). This is a 3 byte Octet String.";

 }

 }

 grouping MbsfnAreaGrp {

 description "Represents the MbsfnArea dataType.

 This <<dataType>> defines a MBSFN area. It is composed of the MBSFN Area

 identifier and the carrier frequency (EARFCN).";

 leaf mbsfnAreaId {

 type uint32 {

 range 1..max;

 }

 mandatory true;

 description "MBSFN Area Identifier";

 }

 leaf earfcn{

 type uint32 {

 range 1..max;

 }

 mandatory true;

 description "Carrier Frequency";

 }

 }

 grouping TraceConfigGrp {

 description "Defines the configuration parameters of TraceJob

 which are specific for Trace or combined Trace and Immediate MDT.

 The attribute listOfNeTypes specifies the network elements to be

 traced. The optional attribute listOfInterfaces allows to specify

 the individual interfaces of the network elements to be recorded.

 The attribute traceDepth allows to configure the level of detail

 of the information which shall be recorded. For trace the reporting

 is event based, where the triggering event is configured with

 attribute triggeringEvents. For each triggering event the first and

 last message (start/stop triggering event) to record are specified.";

 list listOfInterfaces {

 key idx;

 description "Specifies the interfaces that need to be traced in the given

 ManagedEntityFunction.The attribute is applicable only for Trace. In

 case this attribute is not used, it carries a null semantic.";

 reference "Clause 5.5 of 3GPP TS 32.422 for additional details on the

 allowed values.";

 leaf idx { type uint32 ; }

 leaf-list MSCServerInterfaces {

 type enumeration {

 enum A ;

 enum Iu-CS ;

 enum Mc ;

 enum MAP-G ;

 enum MAP-B ;

 enum MAP-E ;

 enum MAP-F ;

 enum MAP-D ;

 enum MAP-C ;

 enum CAP ;

 }

 }

 leaf-list MGWInterfaces {

 type enumeration {

 enum Mc ;

 enum Nb-UP ;

 enum Iu-UP ;

 }

 }

 leaf-list RNCInterfaces {

 type enumeration {

 enum Iu-CS ;

 enum Iu-PS ;

 enum Iur ;

 enum Iub ;

 enum Uu ;

 }

 }

 leaf-list SGSNInterfaces {

 type enumeration {

 enum Gb ;

 enum Iu-PS ;

 enum Gn ;

 enum MAP-Gr ;

 enum MAP-Gd ;

 enum MAP-Gf ;

 enum Ge ;

 enum Gs ;

 enum S6d ;

 enum S4 ;

 enum S3 ;

 enum S13 ;

 }

 }

 leaf-list GGSNInterfaces {

 type enumeration {

 enum Gn ;

 enum Gi ;

 enum Gmb ;

 }

 }

 leaf-list S-CSCFInterfaces {

 type enumeration {

 enum Mw ;

 enum Mg ;

 enum Mr ;

 enum Mi ;

 }

 }

 leaf-list P-CSCFInterfaces {

 type enumeration {

 enum Gm ;

 enum Mw ;

 }

 }

 leaf-list I-CSCFInterfaces {

 type enumeration {

 enum Cx ;

 enum Dx ;

 enum Mg ;

 enum Mw ;

 }

 }

 leaf-list MRFCInterfaces {

 type enumeration {

 enum Mp ;

 enum Mr ;

 }

 }

 leaf-list MGCFInterfaces {

 type enumeration {

 enum Mg ;

 enum Mj ;

 enum Mn ;

 }

 }

 leaf-list IBCFInterfaces {

 type enumeration {

 enum Ix ;

 enum Mx ;

 }

 }

 leaf-list E-CSCFInterfaces {

 type enumeration {

 enum Mw ;

 enum Ml ;

 enum Mm ;

 enum Mi-Mg ;

 }

 }

 leaf-list BGCFInterfaces {

 type enumeration {

 enum Mi ;

 enum Mj ;

 enum Mk ;

 }

 }

 leaf-list ASInterfaces {

 type enumeration {

 enum Dh ;

 enum Sh ;

 enum ISC ;

 enum Ut ;

 }

 }

 leaf-list HSSInterfaces {

 type enumeration {

 enum MAP-C ;

 enum MAP-D ;

 enum Gc ;

 enum Gr ;

 enum Cx ;

 enum S6d ;

 enum S6a ;

 enum Sh ;

 }

 }

 leaf-list EIRInterfaces {

 type enumeration {

 enum MAP-F ;

 enum S13 ;

 enum MAP-Gf ;

 }

 }

 leaf-list BM-SCInterfaces {

 type enumeration {

 enum Gmb ;

 }

 }

 leaf-list MMEInterfaces {

 type enumeration {

 enum S1-MME ;

 enum S3 ;

 enum S6a ;

 enum S10 ;

 enum S11 ;

 enum S13 ;

 }

 }

 leaf-list SGWInterfaces {

 type enumeration {

 enum S4 ;

 enum S5 ;

 enum S8 ;

 enum S11 ;

 enum Gxc ;

 }

 }

 leaf-list PDN\_GWInterfaces {

 type enumeration {

 enum S2a ;

 enum S2b ;

 enum S2c ;

 enum S5 ;

 enum S6b ;

 enum Gx ;

 enum S8 ;

 enum SGi ;

 }

 }

 leaf-list eNBInterfaces {

 type enumeration {

 enum S1-MME ;

 enum X2 ;

 }

 }

 leaf-list en-gNBInterfaces {

 type enumeration {

 enum S1-MME ;

 enum X2 ;

 enum Uu ;

 enum F1-C ;

 enum E1 ;

 }

 }

 leaf-list AMFInterfaces {

 type enumeration {

 enum N1 ;

 enum N2 ;

 enum N8 ;

 enum N11 ;

 enum N12 ;

 enum N14 ;

 enum N15 ;

 enum N20 ;

 enum N22 ;

 enum N26 ;

 }

 }

 leaf-list AUSFInterfaces {

 type enumeration {

 enum N12 ;

 enum N13 ;

 }

 }

 leaf-list NEFInterfaces {

 type enumeration {

 enum N29 ;

 enum N30 ;

 enum N33 ;

 }

 }

 leaf-list NRFInterfaces {

 type enumeration {

 enum N27 ;

 }

 }

 leaf-list NSSFInterfaces {

 type enumeration {

 enum N22 ;

 enum N31 ;

 }

 }

 leaf-list PCFInterfaces {

 type enumeration {

 enum N5 ;

 enum N7 ;

 enum N15 ;

 }

 }

 leaf-list SMFInterfaces {

 type enumeration {

 enum N4 ;

 enum N7 ;

 enum N10 ;

 enum N11 ;

 enum S5-C ;

 enum N38 ;

 enum N16 ;

 enum N16a ;

 }

 }

 leaf-list SMSFInterfaces {

 type enumeration {

 enum N20 ;

 enum N21 ;

 }

 }

 leaf-list UDMInterfaces {

 type enumeration {

 enum N8 ;

 enum N10 ;

 enum N13 ;

 enum N21 ;

 }

 }

 leaf-list UPFInterfaces {

 type enumeration {

 enum N4 ;

 }

 }

 leaf-list ng-eNBInterfaces {

 type enumeration {

 enum NG-C ;

 enum Xn-C ;

 enum Uu ;

 }

 }

 leaf-list gNB-CU-CPInterfaces {

 type enumeration {

 enum NG-C ;

 enum Xn-C ;

 enum Uu ;

 enum F1-C ;

 enum E1 ;

 enum X2-C ;

 }

 }

 leaf-list gNB-CU-UPInterfaces {

 type enumeration {

 enum E1 ;

 }

 }

 leaf-list gNB-DUInterfaces {

 type enumeration {

 enum F1-C ;

