**3GPP TSG-SA5 Meeting #162 *S5-253940***

Goteborg, Sweden, 25 - 29 August 2025

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  |  | **CR** |  | **rev** | **1** | **Current version:** |  |  |
|  | | | | | | | | |
| *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 | **X** |

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| ***Title:*** | Rel-19 CR TS 28.312 Update intent report control | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson Inc. | | | | | | | | | |
| ***Source to TSG:*** | SA5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** |  | | | | |  | ***Date:*** | | | 2025-08-15 |
|  |  | | | |  | |  | | |  |
| ***Category:*** |  |  | | | | | ***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 can be 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 Rel-19, intentReportControl was introduced as a conditional mandatory feature, allowing the MnS Consumer to set the cadence of report generation via the observationPeriod attribute. As originally specified, setting different cadences was only possible when the implicit intent report subscription mechanism was supported; however, this capability should be available in all cases. | | | | | | | | |
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| ***Summary of change:*** | | In this revision, intentReportControl is set to mandatory. The attribute reportRecipientAddress (in IntentReportControl <<dataType>>) is defined as conditional mandatory, with the condition that the implicit intent report subscription mechanism is supported. The attribute expectedReportTypes is now mandatory, as at least one type of report must be specified. The cardinality of intentReportControl is changed from 1 to \* to allow multiple intent report controls to be set. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Only MnS Producers supporting the implicit intent report subscription mechanism allow the observationPeriod to be set for each new intentReportControl. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.2.1.2.1.2, 6.2.1.2.1.3, 6.2.1.2.2.1, 6.2.1.3.16.2, 6.2.1.3.16.3 (new), 6.2.1.4 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

***First change***

6.2.1.2.1 Intent <<InformationObjectClass>>

6.2.1.2.1.1 Definition

This IOC represents the properties of an Intent driven management information between MnS consumer and MnS producer.

The Intent IOC contains one or multiple IntentExpectation(s) which includes MnS consumer's requirements, goals and contexts given to a 3GPP system*.*

The Intent IOC also contains intentAdminState to support intent suspension mechanism. In case MnS consumer wants to suspend an intent, MnS consumer can request MnS producer to configure attribute intentAdminState with the value "DEACTIVATED". A suspended intent means this intent is not considered for fulfillment. In case MnS consumer wants to resume an intent on the MnS producer side when the intent is suspended, MnS consumer can request MnS producer to configure attribute intentAdminState with the value "ACTIVATED".

The attribute "intentReportControl" indicates the intent report control and subscription information. MnS consumer needs to specify the values for the attribute "intentReportControl" when the MnS consumer wants to obtain the intent report with customized requirements by default, instead of triggering a separate subscription action.

The Intent IOC includes the attribute objectClass and objectInstance from the TOP IOC. The value of attribute objectClass is "Intent" and the value of attribute objectInstance is the DN of the instance of Intent IOC.

The Intent IOC includes contextSelectivity respectively used to define how to select among the stated intentContexts.

The Intent IOC includes implicitIntentIndex used to indicate whether the discovery of implicit information is enabled. In case the MnS consumer wants the MnS producer to discover the implicit information like additional intent expectation which is not explicitly pointed out, the implicitIntentIndex will be "True".

The Intent IOC includes expectationSelectivity used to define how to select among the stated intentExpectations. It enables the MnS consumer to trigger evaluation of different alternative intentExpectations. The MnS consumer can provide alternatives descriptions of service-offers as intent expectations that describes the different candidate characteristics of the desired service from the MnS consumer's point of view that the MnS consumer wants to be validated. By providing the intent containing an expectationSelectivity for feasibility checking, the MnS consumer indicates how the set of candidate services expressed in the intentExpectations are to be validated, i.e., "ALL\_OF", "ONE\_OF", "ANY\_OF" the intentExpectations.

6.2.1.2.1.2 Attributes

The Intent IOC includes attributes inherited fromTop IOC (defined in 3GPP TS 28.622 [6]) and the following attributes.

**Table 6.2.1.2.1.2-1**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute Name** | **Support Qualifier** | **isReadable** | **isWritable** | **isInvariant** | **isNotifyable** |
| intentExpectations | M | T | T | F | F |
| userLabel | M | T | T | F | F |
| intentMgmtPurpose | M | T | T | F | F |
| contextSelectivity | O | T | T | F | F |
| expectationSelectivity | O | T | T | F | F |
| intentContexts | O | T | T | F | F |
| intentReportControl | M | T | T | F | F |
| intentPriority | O | T | T | F | T |
| intentAdminState | CM | T | T | F | F |
| intentPreemptionCapability | CM | T | T | F | F |
| implicitIntentIndex | M | T | T | F | F |
| consumerSatisfactionIndexThreshold | CO | T | T | F | F |
| **Attribute related roles** | | | | | |
| intentReportReference | M | T | F | F | F |
| intentUtilityFormulaRef | CM | T | T | F | T |

6.2.1.2.1.3 Attribute constraints

|  |  |
| --- | --- |
| Name | Definition |
| intentAdminState | Condition: MnS consumer-suspension mechanism is supported. |
| intentPreemptionCapability | Condition: The preemption mechanism is supported. |
| intentUtilityFormulaRef | Condition: Intent Utility Function is supported. |
| consumerSatisfactionIndexThreshold | Condition: Customer Satisfaction Index is supported. |

***Next change***

##### 6.2.1.2.2 IntentReport <<InformationObjectClass>

6.2.1.2.2.1 Definition

This IOC represents intent report information from MnS producer to MnS consumer. The IntentReport instance is created by MnS producer as a result of the IntentReportControl (specified in the Intent IOC) that specifies the types and conditions for reporting. When the MnS producer deletes an intent instance based on a request from MnS consumer, the corresponding intent report instance is also deleted by MnS producer automatically..

