**3GPP TSG-SA5 Meeting #158 *S5-247075***

Orlando, USA, 18 – 22 November 2024

**Source: Ericsson, Vodafone, Deutsche Telekom, Telecom Italia**

**Title: Signalling traffic monitoring management NRM of the drafted TS28.abc**

**Document for: Approval**

**Agenda Item: 6.19.22**

# 1 Decision/action requested

***For approval.***

# 2 References

[1] S5-245981 new WID signalling monitoring

[2] S5-245336, initial skeleton of draft TS28.abc signalling monitoring

# 3 Rationale

Defines Signalling traffic monitoring management NRM stage 2

# 4 Detailed proposal

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# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[x4] 3GPP TS 28.622: "Generic Network Resource Model (NRM); Integration Reference Point (IRP); Information Service (IS)"

[x6] 3GPP TS 32.158: "Management and orchestration; Design rules for REpresentational State Transfer (REST) Solution Sets (SS)".

[x12] 3GPP TS 23.501: "System Architecture for the 5G System; Stage 2"

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# 6 Signalling traffic monitoring management Information Model (stage 2)

## 6.1 Imported and associated information entities

### 6.1.1 Imported information entities and local labels

|  |  |
| --- | --- |
| Label reference | Local label  |
| 3GPP TS 28.622 [x4], IOC, SubNetwork | SubNetwork |
| 3GPP TS 28.622 [x4], IOC, ManagedElement | ManagedElement |
| 3GPP TS 28.622 [x4], IOC, ManagedFunction | ManagedFunction |

### 6.1.2 Class diagram

#### 6.1.2.1 Relationships

This clause provides the overview of the relationships of relevant classes in UML. Subsequent clauses provide more detailed specification of various aspects of these classes. The following figure shows the containment/naming hierarchy and the associations of the classes defined in the present document.



Figure 6.1.2.1.1 STM control NRM fragment

#### 6.1.2.2 Inheritance

This clause depicts the inheritance relationships.



Figure 6.1.2.2.1 STM control NRM inheritance relationships

## 6.2 Class definitions

### 6.2.1 StmCtrl <<IOC>>

#### 6.2.1.1 Definition

This IOC represents STM jobs.. It can be name-contained by SubNetwork, ManagedElement, or ManagedFunction.

Editor’s note: To check whether we need an identifier for an object instance beyond DN

reportingNFList specifies the network function whose signalling traffic is to be monitored. If this parameter is not present or it is empty, then all Network Functions within the SubNetwork or ManagedElement shall be monitored.T This parameter shall be omitted if the STM control object is specified under a ManagedFunction.

networkInterfaceTypeList specifies the target network interface type to be monitored. If this parameter is not present or it is empty, then all applicable interface types from the target NF shall be monitored.

Editor’s note: To further define how specific interface instances is to be identified (comment from Depanshu).

stmTargetUri is the URI of the STM consumer that shall receive the monitored signalling message copies.

administrativeState is used by the STM consumer to lock or unlock the StmCtrl instance in order to stop or start the signalling traffic monitoring.

operationalState is used by STM consumer to report its working state.

#### 6.2.1.2 Attributes

The StmCtrl IOC includes attributes inherited from Top IOC (defined in 3GPP TS 28.622 [x4] subclause 4.3.29) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | S | isReadable | isWritable | isInvariant | isNotifyable |
|  |  |  |  |  |  |
| reportingNFList | CM | T | T | F | T |
| networkInterfaceTypeList | M | T | T | F | T |
| stmTargetUri | M | T | T | T | T |
| administrativeState | M | T | T | F | T |
| operationalState | M | T | F | F | T |

Editor’s note: To check whether we need an identifier for an object instance beyond DN

#### 6.2.1.3 Attribute constraints

None.

#### 6.2.1.4 Notifications

The common notifications defined in 3GPP TS 28.622 [x4] subclause 4.5 are valid for this IOC, without exceptions or additions.