 }

 }

 }

 leaf-list listOfNeTypes {

 type enumeration {

 enum MSC\_SERVER;

 enum SGSN;

 enum MGW;

 enum GGSN;

 enum RNC;

 enum BM\_SC;

 enum MME;

 enum SGW;

 enum PGW;

 enum ENB;

 enum EN\_GNB;

 enum GNB\_CU\_CP;

 enum GNB\_CU\_UP;

 enum GNB\_DU;

 }

 description "Specifies the network element types where the trace should

 be activated. The attribute is applicable only for Trace with

 Signalling Based Trace activation.";

 reference "Clause 5.4 of 3GPP TS 32.422. ";

 }

 leaf traceDepth {

 when '../../jobType = "TRACE\_ONLY"'

 + ' or ../../jobType = "IMMEDIATE\_MDT\_AND\_TRACE"';

 type enumeration {

 enum MINIMUM;

 enum MEDIUM;

 enum MAXIMUM;

 enum VENDORMINIMUM;

 enum VENDORMEDIUM;

 enum VENDORMAXIMUM;

 }

 default MAXIMUM;

 description "It specifies the trace depth. The attribute is applicable

 only for Trace.";

 reference "Clause 5.3 of 3GPP TS 32.422.";

 }

 list triggeringEvents {

 key idx;

 description "It specifies the triggering event parameter of the trace

 session. The attribute is applicable only for Trace.";

 reference "Clause 5.1 of 3GPP TS 32.422";

 leaf idx { type uint32; }

 max-elements 1;

 leaf-list MSC\_SERVER {

 type enumeration {

 enum MO\_MT\_CALLS;

 enum MO\_MT\_SMS;

 enum LU\_IMSIattach\_IMSIdetach;

 enum SS;

 }

 }

 leaf-list SGSN {

 type enumeration {

 enum PDPcontext;

 enum MO\_MT\_SMS;

 enum RAU\_GPRSattach\_GPRSdetach;

 enum MBMScontext;

 }

 }

 leaf-list MGW {

 type enumeration {

 enum CONTEXT;

 }

 }

 leaf-list GGSN {

 type enumeration {

 enum PDPcontext;

 enum MBMScontext;

 }

 }

 leaf-list IMS {

 type enumeration {

 enum SIPsession\_StandaloenTransaction;

 }

 }

 leaf-list BM\_SC {

 type enumeration {

 enum MBMSactivation;

 }

 }

 leaf-list MME {

 type enumeration {

 enum UEinitiatedPDNconnectivityRequest;

 enum ServiceRequest;

 enum InitialAttach\_TAU\_Detach;

 enum UEInitiatedPDNdisconnection;

 enum BearerActivationModificationDeletion;

 enum Handover;

 }

 }

 leaf-list SGW {

 type enumeration {

 enum PDNconnectionCreation;

 enum PDNconnectionTermination;

 enum BearerActivationModificationDeletion;

 }

 }

 leaf-list PGW {

 type enumeration {

 enum PDNconnectionCreation;

 enum PDNconnectionTermination;

 enum BearerActivationModificationDeletion;

 }

 }

 leaf-list AMF {

 type enumeration {

 enum Registration;

 enum ServiceRequest;

 enum Handover;

 enum UEderegistration;

 enum NetworkDeregistration;

 enum UEMobilityFromEPC;

 enum UEMobilityToEPC;

 enum CovergedChargingService;

 }

 }

 leaf-list SMF {

 type enumeration {

 enum PDUsessionEstablishment;

 enum PDUsessionModification;

 enum PDUsessionRelease;

 enum PDUsessionUPactivationDeactivation;

 enum MobilityBtw3gppAndN3gppTo5GC;

 enum MobilityFromEpc;

 enum MobilityBtwISMForVSMF;

 enum CovergedChargingService;

 enum OfflineOnlyCharging;

 }

 }

 leaf-list PCF {

 type enumeration {

 enum AMpolicy;

 enum SMpolicy;

 enum Authorization;

 enum BDTpolicy;

 enum SpendingLimitControl;

 }

 }

 leaf-list UPF {

 type enumeration {

 enum N4Session;

 }

 }

 leaf-list AUSF {

 type enumeration {

 enum UEauthentication;

 }

 }

 leaf-list NEF {

 type enumeration {

 enum EventExposure;

 enum PFDmanagement;

 enum ParameterProvisiong;

 enum Trigger;

 }

 }

 leaf-list NRF {

 type enumeration {

 enum NFmanagement;

 enum NFdiscovery;

 }

 }

 leaf-list NSSF {

 type enumeration {

 enum NSSelection;

 enum NSSAI;

 }

 }

 leaf-list SMSF {

 type enumeration {

 enum SMService;

 }

 }

 leaf-list UDM {

 type enumeration {

 enum UEcontext;

 enum SubscriberData;

 enum UEauthentication;

 enum EventExposure;

 }

 }

 }

 }

 grouping ImmediateMdtConfigGrp {

 description "Represents the ImmediateMdtConfig dataType.

 This <<dataType>> defines the configuration parameters of

 IOC TraceJob which are specific for Immediate MDT or combine

 Trace and Immediate MDT.

 The optional attribute positioningMethod allows to specify

 the positioning methods to use.

 The following attributes are conditional available based on the

 measurements configured in listOfMeasurements:

 -reportInterval (conditional for M1 in LTE or NR and M1/M2 in UMTS),

 -reportAmount (conditional for M1/M2 in UMTS),

 -reportAmountM1LTE (conditional for M1 in LTE),

 -reportAmountM4LTE (conditional for M4 in LTE),

 -reportAmountM5LTE (conditional for M5 in LTE),

 -reportAmountM6LTE (conditional for M6 in LTE),

 -reportAmountM7LTE (conditional for M7 in LTE),

 -reportAmountM1NR (conditional for M1 in NR),

 -reportAmountM4NR (conditional for M4 in NR),

 -reportAmountM5NR (conditional for M5 in NR),

 -reportAmountM6NR (conditional for M6 in NR),

 -reportAmountM7NR (conditional for M7 in NR),

 -reportingTrigger (conditional for M1 in LTE or NR and M1/M2 in UMTS),

 -eventThreshold (conditional for A2 event reporting or A2 event

 triggered periodic reporting),

 -collectionPeriodRRMNR (conditional for M4 and M5 in NR),

 -collectionPeriodM6NR (conditional for M6 in NR),

 -collectionPeriodM7NR (conditional for M7 in NR),

 -collectionPeriodRRMLTE (conditional for M3 in LTE),

 -measurementPeriodLTE (conditional for M4 and M5 in LTE),

 -collectionPeriodM6LTE (conditional for M6 in LTE),

 -collectionPeriodM7LTE (conditional for M7 in LTE),

 -collectionPeriodRRMUMTS (conditional for M4 and M5 in UMTS),

 -measurementPeriodUMTS (conditional for M6 and M7 in UMTS),

 -measurementQuantity (conditional for 1F event reporting),

 -beamLevelMeasurement (conditional for M1 in NR),

 -excessPacketDelayThresholds (conditional for M6 UL measurement in NR).

 For immediate MDT, the measurement reporting is dependent on the

 configured measurements:

 - For measurement M1 in LTE or NR, it is possible to select between

 periodical, event triggered, event triggered periodic reporting or

 reporting according to all configured RRM event triggers. For M1 and M2

 measurement in UMTS, it is possible to select between periodical, event

 triggered reporting or reporting according to all configured RRM event

 triggers. Parameter reportingTrigger determines which of the reporting

 methods is selected and in case of event triggered or event-triggered

 periodic, which is the decisive event type. For periodical reporting,

 parameters reportInterval and reportAmount determine the interval between

 two successive reports and the number of reports. This means the

 periodical reporting terminates after reportAmount reports have been

 sent as long as reportAmount is configured with a value different from

 infinity. For event-triggered periodic reporting, these two parameters

 apply in addition to parameter eventThreshold which determines the

 threshold of the event. In this case up to reportAmount reports are

 sent with a periodicity of reportInterval after the entering condition

 is fulfilled. The reporting is stopped, if the leaving condition is

 fulfulled and is restarted if the configured event reoccurs. For event

 based reporting, there is only one report sent after the event occurs.