The IntentReport IOC includes

- intentFulfilmentReport, which represents the properties of fulfillment information for expectation target, intent expectation, and the whole intent. The fulfilmentReport will be observed from the start of each observation period (specified in the IntentReportControl data type), then at the end of each observation period, the corresponding values will be derived and configured.

- intentConflictReport, which represents detected conflict information, including conflict type (i.e., intent conflict, expectation conflict and target conflict) and possible solution recommendations to address the conflicts.

- intentFeasibilityCheckReport, which indicates that the intent is feasible or infeasible. Intent feasibility check information is provided after MnS producer automatically performs feasibility check when receiving the intent creation and modification request from MnS consumer.

- intentExplorationReport, which represents the properties of the intent exploration result during negotiation in intent pre-evaluation phase. Intent exploration result is provided after MnS producer performs intent exploration pre-evaluation process as requested by MnS consumer.

- intentFulfilmentNegotiationReport, which represents the properties of intent negotiation information negotiation in intent fulfilment phase.. Intent fulfilment negotiation information is provided to MnS Consumer by the MnS producer during intent fulfilment phase.

- intentUtilityReport, which provides the results of applicable Intent Utility Functions. The results are calculated and reported per utility function applicable to the intent specified in intentReference.

Each instance of IntentReport IOC can contain one or any combination of intentFulfilmentReport, intentConflictReport, intentFeasibilityCheckReport, intentExplorationReport, intentFulfilmentNegotiationReport and intentUtilityReport.

Different MnS consumers can use the "getMOIAttributes" operation to query different attributes of the IntentReport <<IOC>> to obtain corresponding intent report information (including intentFulfilmentReport, intentConflictReport, intentFeasibilityCheckReport, intentExplorationReport, intentFulfilmentNegotiationReport and intentUtilityReport).

Different MnS consumers can subscribe attribute value change notifications for IntentReport <<IOC>> to obtain the notification for different intent report information.

***Next change***

6.2.1.3.16 IntentReportControl <<dataType>>

6.2.1.3.16.1 Definition

This <<dataType>> describes intent report subscription information, including customized requirements on intent report. Each IntentReportControl is associated with a distinct IntentReport MOI.

The attribute "reportRecipientAddress" indicates the address of report recipient for MnS consumer.

The attribute "observationPeriod" indicates the time period for which the fulfilment process is observed and at the end of which the fulfilmentInfo for corresponding ExpectationTargets, IntentExpectations and Intent is updated. The observation period can be set by the MnS consumer or by the MnS producer if the MnS consumer does not provide a value.

The attribute "expectedReportTypes" indicates the type of IntentReports, which can be one/any/all of "IntentFulfilmentReport", "IntentConflictReport", "IntentFeasibilityCheckReport" and "IntentFulfilmentNegotiationReport".

The attribute " reportingConditions" indicates the specified conditions for intent reporting. TimeCondition is one choice for reportingCondition. For example, TimeCondition can be an interval, a specific time, or a time window. TagrtFulfilmentCondition in another choice for reportCondition. For example, the intent report needs to be sent by MnS producer when the achiveVlaue for specific target value crosses the pre-defined threshold.

The intent report will be sent to the MnS Consumer when the specified reportingConditions is satisfied

The attribute "reportingTargets" indicates the specified targets needed to be reported. All the targets described in the corresponding Intent instance need to be reported if the MnS consumer does not provide values for the attribute "reportingTargets".

6.2.1.3.16.2 Attributes

**Table 6.2.1.3.16.2-1**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute Name** | **Support Qualifier** | **isReadable** | **isWritable** | **isInvariant** | **isNotifyable** |
| reportRecipientAddress | CM | T | T | F | F |
| observationPeriod | M | T | T | F | F |
| expectedReportTypes | O | T | T | F | F |
| reportingConditions | O | T | T | F | F |
| reportingTargets | O | T | T | F | F |

6.2.1.3.16.3 Attribute constraints

|  |  |
| --- | --- |
| Name | Definition |
| reportRecipientAddress | Condition: The implicit intent report subscription mechanism is supported. |