### 6.2.2 StmReference <<dataType>>

#### 6.2.2.1 Definition

This <<dataType>> defines a globally unique identifier, which uniquely identifies the StmCtrl that is created by STM consumer. It composes with a consumer identifier followed by a STM identifier. The consumer identifier is one-byte octet string, and it is assigned by the operator. The STM identifier is two-byte octet string, and it is generated by the consumer.

#### 6.2.2.2 Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | S | isReadable | isWritable | isInvariant | isNotifyable |
| consumerId | M | T | T | T | T |
| stmId | M | T | T | T | T |

#### 6.2.2.3 Attribute constraints

None.

#### 6.2.2.4 Notifications

The common notifications defined in 3GPP TS 28.622 [x4] subclause 4.5 are valid for this IOC, without exceptions or additions.

## 6.3 Attribute definitions

### 6.3.1 Attribute properties

The following table defines the properties of attributes specified in the present document.

| Attribute Name | Documentation and Allowed Values | Properties |
| --- | --- | --- |
| reportingNFList | List of Network Function Distinguished NameallowedValues: N/A | Type: DNmultiplicity: \*isOrdered: N/AisUnique: TruedefaultValue: NoneisNullable: False |
| networkInterfaceTypeList | List of network interface type. The applicable network interface type names are specified based on subclause 4.2.3 of 3GPP TS 23.501[x12]. The value "ALL" is specified for the case if all the applicable interface type of the network function shall be monitored.allowedValues: ALL, N4, N5, N7, N8, N10, N11, N12, N13, N14, N15, N22, N58, N59, N80, N81 | Type: Stringmultiplicity: 1..\*isOrdered: N/AisUnique: TruedefaultValue: ALLisNullable: False |
| stmTargetUri | It specifies the Uniform Resource Identifier (URI) of the streaming target where the signalling traffic shall be sent. The detailed URI structure is defined in clause 4.4 of 3GPP TS 32.158 [x6]. | type: Urimultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: None isNullable: False |
|  |  |  |
|  |  |  |
|  |  |  |
| administrativeState | Administrative state of a managed object instance. The administrative state describes the permission to use or prohibition against using the object instance. The administrative state is set by the STM consumer.allowedValues: LOCKED, UNLOCKED.  | type: ENUMmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: LOCKEDisNullable: False |
| operationalState | Operational state of manged object instance. The operational state describes if an object instance is operable ("ENABLED") or inoperable ("DISABLED"). This state is set by the object instance or the STM producer and is hence READ-ONLY.allowedValues: ENABLED, DISABLED | type: ENUMmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: DISABLEDisNullable: False |

##  6.4 Common notifications

This clause presents a list of notifications, defined in [7], that a STM consumer can receive.

| Name | S | Notes |
| --- | --- | --- |
| notifyMOICreation | O |  |
| notifyMOIDeletion | O |  |
| notifyMOIAttributeValueChanges | O |  |
| notifyMOIChanges | O |  |

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# Annex B (informative):Plant UML source code

## B.2 STM control NRM fragment

The following PlantUML source code is used to describe STM control NRM fragment. As depicted by Figure 6.1.2.1-1:

@startuml

rectangle "<<InformationObjectClass>>\n stmReportingCtrl" as stmReportingCtrl

rectangle "<<ProxyClass>>\nManagedEntity" as ManagedElement

stmReportingCtrl -left-\* ManagedElement : 1   <<name>>    \*

note top of ManagedElement

  Represents the following IOCs:

    Subnetwork, ManagedElement, or ManagedFunction

end note

@enduml

## B.3 STM control NRM inheritance relationships

The following PlantUML source code is used to describe STM control NRM inheritance relationships. As depicted by Figure 6.1.2.2-1:

@startuml

skinparam defaultTextAlignment center

rectangle "<<InformationObjectClass>>\n//Top//" as top

rectangle "<<InformationObjectClass>>\nstmReportingCtrl" as stm

top <|-- stm

@enduml

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