 The parameters to configure are reportingTrigger and eventThreshold.

 In case of UMTS and 1f event reporting, additionally parameter

 measurementQuantity is necessary in order to determine for which

 measurement(s) the event threshold is applicable. Parameter

 beamLevelMeasurement determines whether beam level measurements shall

 be included in case of NR.

 - For measurement M2 in LTE or NR, reporting is according to RRM

 configuration, see TS 38.321, TS 36.321 and TS 38.331, TS 36.331.

 - For measurement M4 in UMTS, reporting is either according to RRM

 configuration, see TS 25.321 and TS 25.331 or periodic or event

 triggered periodic using parameter collectionPeriodRRMUMTS and

 eventThresholdUphUMTS.

 - For measurement M3 in UMTS, the reporting is done upon

 availability, see TS 37.320.

 - For measurements M4, M5, M6 and M7 in NR, for measurements

 M3, M4, M5, M6 and M7 in LTE and for measurements M5, M6 and M7

 in UMTS periodical reporting is applied. The configurable parameter

 is the interval between two measurements (collectionPeriodRRMNR,

 collectionPeriodM6NR, collectionPeriodM7NR, collectionPeriodRRMLTE,

 measurementPeriodLte, collectionPeriodM6LTE, collectionPeriodM7LTE,

 collectionPeriodRRMUMTS, measurementPeriodUMTS) and the number of

 reports (reportAmountM4NR, reportAmountM5NR, reportAmountM6NR,

 reportAmountM7NR, reportAmountM4LTE, reportAmountM5LTE,

 reportAmountM6LTE,reportAmountM7LTE). If no collection period

 is configured for M5 in UMTS, all available measurements are

 logged according to RRM configuration.

 - Measurements M8 and M9 in NR or LTE are reported according to

 configured M1 and/or M6 related UE measurement reporting.

 ";

 leaf listOfMeasurements {

 when '../../../jobType = "IMMEDIATE\_MDT\_ONLY"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_TRACE"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType =

 "TRACE\_AND\_IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_LOGGED\_MDT"';

 type enumeration {

 enum M1;

 enum M2;

 enum M3;

 enum M4;

 enum M5;

 enum M6\_DL;

 enum M6\_UL;

 enum M7\_DL;

 enum M7\_UL;

 enum M1\_EVENT\_TRIGGERED;

 enum M6;

 enum M7;

 enum M8;

 enum M9;

 }

 description "It specifies the UE measurements that shall be

 collected in an Immediate MDT job. The attribute is

 applicable only for Immediate MDT.";

 reference "Clause 5.10.3 of 3GPP TS 32.422.";

 }

 leaf reportingTrigger {

 when '../../../jobType = "IMMEDIATE\_MDT\_ONLY"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_TRACE"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType =

 "TRACE\_AND\_IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_LOGGED\_MDT"';

 type enumeration {

 enum PERIODICAL;

 enum A2\_FOR\_LTE;

 enum 1F\_FOR\_UMTS;

 enum 1I\_FOR\_UMTS\_MCPS\_TDD;

 enum A2\_TRIGGERED\_PERIODIC\_FOR\_LTE;

 enum ALL\_CONFIGURED\_RRM\_FOR\_LTE;

 enum ALL\_CONFIGURED\_RRM\_FOR\_UMTS;

 }

 description "It specifies whether periodic or event based measurements

 should be collected.

 The attribute is applicable only for Immediate MDT and when the

 listOfMeasurements is configured for M1 (for both UMTS and LTE)

 or M2 (only for UMTS).";

 reference "Clause 5.10.4 of 3GPP TS 32.422.";

 }

 leaf reportInterval {

 when '../../../jobType = "IMMEDIATE\_MDT\_ONLY"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_TRACE"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType =

 "TRACE\_AND\_IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_LOGGED\_MDT"'

 + ' and ../reportingTrigger = "PERIODICAL"';

 type uint32 {

 range "120|240|250|480|500|640|1000|1024|2000|2048|3000|4000|"

 +"5120|6000|8000|10240|12000|16000|20000|"

 +"20480|24000|28000|32000|40960|60000|64000|"

 +"360000|720000|1800000|3600000";

 }

 units milliseconds;

 description "It specifies the interval between the periodical measurements

 that shall be taken when the UE is in connected mode.

 The attribute is applicable only for Immediate MDT and when

 reportingTrigger is configured for periodical measurements.";

 reference "5.10.5 of 3GPP TS 32.422.";

 }

 leaf reportAmount {

 when '../../../jobType = "IMMEDIATE\_MDT\_ONLY"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_TRACE"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType =

 "TRACE\_AND\_IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_LOGGED\_MDT"'

 + ' and ../reportingTrigger = "PERIODICAL"';

 type union {

 type uint32 {

 range "1|4|8|16|32|64" ;

 }

 type enumeration {

 enum INFINITY;

 }

 }

 description "It specifies the number of measurement reports that shall be

 taken for periodic reporting while the UE is in connected.

 The attribute is applicable only for Immediate MDT and when

 reportingTrigger is configured for periodical measurements.";

 reference "Clause 5.10.6 of 3GPP TS 32.422";

 }

 leaf eventThreshold {

 when '../../../jobType = "IMMEDIATE\_MDT\_ONLY"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_TRACE"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType =

 "TRACE\_AND\_IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_LOGGED\_MDT"';

 type int64;

 description "Specifies the threshold which should trigger the reporting

 in case A2 event reporting in LTE or 1F/1l event in UMTS. The attribute

 is applicable only for Immediate MDT and when reportingTrigger is

 configured for A2 event in LTE or 1F event or 1l event in UMTS.";

 reference "Clauses 5.10.7 and 5.10.7a of 3GPP TS 32.422";

 }

 leaf collectionPeriodRRMNR {

 when '../../../jobType = "IMMEDIATE\_MDT\_ONLY"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_TRACE"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType =

 "TRACE\_AND\_IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_LOGGED\_MDT"';

 type uint32 {

 range "1024|2048|5120|10240|60000";

 }

 units milliseconds;

 description "Specifies the collection period for collecting RRM

 configured measurement samples for M4, M5 in NR. The attribute is

 applicable only for Immediate MDT.";

 reference "Clause 5.10.30 of 3GPP TS 32.422";

 }

 leaf collectionPeriodM6NR {

 when '../../../jobType = "IMMEDIATE\_MDT\_ONLY"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_TRACE"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType =

 "TRACE\_AND\_IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_LOGGED\_MDT"';

 type enumeration {

 enum 120ms;

 enum 240ms;

 enum 480ms;

 enum 640ms;

 enum 1024ms;

 enum 2048ms;

 enum 5120ms;

 enum 10240ms;

 enum 20480ms;

 enum 40960ms;

 enum 1min;

 enum 6min;

 enum 12min;

 enum 30min;

 }

 description "It specifies the collection period for the Packet Delay

 measurement (M6) for NR MDT taken by the gNB. The attribute is

 applicable only for Immediate MDT. ";

 reference "clause 5.10.34 of TS 32.422";

 }

 leaf collectionPeriodM7NR {

 when '../../../jobType = "IMMEDIATE\_MDT\_ONLY"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_TRACE"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType =

 "TRACE\_AND\_IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_LOGGED\_MDT"';

 type uint32 {

 range "1..60";

 }

 description "It specifies the collection period for the Packet Loss Rate

 measurement (M7) for NR MDT taken by the gNB. The attribute is

 applicable only for Immediate MDT.";

 reference "clause 5.10.35 of TS 32.422";