***Next change***

6.2.1.4 Attribute definition

**Table 6.2.1.4-1**

| **Attribute Name** | **Documentation and Allowed Values** | **Properties** |
| --- | --- | --- |
| userLabel | A user-friendly (and user assignable) name of the intent.  allowedValues: Not Applicable | type: String  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| intentExpectations | It describes the expectations including requirements, goals and contexts (including constraints and filter information) given to a 3GPP system. It states the list of specific outcomes desired to be realized for expectation object(s).  The intentExpectations are arranged in an ordered list such that the most important intentExpectations are on the top of the list.  allowedValues: Not Applicable | type: IntentExpectation  multiplicity: 1..\*  isOrdered: True  isUnique: True  defaultValue: None  isNullable: False |
| intentFulfilmentInfo | It describes status of fulfilment of an intent and the related reasons for that status.  allowedValues: Not Applicable | type: FulfilmentInfo  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| additionalFulfilmentInfo | It describes the additional information of intent intent fulfilment.  The content and format is vendor specific.  allowedValues: Not Applicable | type: String  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| expectationFulfilmentInfo | It describes status of fulfilment of an intentExpectation and the related reasons for that status.  allowedValues: Not Applicable | type: FulfilmentInfo  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| targetFulfilmentInfo | It describes status of fulfilment of an expectationTarget and the related reasons for that status.  allowedValues: Not Applicable | type: FulfilmentInfo  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| fulfilmentStatus | It describes the current status of the fulfilment result for intent, intentExpectation or expectationTarget, which is configured by MnS producer and can be read by MnS consumer.  allowedValues: "FULFILLED", "NOT\_FULFILLED" | type: ENUM  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: "NOT\_FULFILLED"  isNullable: False |
| notFulfilledState | It describes the current state for not achieving fulfilment for the intent, intentExpectation or expectationTarget. It is configured/written by MnS producer and can be read by MnS consumer.  allowedValues: "ACKNOWLEDGED", "COMPLIANT", "DEGRADED", "SUSPENDED", "TERMINATED" "FULFILMENTFAILED" | type: ENUM  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: "ACKNOWLEDGED"  isNullable: False |
| notFulfilledReasons | It describes the reasons/observations related to the specific notFulfilledState  allowedValues: Not Applicable | type: String  multiplicity: \*  isOrdered: False  isUnique: True  defaultValue: None  isNullable: False |
| intentContexts | It describes the list of IntentContext(s) which represents the constraints and conditions that should apply for the entire intent even if there may be specific contexts defined for specific parts of the intent.  allowedValues: triple of (attribute, condition, value range) | type: Context  multiplicity: \*  isOrdered: False  isUnique: True  defaultValue: None  isNullable: False |
| expectationId | A unique identifier of the intentExpectation within the intent.  allowedValues: Not Applicable | type: String  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| expectationVerb | It describes the characteristic of the intentExpectation and is the property that describes the types of intentExpectations.  Examples of verbs and their related types of expectation are  Deliver: DeliveryIntentExpectation, e.g. Deliver a RAN network, Service, Slice, function  Ensure: AssuranceintentExpectation, e.g. Ensure the target performance value.  Maintain: MaintenanceIntentExpectation, e.g. Maintain the network element according to a target version.  allowedValues: DELIVER, ENSURE, MAINTAIN  Vendor extensions are allowed | type: String  multiplicity: 1  isOrdered:N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| expectationObject | It describes the expectation objects to which the IntentExpectation should apply.  allowedValues: Not Applicable | type: ExpectationObject  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| objectType | It describes the type of expectation object of the IntentExpectation that is required to be applied to. It can be class name of the managed object.  allowedValues: see scenario specific IntentExpectation | type: Enum  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| objectInstance | It describes a specific object instance (e.g. instance of managed object) to which the intentExpectation should apply.  allowedValues: Not Applicable | type: DN  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| objectContexts | It describes the list of ObjectContext(s) which represents the constraints and conditions to be used as filter information to identify the object(s) to which a given intentExpectation should apply. Note there may be other constraints and conditions defined either for the entire intent, for the specific intentExpectation or for the expectationTarget of the considered intentExpectation.  The concrete ObjectContext depends on the ExpectationObject, which is defined in clause 6.2.2. All the concrete ObjectContexts follow the common structure of ObjectContext. | type: Context  multiplicity: \*  isOrdered: False  isUnique: True  defaultValue: None  isNullable: False |
| expectationTargets | It describes the list of ExpectationTarget(s) which represent specific outcomes on the metrics that characterize the performance of the object(s) or some abstract index that expresses the behavior of the object(s) that are desired to be realized for a given intentExpectation.  The concrete ExpectationTarget depends on the ExpectationObject, which is defined in clause 6.2.2. All the concrete ExpectationTargets follow the common structure of ExpectationTarget.  The expectionTargets are arranged in an ordered list such that the most important expectionTargets are on the top of the list. | type: ExpectationTarget  multiplicity: 1..\*  isOrdered: True  isUnique: True  defaultValue: None  isNullable: False |
| expectationContexts | It describes the list of context(s) which represents the constraints and conditions that should apply for a specific intentExpectation.  Note there may be other constraints and conditions defined for the entire intent or for specific parts of the intentExpectation.  allowedValues: depends on Expectation Object in the IntentExpectation | type: Context  multiplicity: \*  isOrdered: False  isUnique: True  defaultValue: None  isNullable: False |
| targetName | It describes the name of the expectation target which represents specific outcomes on the metrics that characterize the performance of the object(s) or some abstract index that expresses the behavior of the object(s) that are desired to be realized for a given intentExpectation.  allowedValues: depends on ExpectationObject in the IntentExpectation | type: String  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: True |
| targetCondition | It expresses the limits within which the targetName is allowed/supposed to be.  allowedValues: "IS\_EQUAL\_TO", "IS\_LESS\_THAN", "IS\_GREATER\_THAN", "IS\_WITHIN\_RANGE", "IS\_OUTSIDE\_RANGE", "IS\_ONE\_OF", " IS\_EQUAL\_TO\_OR\_LESS\_THAN", "IS\_EQUAL\_TO\_OR\_GREATER\_THAN", "IS\_NOT\_ONE\_OF", "IS\_ALL\_OF" | type: Enum  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: "IS\_EQUAL\_TO"  isNullable: False |
| targetValueRange | It describes the range of values that applicable to the targetName and the targetCondition.  allowedValues: depends on the targetCondition.  The value will be a single value when the targetCondition is either "IS\_EQUAL\_TO", "IS\_LESS\_THAN", "IS\_GREATER\_THAN", "IS EQUAL TO OR LESS THAN", "IS EQUAL TO OR GREATER THAN"  The value will be a pair of values when the targetCondition is either "IS\_WITHIN\_RANGE", "IS\_OUTSIDE\_RANGE"  The value will be a list when the targetCondition is "IS\_ONE\_OF", "IS\_NOT\_ONE\_OF","IS\_ALL\_OF". See NOTE. | type: ValueRangeType  multiplicity: 1..\*  isOrdered: False  isUnique: True  defaultValue: None  isNullable: True |
| targetContexts | It describes the list of constraints and conditions that should apply for a specific expectationTarget. Note there may be other constraints and conditions defined for the entire intent or the intentExpectation.  allowedValues: Not Applicable | type: Context  multiplicity: \*  isOrdered: False  isUnique: True  defaultValue: None  isNullable: False |
| contextAttribute | It describes a specific attribute of or related to the object or to characteristics thereof (e.g. its control parameter, gauge, counter, KPI, weighted metric, etc) to which the expectation should apply or an attribute related to the operating conditions of the object (such as weather conditions, load conditions, etc). | type: String  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: True |
| contextCondition | It expresses the limits within which the ContextAttribute is allowed/supposed to be  allowedValues: "IS\_EQUAL\_TO", "IS\_LESS\_THAN", "IS\_GREATER\_THAN", "IS\_WITHIN\_RANGE", "IS\_OUTSIDE\_RANGE, "IS\_ONE\_OF", "IS\_EQUAL\_TO\_OR LESS\_THAN", "IS\_EQUAL\_TO\_OR\_GREATER\_THAN", "IS\_NOT\_ONE\_OF", "IS\_ALL\_OF" | type: Enum  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: "IS\_EQUAL\_TO"  isNullable: False |
| contextValueRange | It describes the range of values that applicable to the ContextAttribute and the ContextCondition.  AllowedValue: depends on the contextCondition  The value will be a single value when the contextCondition is either "IS\_EQUAL\_TO", "IS\_LESS\_THAN", "IS\_GREATER\_THAN", "IS\_EQUAL\_TO\_OR\_LESS\_THAN", "IS\_EQUAL\_TO\_OR\_GREATER\_THAN".  The value will be a pair of values when the contextCondition is either "IS\_WITHIN\_RANGE", "IS\_OUTSIDE\_RANGE"  The value will be a list when the contextCondition is "IS\_ONE\_OF", "IS\_NOT\_ONE\_OF","IS\_ALL\_OF".  See NOTE. | type: ValueRangeType  multiplicity: 1..\*  isOrdered: False  isUnique: True  defaultValue: None  isNullable: True |
| intentPriority | It expresses the priority of the stated intent within an MnS consumer.  AllowedValue: values in the range [1-100] where 1 indicates the highest priority and 100 indicates the lowest priority.  NOTE: The handing of the priorities across MnS consumers is left to implementation | type: integer  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: 1  isNullable: False |
| geoArea | It describes a geographical area defined in 3GPP TS 28.622[6].  AllowedValue: As defined by the data type | type: GeoArea  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: True |
| pLMNId | It describes the information of a PLMN identification defined in 3GPP 28.658[10]  AllowedValue: As defined by the data type | type: PLMNId  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: True |
| dateTime | It describes the information of a date time defined in 3GPP TS 28.622[6].  AllowedValue: As defined by the data type | type: DateTime  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: True |
| timeWindow | It describes the information of a time window (including startTime, endTime) defined in 3GPP TS 28.622[6].  AllowedValue: As defined by the data type | type: TimeWindow  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: True |
| geoCoordinate | It describes the information of a geoCoordinate defined in 3GPP TS 28.622[6].  AllowedValue: As defined by the data type | type: GeoCoordinate  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: True |
| pLMNInfo | It describes the information of PLMNInfo (including PLMN and S-NSSAI in the PLMN in case of network slicing feature) defined in 3GPP TS 28.541[5].  AllowedValue: As defined by the data type | type: PLMNInfo  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: True |
| schedulingTime | It describes the information of SchedulingTime (including one-time interval, daily periodicity, weekly periodicity or monthly periodicity) defined in 3GPP TS 28.622 [6]. | type: SchedulingTime  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: True |