 }

 leaf collectionPeriodRRMLTE {

 when '../../../jobType = "IMMEDIATE\_MDT\_ONLY"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_TRACE"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType =

 "TRACE\_AND\_IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_LOGGED\_MDT"';

 type enumeration {

 enum 100ms;

 enum 1000ms;

 enum 1024ms;

 enum 1280ms;

 enum 2048ms;

 enum 2560ms;

 enum 5120ms;

 enum 10000ms;

 enum 10240ms;

 enum 1min;

 }

 description "Specifies the collection period for collecting RRM configured

 measurement samples for M3 in LTE. The attribute is applicable only

 for Immediate MDT.";

 reference "Clause 5.10.20 of 3GPP TS 32.422.";

 }

 leaf measurementPeriodLTE {

 when '../../../jobType = "IMMEDIATE\_MDT\_ONLY"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_TRACE"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType =

 "TRACE\_AND\_IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_LOGGED\_MDT"';

 type enumeration {

 enum 1024ms;

 enum 2048ms;

 enum 5120ms;

 enum 10240ms;

 enum 1min;

 }

 mandatory true;

 description "It specifies the measurement period for the

 Data Volume (M4) and Scheduled IP throughput

 measurements (M5) for LTE MDT taken by the eNB.

 The attribute is applicable only for Immediate MDT.";

 reference "Clause 5.10.23 of 3GPP TS 32.422.";

 }

 leaf collectionPeriodM6LTE {

 when '../../../jobType = "IMMEDIATE\_MDT\_ONLY"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_TRACE"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType =

 "TRACE\_AND\_IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_LOGGED\_MDT"';

 type uint32 {

 range "1024|2048|5120|10240";

 }

 units milliseconds;

 description "Specifies the collection period for the Packet Delay

 measurement (M6) for MDT taken by the eNB. The attribute is applicable

 only for Immediate MDT. In case this attribute is not used,

 it carries a null semantic.";

 reference "Clause 5.10.32 of TS 32.422. ";

 }

 leaf collectionPeriodM7LTE {

 when '../../../jobType = "IMMEDIATE\_MDT\_ONLY"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_TRACE"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType =

 "TRACE\_AND\_IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_LOGGED\_MDT"';

 type uint16 {

 range 1..60 ;

 }

 description "It specifies the collection period for the Packet Loss Rate

 measurement (M7) for LTE MDT taken by the eNB. The attribute is

 applicable only for Immediate MDT.";

 reference "Clause 5.10.33 of TS 32.422.";

 }

 leaf eventThresholdUphUMTS {

 when '../../../jobType = "IMMEDIATE\_MDT\_ONLY"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_TRACE"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType =

 "TRACE\_AND\_IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_LOGGED\_MDT"';

 type uint16 {

 range 0..31 ;

 }

 description "It specifies the threshold which should trigger

 the reporting in case of event-triggered periodic reporting for M4

 (UE power headroom measurement) in UMTS.";

 reference "Clause 5.10.39 of TS 32.422.";

 }

 leaf collectionPeriodRRMUMTS {

 when '../../../jobType = "IMMEDIATE\_MDT\_ONLY"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_TRACE"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType =

 "TRACE\_AND\_IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_LOGGED\_MDT"';

 type uint32 {

 range "100|250|500|1000|2000|"

 +"3000|4000|6000";

 }

 units milliseconds;

 description "Specifies the collection period for collecting RRM configured

 measurement samples for M3, M4, M5 in UMTS. The attribute is applicable

 only for Immediate MDT. ";

 reference "Clause 5.10.21 of 3GPP TS 32.422.";

 }

 leaf measurementPeriodUMTS {

 when '../../../jobType = "IMMEDIATE\_MDT\_ONLY"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_TRACE"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType =

 "TRACE\_AND\_IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_LOGGED\_MDT"';

 type uint32 {

 range "1000|2000|3000|4000|6000|8000|12000|16000|20000|"

 +"24000|28000|32000|64000";

 }

 units milliseconds;

 description "It specifies the measurement period for the Data Volume and

 Throughput measurements for MDT taken by RNC.

 The attribute is applicable only for Immediate MDT. In case this

 attribute is not used, it carries a null semantic.";

 reference "Clause 5.10.22 of 3GPP TS 32.422";

 }

 leaf measurementQuantity {

 when '../../../jobType = "IMMEDIATE\_MDT\_ONLY"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_TRACE"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType =

 "TRACE\_AND\_IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_LOGGED\_MDT"';

 type enumeration {

 enum CPICH\_ECNO;

 enum CPICH\_RSCP;

 enum PATHLOSS;

 }

 description "It specifies the measurements that are collected in an MDT

 job for a UMTS MDT configured for event triggered reporting.";

 reference "Clause 5.10.15 of 3GPP TS 32.422.";

 }

 leaf beamLevelMeasurement {

 when '../../../jobType = "IMMEDIATE\_MDT\_ONLY"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_TRACE"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType =

 "TRACE\_AND\_IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_LOGGED\_MDT"';

 type boolean;

 default false;

 description "Indicates whether the NR M1 beam level measurements shall

 be included or not.";

 reference "Clause 5.10.40 of 3GPP TS 32.422.";

 }

 leaf positioningMethod {

 when '../../../jobType = "IMMEDIATE\_MDT\_ONLY"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_TRACE"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType =

 "TRACE\_AND\_IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_LOGGED\_MDT"';

 type enumeration {

 enum GNSS;

 enum E\_CELL\_ID;

 }

 description "It specifies what positioning method should be used in the

 MDT job.";

 reference "Clause 5.10.19 of 3GPP TS 32.422.";

 }

 list excessPacketDelayThresholds {

 description "Excess packet delay thresholds info for M6 UL measurement.";

 min-elements 1;

 key idx;

 leaf idx { type string; }

 uses ExcessPacketDelayThresholdsGrp;

 }

 leaf reportAmountM1LTE {

 type enumeration {

 enum 1;

 enum 2;

 enum 4;

 enum 8;

 enum 16;

 enum 32;

 enum 64;

 enum INFINITY;

 }

 description "It specifies the number of measurement reports that shall be

 taken for periodic reporting while the UE is in connected mode.

 The attribute is applicable only for Immediate MDT and combined Trace

 and Immediate MDT and when reportingTrigger is configured for periodical

 measurements and applicable only for LTE.";

 reference "Clause 5.10.19 of 3GPP TS 32.422.";

 }

 leaf reportAmountM4LTE {

 type enumeration {

 enum 1;

 enum 2;

 enum 4;

 enum 8;

 enum 16;

 enum 32;

 enum 64;

 enum INFINITY;

 }

 description "It specifies the number of measurement reports that shall be

 taken for periodic reporting while the UE is in connected mode.

 The attribute is applicable only for Immediate MDT and combined Trace

 and Immediate MDT and when reportingTrigger is configured for periodical

 measurements and applicable only for LTE.";

 reference "Clause 5.10.6 of TS 32.422.";

 }

 leaf reportAmountM5LTE {

 type enumeration {

 enum 1;

 enum 2;

 enum 4;

 enum 8;

 enum 16;

 enum 32;

 enum 64;

 enum INFINITY;

 }

 description "It specifies the number of measurement reports that shall be

 taken for periodic reporting while the UE is in connected mode.

 The attribute is applicable only for Immediate MDT and combined Trace

 and Immediate MDT and when reportingTrigger is configured for periodical

 measurements and applicable only for LTE.";

 reference "Clause 5.10.6 of TS 32.422.";

 }

 leaf reportAmountM6LTE {

 type enumeration {

 enum 1;

 enum 2;

 enum 4;

 enum 8;

 enum 16;

 enum 32;

 enum 64;

 enum INFINITY;

 }

 description "It specifies the number of measurement reports that shall be

 taken for periodic reporting while the UE is in connected mode.