| frequency | It desribes the RF reference frequency (i.e. Absolute Radio Frequency Channel Number) and/or the frequency operating band used for a given direction (UL or DL) in FDD or for both UL and DL directions in TDD.  AllowedValue: As defined by the data type | type: Frequency  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: True |
| arfcn | It desribes the RF reference frequency (i.e. Absolute Radio Frequency Channel Number).  Allowed Value:  For NR, see TS 38.104 [8] clause 5.4.2.1.  For EUTRAN, see TS 36.104 [14] clause 5.7.3. | type: Integer  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: True |
| freqband | It desribes the the frequency operating band.  Allowed Value:  For NR, see TS 38.104 [8] clause 5.4.2.3.  For EUTRAN, see TS 36.104 [14] clause 5.7.3. | type: String  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: True |
| uEGroup | It describes the information of a UE Group (represented by specific 5QI, specific S-NSSAI, or a specific combination of S-NSSAI and 5QI).  AllowedValue: As defined by the data type | type: UEGroup  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: True |
| fiveQI | It describes the information of a 5QI defined in 3GPP TS 28.541[5].  AllowedValue: 0 - 255 | type: integer  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: True |
| sNSSAI | It describes the information of a S-NSSAI defined in 3GPP TS 28.541[5].  AllowedValue: As defined by the data type | type: S-NSSAI  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: True |
| intentAdminState | It describes the intent administrative state, which enables the MnS consumer to suspend an intent or cancel the suspension for a suspended intent. A suspended intent means this intent is not considered for fulfilment  allowedValues: "ACTIVATED", "DEACTIVATED" | type: Enum  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: "ACTIVATED"  isNullable: False |
| intentReference | It indicates the associated intent instance  allowedValues: Not Applicable | type: DN  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| intentReportReference | It indicates the associated intent report instance(s)  allowedValues: Not Applicable | type: DN  multiplicity: \*  isOrdered: False  isUnique: True  defaultValue: None  isNullable: False |
| intentReportControl | It indicates the intent report control and subscription information.  allowedValues: Not Applicable | type: IntentReportControl  multiplicity: \*  isOrdered: False  isUnique: True  defaultValue: None  isNullable: False |
| reportRecipientAddress | It indicates the address of report recipient for MnS consumer.  allowedValues: Not Applicable | type: String  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| observationPeriod | It represents the observation period of the fulfilmentInfo for corresponding ExpectationTargets, IntentExpectations and Intent. At the end of the observation period, the corresponding fulfilment info is updated in the intent report. The observation period can be assigned by MnS consumer through requesting the MnS producer to set attribute "observationPeriod". MnS producer also can assign the observation period if MnS consumer didn't assign it.  The observation time is expressed in seconds.  allowedValues: Not Applicable | type: Integer  multiplicity: 0..1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| expectedReportTypes | It indicates the type of IntentReports, which can be one/any/all of "IntentFulfilmentReport", "IntentConflictReport" "IntentFeasibilityCheckReport" and "IntentFulfilmentNegotiationReport".  allowedValues: INTENT\_FULFILMENT\_REPORT, INTENT\_CONFLICT\_REPORT, INTENT\_FEASIBILITY\_CHECK\_REPORT, INTENT\_FULFILMENT\_NEGOTIATION\_REPORT, INTENT\_UTILITY\_REPORT | type: ENUM  multiplicity: \*  isOrdered: False  isUnique: True  defaultValue: None  isNullable: False |
| reportingConditions | It indicates the specified conditions for intent reporting. The intent report will be sent when the specified reportingConditions is satisfied.  allowedValues: Not Applicable | type: ReportingCondition  multiplicity: \*  isOrdered: False  isUnique: True  defaultValue: None  isNullable: False |
| reportingTargets | It indicates the specified targets needed to be reported.  allowedValues: the scenario specific targetName defined in clause 6.2.2 Scenario specific IntentExpectation definition | type: String  multiplicity: \*  isOrdered: False  isUnique: True  defaultValue: None  isNullable: False |
| timeCondition | It indicates the specified times for intent reporting. The specified times can be one-time interval, daily periodicity, weekly periodicity or monthly periodicity  allowedValues: Not Applicable | type: SchedulingTime  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| targetFulfilmentCondition | It indicates the specified conditions of target Fulfilment for intent reporting. The targetFulfimentConfition can be described based on the achieved value for a specific targetName.  allowedValues: Not Applicable | type: TargetFulfilmentCondition  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| intentFulfilmentReport | It describes the fulfillment information which is reported for the associated intent instance.  allowedValues: Not Applicable | type: IntentFulfilmentReport  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| intentConflictReports | It describes the conflict information which is reported for associated intent instance if needed.  allowedValues: Not Applicable | type: IntentConflictReport  multiplicity: \*  isOrdered: False  isUnique: True  defaultValue: None  isNullable: False |