 The attribute is applicable only for Immediate MDT and combined Trace

 and Immediate MDT and when reportingTrigger is configured for periodical

 measurements and applicable only for LTE.";

 reference "Clause 5.10.6 of TS 32.422.";

 }

 leaf reportAmountM7LTE {

 type enumeration {

 enum 1;

 enum 2;

 enum 4;

 enum 8;

 enum 16;

 enum 32;

 enum 64;

 enum INFINITY;

 }

 description "It specifies the number of measurement reports that shall be

 taken for periodic reporting while the UE is in connected mode.

 The attribute is applicable only for Immediate MDT and combined Trace

 and Immediate MDT and when reportingTrigger is configured for periodical

 measurements and applicable only for LTE.";

 reference "Clause 5.10.6 of TS 32.422.";

 }

 leaf reportAmountM1NR {

 type enumeration {

 enum 1;

 enum 2;

 enum 4;

 enum 8;

 enum 16;

 enum 32;

 enum 64;

 enum INFINITY;

 }

 description "It specifies the number of measurement reports that shall be

 taken for periodic reporting while the UE is in connected mode.

 The attribute is applicable only for Immediate MDT and combined Trace

 and Immediate MDT and when reportingTrigger is configured for periodical

 measurements and applicable only for NR.";

 reference "Clause 5.10.6 of TS 32.422.";

 }

 leaf reportAmountM4NR {

 type enumeration {

 enum 1;

 enum 2;

 enum 4;

 enum 8;

 enum 16;

 enum 32;

 enum 64;

 enum INFINITY;

 }

 description "It specifies the number of measurement reports that shall be

 taken for periodic reporting while the UE is in connected mode.

 The attribute is applicable only for Immediate MDT and combined Trace

 and Immediate MDT and when reportingTrigger is configured for periodical

 measurements and applicable only for NR.";

 reference "Clause 5.10.6 of TS 32.422.";

 }

 leaf reportAmountM5NR {

 type enumeration {

 enum 1;

 enum 2;

 enum 4;

 enum 8;

 enum 16;

 enum 32;

 enum 64;

 enum INFINITY;

 }

 description "It specifies the number of measurement reports that shall be

 taken for periodic reporting while the UE is in connected mode.

 The attribute is applicable only for Immediate MDT and combined Trace

 and Immediate MDT and when reportingTrigger is configured for periodical

 measurements and applicable only for NR.";

 reference "Clause 5.10.6 of TS 32.422.";

 }

 leaf reportAmountM6NR {

 type enumeration {

 enum 1;

 enum 2;

 enum 4;

 enum 8;

 enum 16;

 enum 32;

 enum 64;

 enum INFINITY;

 }

 description "It specifies the number of measurement reports that shall be

 taken for periodic reporting while the UE is in connected mode.

 The attribute is applicable only for Immediate MDT and combined Trace

 and Immediate MDT and when reportingTrigger is configured for periodical

 measurements and applicable only for NR.";

 reference "Clause 5.10.6 of TS 32.422.";

 }

 leaf reportAmountM7NR {

 type enumeration {

 enum 1;

 enum 2;

 enum 4;

 enum 8;

 enum 16;

 enum 32;

 enum 64;

 enum INFINITY;

 }

 description "It specifies the number of measurement reports that shall be

 taken for periodic reporting while the UE is in connected mode.

 The attribute is applicable only for Immediate MDT and combined Trace

 and Immediate MDT and when reportingTrigger is configured for periodical

 measurements and applicable only for NR.";

 reference "Clause 5.10.6 of TS 32.422.";

 }

 }

 grouping LoggedMdtConfigGrp {

 description "This <<dataType>> defines the configuration parameters of

 IOC TraceJob which are specific for Logged MDT or Logged MBSFN MDT.

 Based on the value configured for attribute jobType in IOC TraceJob,

 different attributes are available. In case of LOGGED\_MDT\_ONLY, the

 attributes reportType, eventListForEventTriggeredMeasurement,

 eventThresholdL1, hysteresisL1, timeToTriggerL1,

 areaConfigurationForNeighCells and npnIdentityList are applicable.

 In case of LOGGED\_MBSFN\_MDT,

 the attribute mbsfnAreaList is applicable. The optional attribute

 plmnList allows to specify the PLMNs where

 measurement collection, status indication and log reporting is

 allowed, the optional attribute areaConfigurationForNeighCell

 allows to specify the area for which UE is requested to perform

 measurements logging for neighbour cells which have list of

 frequencies.

 For logged MDT in UMTS and LTE, the reporting is periodical. Parameter

 loggingInterval determines the interval between the reports and parameter

 loggingDuration determines how long the configuration is valid meaning

 after this duration has passed no further reports are sent. In NR, the

 reporting can be periodical or event based, determined by parameter

 reportType. For periodical reporting the same parameters as in LTE and

 UMTS apply. For event based reporting,

 parameter eventListForEventTriggeredMeasurement configures the event type,

 namely 'out of coverage' or 'L1 event'. In case 'L1 event' is selected as

 event type, the logging is performed according to parameter loggingInterval

 at regular intervals only when the conditions indicated by

 eventThresholdL1, hysteresisL1, timeToTriggerL1 (defining the thresholds,

 hysteresis and time to trigger) are met and if UE is 'camped normally'

 state (TS 38.331,

 TS 38.304). In case 'out of coverage' is selected as event type, the

 logging is performed according to parameter loggingInterval at regular

 intervals only when the UE is in 'any cell selection' state.

 Furthermore, logging is performed immediately upon transition from the

 'any cell selection' state to the 'camped normally' state (TS 38.331,

 TS 38.304).";

 leaf traceCollectionEntityId {

 type int64;

 description "It specifies the TCE Id which is sent to the UE in

 Logged MDT.";

 reference "Clause 5.10.11 of 3GPP TS 32.422.";

 }

 leaf loggingDuration {

 when '../../../jobType = "LOGGED\_MDT\_ONLY" or'

 + ' ../../../jobType = "LOGGED\_MBSFN\_MDT" or'

 + ' ../../../jobType = "IMMEDIATE\_MDT\_AND\_LOGGED\_MDT"';

 type uint32 {

 range "600|1200|2400|3600|5400|7200";

 }

 units seconds;

 description "Specifies how long the MDT configuration is valid at the

 UE in case of Logged MDT. The attribute is applicable only for

 Logged MDT and Logged MBSFN MDT.";

 reference "Clause 5.10.9 of 3GPP TS 32.422";

 }

 leaf loggingInterval {

 when '../../../jobType = "LOGGED\_MDT\_ONLY" or'

 + ' ../../../jobType = "LOGGED\_MBSFN\_MDT" or'

 + ' ../../../jobType = "IMMEDIATE\_MDT\_AND\_LOGGED\_MDT"';

 type enumeration {

 enum 320ms;

 enum 640ms;

 enum 1280ms;

 enum 2560ms;

 enum 5120ms;

 enum 10240ms;

 enum 20480ms;

 enum 30720ms;

 enum 40960ms;

 enum 61440ms;

 enum INFINITY;

 }

 description "Specifies the periodicty for Logged MDT. The attribute is

 applicable only for Logged MDT and Logged MBSFN MDT.";

 reference "Clause 5.10.8 of 3GPP TS 32.422";

 }

 leaf reportType {

 when '../../../jobType = "IMMEDIATE\_MDT\_ONLY"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_TRACE"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType =

 "TRACE\_AND\_IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_LOGGED\_MDT"';

 type enumeration {

 enum PERIODICAL;

 enum EVENT\_TRIGGERED;

 }

 description "It specifies report type for logged NR MDT";

 reference "Clause 5.10.27 of 3GPP TS 32.422.";

 }

 leaf eventListForEventTriggeredMeasurement {

 when '../../../jobType = "LOGGED\_MDT\_ONLY" or'

 + ' ../../../jobType = "IMMEDIATE\_MDT\_AND\_LOGGED\_MDT"';

 type enumeration {

 enum OUT\_OF\_COVERAGE ;

 enum A2\_EVENT ;

 }

 description "Specifies event types for event triggered measurement in the

 case of logged NR MDT. Each trace session may configure at most one

 event. The UE shall perform logging of measurements only upon certain

 condition being fulfilled:

 - Out of coverage.