| conflictId | It is used to identify the detected conflict within an IntentReport instance.  allowedValues: Not Applicable | type: String  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| conflictType | It describes the type of intent conflict.  allowedValues: INTENT\_CONFLICT, EXPECTATION\_CONFLICT, TARGET\_CONFLICT | type: Enum  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| conflictingIntent | It describes the DN of the conflicting intent  allowedValues: Not Applicable | type: DN  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| conflictingExpectation | It describes the expectationId of the conflicting IntentExpectation within an Intent.  allowedValues: Not Applicable | type: String  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| conflictingTarget | It describes the targetName of the conflicting ExpectationTarget within an IntentExpectation.  allowedValues: Not Applicable | type: String  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| recommendedSolutions | It describes the action recommended by the MnS producer to be undertaken by the MnS consumer to resolve intent conflict. The recommended solution applies only for the specific intent whose intent report contains this attribute.  allowedValues: "MODIFY", "DELETE" | type: ENUM  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| expectationFulfilmentResults | It includes the expectationFulfilmentInfo and targetFulfilmentResults for each IntentExpectation. The expectationFulfilmentInfo describes status of fulfilment of an intentExpectation and the related reasons for infeasible status.  allowedValues: Not Applicable | type: ExpectationFulfilmentResult  multiplicity: 1..\*  isOrdered: False  isUnique: True  defaultValue: None  isNullable: False |
| targetFulfilmentResults | It includes targetFulfilmentInfo and targetAchievedValue for each ExpectationTarget. The targetFulfilmentInfo describes status of fulfilment of an expectationTarget and the related reasons for infeasible status. The targetAchieveValue describes current performance value for the ExpectationTarget.  allowedValues: Not Applicable | type: TargetFulfilmentResult  multiplicity: \*  isOrdered: False  isUnique: True  defaultValue: None  isNullable: False |
| targetAchievedValue | It describes the value that has been achieved for the expectation target at the time at which the report is generated.  allowedValues: Not Applicable | type: ValueRangeType  multiplicity: 0..1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| intentFeasibilityCheckReport | It describes the intent feasibility check information which is reported if needed.  allowedValues: Not Applicable | type: IntentFeasibilityCheckReport  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| feasibilityCheckResult | It describes the result of intent fulfilment feasibility check  allowedValues: FEASIBLE, INFEASIBLE | type: Enum  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| infeasibilityReasons | It describes the reason (e.g. invalid intent expression, the intent conflict) of the result of intent fulfilment feasibility check is INFEASIBLE  allowedValues: INVALID\_INTENT\_EXPRESSION, INTENT\_CONFLICT | type: ENUM  multiplicity: 1..\*  isOrdered: False  isUnique: True  defaultValue: None  isNullable: False |
| expectationExplorationResults | It describes the intent exploration result, which includes the list of expectation exploration results. Intent exploration result is provided after MnS producer performs intent exploration pre-evaluation process as requested by MnS consumer. | type: ExpectationExplorationResult  multiplicity: 1..\*  isOrdered: False  isUnique: True  defaultValue: None  isNullable: False |
| targetExplorationResults | It describes the list of exploration results (i.e. recommended best values) for the expectation targets. Each TargetExplorationResult includes the TargetName, Target Condition and a recommended TargetValueRange | type: ExpectationTarget  multiplicity: 1..\*  isOrdered: False  isUnique: True  defaultValue: None  isNullable: False |
| contextExplorationResults | It describes the list of exploration results (i.e. recommended best values) for the expectation context (e.g. coverageAreaPolygonContext). Each ContextExplorationResult includes the ContextAttribute, Context Condition and a recommended ContextValueRange. | type: Context  multiplicity: 1..\*  isOrdered: False  isUnique: True  defaultValue: None  isNullable: False |
| intentHandlingCapabilityList | It describes the list of expectation object information and expectation target information which can be supported by intent handling function.  allowedValues: Not Applicable | type: IntentHandlingCapability  multiplicity: 1..\*  isOrdered: False  isUnique: True  defaultValue: None  isNullable: False |
| intentHandlingCapabilityId | A unique identifier of property of intent handling capability should be supported by the intent handling function of MnS producer.  allowedValues: Not Applicable | type: String  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| supportedExpectationObjectType | It describes the expectation object type which can be supported by a specific intent handling function of MnS producer.  allowedValues: objectType defined in clause 6.2.1.3.2. | type: Enum  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| lastUpdatedTime | It describes the time for the latest update of the IntentReport Instance. | type: DateTime  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| ContextSelectivity | It expresses the way in which all or a subset of the contexts may be applied. The contextSelectivity indicates which contexts are to be applied, i.e., "ALL\_OF", "ONE\_OF", or "ANY\_OF" the contexts.  AllowedValue: "ALL\_OF", "ONE\_OF", "ANY\_OF" | type: Enum  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: "ALL\_OF"  isNullable: False |
| expectationSelectivity | It expresses the way in which the set of intentExpectations in an intent may be applied, e.g. for validation. The MnS consumer can provide intent expectations that describes the different alternatives candidate characteristics of the desired service from the MnS consumer's point of view that the MnS consumer wants to be validated. The expectationSelectivity indicates which intentExpectations are to be validated, i.e., "ALL\_OF", "ONE\_OF", "ANY\_OF" the intentExpectations  AllowedValue: "ALL\_OF", "ONE\_OF", "ANY\_OF" | type: Enum  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: "ALL\_OF"  isNullable: False |