 - A2 event.";

 reference "Clause 5.10.28 of 3GPP TS 32.422.";

 }

 leaf eventThresholdL1 {

 when '../../../jobType = "LOGGED\_MDT\_ONLY" or'

 + ' ../../../jobType = "LOGGED\_MBSFN\_MDT" or'

 + ' ../../../jobType = "IMMEDIATE\_MDT\_AND\_LOGGED\_MDT"';

 type uint32 {

 range "0..127";

 }

 description "It specifies the threshold which should trigger

 the reporting in case of event based reporting of logged NR MDT.

 The attribute is applicable only for Logged MDT and when reportType

 is configured for event triggered reporting and when

 eventListForEventTriggeredMeasurement is configured for L1 event.";

 reference "clause 5.10.36 of TS 32.422";

 }

 leaf hysteresisL1 {

 when '../../../jobType = "LOGGED\_MDT\_ONLY" or'

 + ' ../../../jobType = "LOGGED\_MBSFN\_MDT" or'

 + ' ../../../jobType = "IMMEDIATE\_MDT\_AND\_LOGGED\_MDT"';

 type uint32 {

 range "0..30";

 }

 description "It specifies the hysteresis used within the entry and leave

 condition of the L1 event based reporting of logged NR MDT.

 The attribute is applicable only for Logged MDT, when reportType

 is configured for event triggered reporting and when

 eventListForEventTriggeredMeasurement is configured for L1 event.";

 reference "clause 5.10.37 of TS 32.422";

 }

 leaf timeToTriggerL1 {

 when '../../../jobType = "LOGGED\_MDT\_ONLY" or'

 + ' ../../../jobType = "LOGGED\_MBSFN\_MDT" or'

 + ' ../../../jobType = "IMMEDIATE\_MDT\_AND\_LOGGED\_MDT"';

 type int32 {

 range 0|40|64|80|100|128|160|256|320|480|512|640|1024|1280|2560|5120;

 }

 units milliseconds;

 description "It specifies the threshold which should trigger

 the reporting in case of event based reporting of logged NR MDT.

 The attribute is applicable only for Logged MDT, when reportType

 is configured for event triggered reporting and when

 eventListForEventTriggeredMeasurement is configured for L1 event.";

 reference "clause 5.10.38 of TS 32.422";

 }

 list areaConfigurationForNeighCells {

 when '../../../jobType = "LOGGED\_MDT\_ONLY" or'

 + ' ../../../jobType = "IMMEDIATE\_MDT\_AND\_LOGGED\_MDT"';

 key "idx";

 leaf idx { type uint32 ; }

 description "It specifies the area for which UE is requested to perform

 measurement logging for neighbour cells which have list of frequencies.

 If it is not configured, the UE shall perform measurement logging for

 all the neighbour cells.

 Applicable only to NR Logged MDT.";

 reference "Clause 5.10.26 of 3GPP TS 32.422.";

 uses AreaConfigGrp;

 }

 list mbsfnAreaList {

 when '../../../jobType = "LOGGED\_MBSFN\_MDT"';

 key "mbsfnAreaId earfcn";

 max-elements 8;

 description "The MBSFN Area consists of a MBSFN Area ID and Carrier

 Frequency (EARFCN). The target MBSFN area List can have up to 8 entries.

 This parameter is applicable only if the job type is Logged MBSFN MDT.";

 reference "Clause 5.10.25 of 3GPP TS 32.422.";

 uses MbsfnAreaGrp;

 }

 list nPNIdentityList {

 description "It defines which NPNs that can be served by the NR cell,

 and which CAG IDs or NIDs can be supported by the NR cell for

 corresponding PNI-NPN or SNPN in case of the cell is NPN-only cell.

 (NPN-Identity referring to TS 38.331)";

 key idx;

 max-elements 1;

 uses types3gpp:NpnIdGrp;

 leaf idx { type string;}

 }

 }

 grouping MdtConfigGrp {

 description "Defines the configuration parameters of IOC TraceJob which are

 specific for MDT or any combination of MDT.

 The attribute anonymizationOfMdtData specifies the level of anonymization

 of MDT data.

 The attribute areaScope defines the area scope

 of MDT, which is specified in clause 5.10.2 of TS 32.422.

 The optional attribute sensorInformation allows to specify

 the sensor information to include.

 The attribute trsrPrefixCfg contains the TRSR prefix

 configuration parameters which shall be used by the NR-RAN nodes

 during TRSR assignment for a C-MDT job.

 Based on the value configured for attribute jobType in IOC

 TraceJob, the attributes immediateMdtConfig or loggedMdtConfig

 or both are available: If the attribute jobType indictes immediate MDT,

 the attribute immediateMdtConfig is applicable. If the attribute jobType

 indictes logged MDT or logged MBSFN MDT, the attribute loggedMdtConfig is

 applicable. If the attribute jobType indictes both immediate MDT and

 logged MDT, both the attribute immediateMdtConfig and

 the attribute loggedMdtConfig are applicable.

 The optional attribute plmnList allows to specify the PLMNs where

 measurements collection, status indication and log reporting is allowed.";

 leaf anonymizationOfMDTData {

 when ../areaScope ;

 type enumeration {

 enum NO\_IDENTITY;

 enum TAC\_OF\_IMEI;

 }

 default NO\_IDENTITY;

 description "Specifies level of anonymization of MDT data.

 This attribute is only applicable for management based activation.";

 reference "Clause 5.10.12 of 3GPP TS 32.422";

 }

 list areaScope {

 key "idx";

 leaf idx { type uint32 ; }

 description "It specifies the area where data shall be collected. ";

 max-elements 1;

 uses AreaScopeGrp;

 }

 leaf-list sensorInformation {

 type enumeration {

 enum BAROMETRIC\_PRESSURE;

 enum UE\_SPEED;

 enum UE\_ORIENTATION;

 }

 description "It specifies which sensor information shall be included in

 logged NR MDT and immediate NR MDT measurement if they are available.";

 reference "Clause 5.10.29 of 3GPP TS 32.422.";

 }

 list immediateMdtConfig {

 description "The set of parameters specific for Immediate MDT

 configuration.";

 key idx;

 max-elements 1;

 leaf idx { type string; }

 uses ImmediateMdtConfigGrp;

 }

 list loggedMdtConfig {

 description "The set of parameters specific for Logged MDT and Logged

 MBSFN MDT configuration.";

 key idx;

 max-elements 1;

 leaf idx { type string; }

 uses LoggedMdtConfigGrp;

 }

 leaf mNOnly {

 type boolean;

 default false;

 description "Specifies whether the MDT configuration is for MN

 only or not. The value FALSE means the MDT configuration is for

 both MN and SN. The value TRUE means the MDT configuration is

 for MN only.";

 }

 list plmnList {

 key "mcc mnc";

 uses types3gpp:PLMNId;

 max-elements 16;

 description "It indicates the PLMNs where measurement collection, status

 indication and log reporting is allowed.";

 reference "Clause 5.10.24 of 3GPP TS 32.422.";

 }

 list trsrPrefixCfg {

 key "idx";

 max-elements 1;

 description "The TRSR prefix configuration parameters which are used by

 NR-RAN at TRSR assignment for a given C-MDT job. It defines both the

 base TRSR prefix and the size of the TRSR prefix. The attribute

 trstPrefix specifies the base TRSR prefix. The attribute

 trsrPrefixLength defines the size of base TRSR prefix.";

 reference "Clause 5.10 of 3GPP TS 32.422.";

 leaf idx { type uint32 ; }

 uses trace3gpp:trsrPrefixCfgGrp ;

 }

 }

 grouping UECoreMeasConfigGrp {

 description "Represents the UECoreMeasConfig dataType.

 This <<dataType>> defines the aconfiguration parameters of IOC TraceJob

 which are specific for UE level measurements collection.";

 leaf-list ueCoreMeasurements {

 type string;

 min-elements 1;

 description "List of 5GC UE level measurements identified by name.

 The list may include 5GC UE level measurements defined in TS 28.558,

 or vendor specific measurements.

 For non-3GPP specified 5GC UE level measurements the name is defined

 elsewhere.";

 }

 leaf ueCoreMeasGranularityPeriod {

 type uint32;

 mandatory true;

 units milliseconds;

 description "Granularity period used to produce 5GC UE

 level measurements. The period is defined in milliseconds (ms).";

 }

 leaf nfTypeToMeasure {

 type string;

 mandatory true;

 description "It indicates the type of NE to produce the 5GC UE level

 measurements.

 allowedValues: The NF types represented by the measured object

 classes as defined by f) of the 5GC UE level measurements specified

 in TS 28.558.";

 }

 leaf-list objectInstances {

 type string;

 description "List of object instances.

 Each object instance is identified by its DN.";

 }

 leaf-list rootObjectInstances {

 type string;

 description "List of root object instances.

 Each object instance is identified by its DN and designates

 the root of a substree that contains the root object and all

 descendant objects.";

 }

 }

 grouping trsrPrefixCfgGrp {

 leaf trstPrefix {

 type string;

 mandatory true;

 description "A 2 byte Octet String. This is the base TRSR prefix";

 }

 leaf trsrPrefixLength {

 type int32;

 mandatory true;

 description "An integer to indicate how many bits are used for the

 TRSR prefix";

 }

 }

 grouping TraceJobGrp {

 leaf jobType {

 type enumeration {

 enum IMMEDIATE\_MDT\_ONLY;

 enum LOGGED\_MDT\_ONLY;

 enum TRACE\_ONLY;

 enum IMMEDIATE\_MDT\_AND\_TRACE;

 enum RLF\_REPORT\_ONLY;

 enum RCEF\_REPORT\_ONLY;

 enum LOGGED\_MBSFN\_MDT;

 enum 5GC\_UE\_LEVEL\_MEASUREMENTS\_ONLY;

 enum TRACE\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS;

 enum IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS;

 enum TRACE\_AND\_IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS;

 enum RRC\_REPORT;

 enum IMMEDIATE\_MDT\_AND\_LOGGED\_MDT;

 }

 default TRACE\_ONLY;

 description "It specifies whether the

 TraceJob represents only MDT, Trace, RLF, RCEF, RRC or 5GC UE

 level measurements job, or a combined job. It also defines the

 MDT mode.";

 reference "Clause 5.9a of 3GPP TS 32.422.";

 }

 leaf-list rrcReportType {

 type enumeration {

 enum RLF\_REPORT;

 enum RCEF\_REPORT;

 enum SHR;

 enum SPR;

 enum MHI;

 enum RA\_REPORT;

 }

 description "Specifies the RRC reports requested. ";

 reference "3GPP TS 38.331";

 }

 list pLMNTarget {

 key "mcc mnc";

 description "It specifies which PLMN that the subscriber of the session to

 be recorded uses as selected PLMN.";

 reference "Clause 5.9b of 3GPP TS 32.422";

 uses types3gpp:PLMNId;

 }

 leaf-list listOfTraceMetrics {

 when '../jobType = "TRACE\_ONLY"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_TRACE"';

 type string;

 description "List of trace metrics identified by name.

 Includes trace messages, MDT measurements (Immediate MDT,

 Logged MDT, Logged MBSFN MDT), RLF, RCEF and RRC reports,

 see TS 32.422 Trace messages are identified with their message

 identifier. Trace metric identifier is constructed as defined

 in clause 10 of TS 32.422.

 For non-3GPP specified trace metrics the name is defined elsewhere.

";

 reference "Clause 10 of 3GPP TS 32.422";

 }

 leaf traceCollectionEntityIPAddress {

 type inet:ip-address;

 description "It specifies the address of the Trace Collection Entity

 when the attribute traceReportingFormat is configured for the

 file-based reporting. The attribute is applicable for both Trace and

 MDT.";

 reference "Clause 5.9 of 3GPP TS 32.422.";

 }

 leaf traceReportingConsumerUri {

 when '../traceReportingFormat = "STREAMING"';

 type inet:uri;

 description "URI of the Streaming Trace data reporting MnS consumer

 (a.k.a. streaming target).";

 reference "Clause 5.9 of 3GPP TS 32.422.";

 }

 list traceReference {

 key "idx";

 min-elements 1;

 max-elements 1;

 description "A globally unique identifier, which uniquely identifies the

 Trace Session that is created by the TraceJob.

 In case of shared network, it is the MCC and MNC of the Participating

 Operator that request the trace session that shall be provided.

 The attribute is applicable for both Trace and MDT.";

 reference "Clause 5.6 of 3GPP TS 32.422.";

 leaf idx { type uint32 ; }

 uses trace3gpp:TraceReferenceGrp ;

 }

 leaf jobId {

 type string;

 yext3gpp:inVariant;

 description "Identifier of a TraceJob";

 }

 leaf traceReportingFormat {

 type enumeration {

 enum FILE\_BASED;

 enum STREAMING;

 }

 default FILE\_BASED;

 description "Specifies the trace reporting format - streaming trace

 reporting or file-based trace reporting";

 reference "3GPP TS 32.422 clause 5.11";

 }

 list traceTarget {

 key "targetIdType";

 max-elements 1;

 description "It specifies the target object of the Trace, MDT and

 5GC UE level measurements collection. The attribute is applicable for

 Trace, MDT, and 5GC UE level measurements collection.

 In case of management based Immediate MDT, RLF reporting, RCEF

 reporting or RRC reposring, the traceTarget attribute shall be null

 value.";

 leaf targetIdType {

 type enumeration {

 enum IMSI;

 enum IMEI;

 enum IMEISV;

 enum PUBLIC\_ID;

 enum UTRAN\_CELL;

 enum E\_UTRAN\_CELL;

 enum NG\_RAN\_CELL;

 enum ENB;

 enum RNC;

 enum GNB;

 enum SUPI;

 enum N4\_SESSION\_ID;

 }

 description "It specifies the target object of the Trace, MDT and

 5GC UE level measurements collection. The attribute is applicable for

 Trace, MDT, and 5GC UE level measurements collection.

 The targetIdType shall be PUBLIC\_ID in case of a Management Based

 Activation is done to an SCSCFFunction (Serving Call Session Control

 Function) or PCSCFFunction (Proxy Call Session Control Function)

 The targetIdType shall be UTRAN\_CELL only in case of

 UTRAN cell traffic trace function.

 The targetIdType shall be E-UTRAN\_CELL only in case of E-UTRAN cell

 traffic trace function.

 The targetIdType shall be NG-RAN\_CELL only in case of NR cell

 traffic trace function.