| intentPreemptionCapability | It describes the pre-emption capability. The attribute is used by MnS producer to decide the target of intent deletion or intent modification  allowedValue: TRUE, FALSE | type: Boolean  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: "FALSE"  isNullable: False |
| intentMgmtPurpose | It describes the MnS consumer requirements for the management purpose (required procedures) of the created or modified intent instance.  allowedValue:  - FEASIBILITYCHECK, represent required procedures for checking the feasibility of corresponding intent expectations during negotiation in intent pre-evaluation phase;  - EXPLORATION, represent the required procedures for exploring the best possible values that can be achieved for a specific intent during negotiation in intent pre-evaluation phase.  - FULFILMENT\_WITHOUT\_NEGOTIATION, represent required procedures to fulfil corresponding intent expectation without negotiation;  - FULFILMENT\_WITH\_NEGOTIATION, represent required procedures to fulfil corresponding intent expectation with negotiation in intent fulfilment phase; | type: ENUM  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: "FULFILMENT\_WITHOUT\_NEGOTIATION"  isNullable: False |
| inFeasibleExpectationInfos | It describes the list of InFeasibleExpectationInfo for all infeasible IntentExpectations in the intent. | type: InFeasibleExpectationInfo  multiplicity: 1..\*  isOrdered: False  isUnique: True  defaultValue: None  isNullable: False |
| inFeasibleTargets | It describes the list of TargetNames for the InFeasibleTargets | type: String  multiplicity: 1..\*  isOrdered: False  isUnique: True  defaultValue: None  isNullable: False |
| IntentExpectation.preferenceWeight | It represents the preference information of the Consumer on the intent expectation, which indicates the preference weight on the preferred intentExpectations. It is an integer in the range [0,10] used to indicate the extent of preference among intent expectations:   * When the allowed value is larger than 0, it means that preference information is specified by the consumer for the intentExpectation. The larger value indicates the intentExpectation is preferred by the Consumer. * When the allowed value is equal to 0, it means that no preference information is specified by the consumer for the intentExpectation, i.e., intentExpectation is considered optional.   AllowedValue: values in the range [0-10] | type: Integer  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: 0  isNullable: False |
| ExpectationTarget.preferenceWeight | It represents the preference information of the Consumer on the expectation target, which indicates the preference weight on the preferred expectationTargets. It is an integer in the range [0,10] used to indicate the extent of preference among expectation targets:   * When the allowed value is larger than 0, it means that preference information is specified by the consumer for the expectationTarget. The larger value indicates the expectationTarget is preferred by the Consumer. * When the allowed value is equal to 0, it means that no preference information is specified by the consumer for the expectationTarget, i.e., expectationTarget is considered optional.   AllowedValue: values in the range [0-10] | type: Integer  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: 0  isNullable: False |
| implicitIntentIndex | It indicates whether the MnS consumer enables the MnS producer to perform implicit intent discovery the implicit information like additional intent expectation which is not explicitly pointed out.  allowedValue: TRUE, FALSE | type: Boolean  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: "FALSE"  isNullable: False |
| implicitIntentExpectations | It describes the implicit intent expectation of the MnS consumer pointed out by the MnS producer. | type: IntentExpectation  multiplicity: 1..\*  isOrdered: True  isUnique: True  defaultValue: None  isNullable: False |
| implicitIntentContexts | It describes the list of implicit IntentContext(s) which represents the constraints and conditions that should apply for the entire implicit intent.  allowedValues: triple of (attribute, condition, value range) | type: Context  multiplicity: \*  isOrdered: False  isUnique: True  defaultValue: None  isNullable: False |
| intentFulfilmentNegotiationReport | It contains the information that the MnS producer provides to the MnS consumer during intent fulfilment negotiations. | type: IntentFulfilmentNegotiationReport  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| possibleIntentOutcomeList | it indicates the possible outcomes for the intent expectations and expectationTargets within that intent and the relative cost/impact (on the related ExpecationObjects) of achieving that outcome  For each possible outcome, a PossibleIntentOutcome is provided. Impacts on ExpecationObjects that were not in the original intent may be added to the report as new intentExpectations | type: PossibleIntentOutcome  multiplicity: 1 .. \*  isOrdered: True  isUnique: True  defaultValue: None  isNullable: False |
| intentNegotiationConsumerFeedback | It contains the feedback information that the MnS consumer's provides to the MnS producer as response during intent Negotiation. | type: IntentNegotiationFeedback  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| preferredIntentOutcomeId | It indicates for a specific possible intent outcome confirmed by MnS consumer among those indicated by the MnS producer. It indicates the identifier of one of the possible intent outcomes among those provided to the MnS consumer by the MnS producer | type: String  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: True |
| consumerSatisfactionIndex | It indicates the MnS consumer's satisfaction with one or more of the MnS producer's alternatives. .It represents the computed outcomes of MnS consumer's utility function an integer in the range  [0,100]. The highest possible value indicates that the solution provided by the MnS producer achieves the best possible outcomes that the MnS consumer expected, e.g., that it achieves the highest range of a target whose desired values were defining as falling in a range. If it is provided in response to a report from an MnS producer indicating several candidate alternatives and their impacts, the satisfaction index is ordered according to the order of the reports. If it is provided as feedback for a single solution that was selected by the MnS producer and deployed, it indicates the MnS consumer's satisfaction with the deployed solution.: | type: integer  multiplicity: 1..\*  isOrdered: True  isUnique: True  defaultValue: None  isNullable: False |
| possibleImpacts | It refers to the possible impacts of the possible candidate alternative.  allowedValues: Not Applicable | type: PossibleImpact  multiplicityl: 1..\*  isOrdered: False  isUnique: True  defaultValue: None  isNullable: False |
| possibleIntentOutcomeID | It identifies the number the outcome in the possible possibleOutcomeList | type: integer  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| impactedObjects | It indicates the DN of managed object that may be impacted by the corresponding possible intent outcomes.  allowedValues: Not Applicable | type: DN  multiplicity: 1..\*  isOrdered: True  isUnique: False  defaultValue: None  isNullable: False |
| impactedAttributes | It defines the name-value pair, where the name indicates the name of the attribute that is impacted and the value indicates the updated value. | type: ttributeNameValuePairSet  multiplicity: 1..\*  isOrdered: True  isUnique: False  defaultValue: None  isNullable: False |
| supportedExpectationTargetInfoList | It describes the supported expectation targets for the supported expectation object type. | type: SupportedExpectationTargetInfo  multiplicity: 1 … \*  isOrdered: False  isUnique: True  defaultValue: None  isNullable: False |
| supportedTargetName | It indicates the name of the supported expectation targets for the supported expectation object type.  allowedValues: depends on ExpectationObject in the IntentExpectation | type: String  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: True |
| supportedTargetCondition | It expresses the limits within which the supportedExpectationTargetName shall be supported.  allowedValues: targetCondition defined in clause 6.2.1.3.3 | type: Enum  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: "IS\_EQUAL\_TO"  isNullable: False |
| supportedTargetValueRange | It describes the range of values that applicable to the supportedExpectationTargetName and the supportedTargetCondition.  allowedValues: targetValueRange defined in clause 6.2.1.3.3 | type: ValueRangeType  multiplicity: 1..\*  isOrdered: False  isUnique: True  defaultValue: None  isNullable: True |
| utilityScale | Provides the scaling factor to be applied to the utility function result.  allowedValues: >=0 | type: Real  multiplicity: 1  isOrdered: False  isUnique: N/A  defaultValue: 1  isNullable: False |
| utilityOffset | Provides the offset to be applied to the utility function result.  allowedValues: >=0 | type: Real  multiplicity: 1  isOrdered: False  isUnique: N/A  defaultValue: 0  isNullable: False |
| utilityDescription | Provides the description of the Intent Utility Function.  allowedValues: vendor specified. | type: String  multiplicity: 0..\*  isOrdered: False  isUnique: True  defaultValue: N/A  isNullable: False |
| supportedUtilityList | Provides a list of utility function definitions supported by the Intent Handling Function. The definitions define the input used to provision instances of the utility function.  allowedValues: Each entry is identified by a unique Id. | type: UtilityDefinition  multiplicity: 0..\*  isOrdered: False  isUnique: True  defaultValue: N/A  isNullable: False |
| utilityParameterList | An ordered list of parameters used to calculate the utility function result. | type: UtilityParameter  multiplicity: 0..\*  isOrdered: True  isUnique: N/A  defaultValue: N/A  isNullable: False |
| intentUtilityReport | Provides the report of intent utility results. | type: IntentUtilityReport  multiplicity: 0..\*  isOrdered: False  isUnique: N/A  defaultValue: N/A  isNullable: False |
| utilityResult | Result of the utility function evaluation.  allowedValues: 0..100 | type: Real  multiplicity: 1  isOrdered: False  isUnique: N/A  defaultValue: N/A  isNullable: False |
| parameterName | A parameter name.  allowedValues: an ‘expectationName.targetName’ valid for the scenario specific expectationtargets and expectationcontexts in clause 6.2.2, and/or vendor specified. | type: String  multiplicity: 1  isOrdered: False  isUnique: N/A  defaultValue: None  isNullable: False |
| parameterWeight | A parameter weight.  Default value is 1.  allowedValues: value between 0 and 1. | type: Real  multiplicity: 1  isOrdered: False  isUnique: N/A  defaultValue: 1  isNullable: False |
| utilityFunctionId | The identifier of the function to be used to calculate the utility result.  allowedValues: vendor specified. | type: String  multiplicity: 1  isOrdered: True  isUnique: N/A  defaultValue: None  isNullable: False |
| intentUtilityFormulaRef | List of intent utility instances. Each object instance is identified by its DN.  allowedValues: N/A | type: DN  multiplicity: 0..\*  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| consumerSatisfactionIndexThreshold | This defines the consumer satisfaction index threshold.  If the value provided in consumerSatisfactionIndex goes below this threshold, the producer may refer to another mechanism to try to find a better outcome based on its functionality (e.g. utility function, priority). | type: Integer  multiplicity: 1  isOrdered: False  isUnique: N/A  defaultValue: N/A  isNullable: False |
| utilityResultList | List of utility results. | type: UtilityResult  multiplicity: 1..\*  isOrdered: True  isUnique: N/A  defaultValue: N/A  isNullable: False |
| NOTE: For "IS\_ALL\_OF", the value shall be a match of the entire list. | | |

***End of changes***