 The targetIdType shall be either IMSI, IMEI or

 IMEISV if the Trace Session is activated to any of the following

 ManagedEntity(ies):

 - HssFunction

 - MscServerFunction

 - SgsnFunction

 - GgsnFunction

 - BmscFunction

 - RncFunction

 - MmeFunction

 - ServingGWFunction

 - PGWFunction

 The targetIdType shall be either SUPI or IMEISV if the Trace Session

 is activated to any of the following ManagedEntity(ies):

 - AFFunction

 - AMFFunction

 - AUSFunction

 - NEFFunction

 - NRFFunction

 - NSSFFunction

 - PCFFunction

 - SMFFunction

 - UPFFunction

 - UDMFunction

 In case of signalling based MDT, the targetIdType shall be

 able to carry PUBLIC\_ID, IMSI, IMEI, IMEISV or SUPI.

 In case of management based Logged MDT, the targetIdType

 shall carry an eNB or a gNB or an RNC.

 The Logged MDT should be initiated on the specified eNB/gNB/RNC in

 targetIdValueList.

 In case of signalling based 5GC UE level measurements collection,

 the targetIdTypee shall be able to carry IMEISV or SUPI.

 In case of management based 5GC UE level measurements collection,

 the targetIdType shall be able to carry the corresponding

 Measured UE Identifier as defined by the bullet g) of the 5GC UE

 level measurements (see TS 28.558) when the TraceJob is created at

 the subject ManagedEntity.";

 }

 leaf-list targetIdValueList {

 type string;

 description "It specifies the ID value(s) of the target object defined

 by traceTargetType";

 }

 reference "3GPP TS 32.422";

 }

 list traceConfig {

 when '../jobType = "TRACE\_ONLY"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_TRACE"'

 + ' or ../jobType = "TRACE\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType =

 "TRACE\_AND\_IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"';

 key idx;

 description "Trace config";

 max-elements 1;

 uses TraceConfigGrp;

 leaf idx { type string; }

 }

 list mdtConfig {

 when '../jobType = "IMMEDIATE\_MDT\_ONLY"'

 + ' or ../jobType = "LOGGED\_MDT\_ONLY"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_TRACE"'

 + ' or ../jobType = "LOGGED\_MBSFN\_MDT"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType =

 "TRACE\_AND\_IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_LOGGED\_MDT"';

 key idx;

 description "This <<dataType>> defines the configuration parameters of

 IOC TraceJob which are specific for MDT or any combination of MDT.

 The attribute anonymizationOfMdtData specifies the level of

 anonymization of MDT data.

 The optional attribute areaScopedefines the area scope of MDT, which

 is specified in clause 5.10.2 of TS 32.422.

 The attribute sensorInformation allows to specify the sensor

 information to include.

 The attribute trsrPrefixCfg contains the TRSR prefix

 configuration parameters which shall be used by the NR-RAN nodes

 during TRSR assignment for a C-MDT job.

 Based on the value configured for attribute jobType in IOC TraceJob,

 the attributes immediateMdtConfig or loggedMdtConfig or both are

 available: If the attribute jobType indictes immediate MDT, the

 attribute immediateMdtConfig is applicable. If the attribute jobType

 indictes logged MDT or logged MBSFN MDT, the attribute loggedMdtConfig

 is applicable. If the attribute jobType indictes both immediate MDT

 and logged MDT, both the attribute immediateMdtConfig and the

 attribute loggedMdtConfig are applicable.

 The optional attribute plmnList allows to specify the PLMNs where

 measurements collection, status indication and log reporting is

 allowed.";

 max-elements 1;

 uses MdtConfigGrp;

 leaf idx { type string; }

 }

 list ueCoreMeasConfig {

 when '../jobType = "5GC\_UE\_LEVEL\_MEASUREMENTS\_ONLY"'

 + ' or ../jobType = "TRACE\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType = "IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"'

 + ' or ../jobType =

 "TRACE\_AND\_IMMEDIATE\_MDT\_AND\_5GC\_UE\_LEVEL\_MEASUREMENTS"';

 key idx;

 description "5GC UE level measurements config";

 max-elements 1;

 uses UECoreMeasConfigGrp;

 leaf idx { type string; }

 }

 list nPNTarget {

 description "applicable only for NR and shall be present in case of NPN

 either a PNI-NPN or a SNPN) and for management-based activation when

 several NPNs are supported in the RAN.";

 key idx;

 max-elements 1;

 uses types3gpp:NpnIdGrp;

 leaf idx { type string;}

 }

 }

 grouping TraceSubtree {

 description "Contains classes that manage Tracing.

 Should be used in all classes (or classes inheriting from)

 - SubNetwork

 - ManagedElement

 - ManagedFunction

 If a YANG module wants to augment these classes/list/groupings they must

 augment all user classes!";

 list TraceJob {

 description "A TraceJob instance represents the Trace Control and

 Configuration parameters of a particular Trace Job (see TS 32.421 and

 TS 32.422 for details). It can be name-contained by SubNetwork,

 ManagedElement, ManagedFunction.

 To activate Trace Jobs, a MnS consumer has to create TraceJob object

 instances on the MnS producer. A MnS consumer can activate a Trace Job

 for another MnS consumer since it is not required the value of

 traceCollectionEntityIPAddress or traceReportingConsumerUri to be

 his own.

 For the details of Trace Job activation see clauses 4.1.1.1.2 and

 4.1.2.1.2 of TS 32.422.

 When a MnS consumer wishes to deactivate a Trace Job, the MnS consumer

 shall delete the corresponding TraceJob instance.

 For details of management Trace Job activation/deactivation see clause

 4.1.1.1.2 of TS 32.422.

 The attribute traceReference specifies a globally unique ID and

 identifies a Trace session. One Trace Session may be activated to

 multiple Network Elements. The traceReference is populated by the

 consumer that makes the request for a Trace Session.

 The jobId attribute presents the job identifier of a TraceJob instance.

 The jobId can be used to associate multiple TraceJob instances.

 For example, it is possible to configure the same jobId value for

 multiple TraceJob instances required to produce the data (e.g. RSRP

 values of M1 and RLF reports) for a specific network analysis.

 The attribute traceReportingFormat defines the method for reporting

 the produced measurements. The selectable options are file-based or

 stream-based reporting. In case of file-based reporting the attribute

 traceCollectionEntityIPAddress is used to specify the IP address to

 which the trace records shall be transferred, while in case of

 stream-based reporting the attribute traceReportingConsumerUri

 specifies the streaming target.

 The mandatory attribute traceTarget determines the target object of

 the TraceJob. Dependent on the network element to which the Trace

 Session is activated different types of the target object are possible.

 The attribute pLMNTarget defines the PLMN for which sessions shall be

 selected in the Trace Session in case of management based activation

 when several PLMNs are supported in the RAN.The MDT configuration may

 include area scope defined by network slice, in which case

 the attribute pLMNTarget is not applicable.

 The attribute listOfTraceMetrics allows configuraton of which metrics

 shall be recorded.

 The attribute jobType specifies the kind of data to collect. In case

 of TRACE\_ONLY, the configuration parameters of attribute traceConfig

 shall be applied. If the attribute jobType contains IMMEDIATE\_MDT,

 LOGGED\_MDT and LOGGED\_MBSFN\_MDT the configuration parameters of

 attribute mdtConfig or a subset of these shall be applied. If the

 attribute jobType contains 5GC\_UE\_LEVEL\_MEASUREMENTS, the configuration

 parameters of attribute ueCoreMeasConfig shall be applied.

 If jobType has the value RRC\_REPORT, the attribute rrcReportType shall

 bepresent. The rrcReportType allows the tracing of RRC reports.

 Creation and deletion of TraceJob instances by MnS consumers is

 optional; when not supported, the TraceJob instances may be created

 and deleted by the system or be pre-installed.";

 key id;

 uses top3gpp:Top\_Grp ;

 container attributes {

 uses TraceJobGrp ;

 }

 uses files3gpp:FilesSubtree {

 if-feature FilesUnderTraceJob;

 }

 }

 }

}

<CODE ENDS>

\*\*\* END OF CHANGE 1 \*\*\*