**Source:** **SA5 (Telecom Management)**

**Title:** **7 Rel-5/6 CR 32.622/4/5 Generic network resources IRP NRM / CMIP / XML**

**Document for:** **Approval**

**Agenda Item:** **7.5.3**

| Doc1stevel | Specific a | CR | R | Phase | Subject | Ca | VersCu | Doc2ndLev | WorkitemsI D |
|---|---|---|---|---|---|---|---|---|---|
| SP-040808 | 32.622 | 020 | -- | Rel-6 | Correct the write qualification for VsDataContainer.vsData | F | 6.2.0 | S5-048924 | OAM-NIM |
| SP-040808 | 32.622 | 021 | -- | Rel-6 | Correction of modelling of Media GateWay (MGW) | F | 6.2.0 | S5-048958 | OAM-NIM |
| SP-040808 | 32.624 | 019 | -- | Rel-5 | Add missing definition of attribute meContextId | F | 5.4.0 | S5-049015 | OAM-NIM |
| SP-040808 | 32.624 | 020 | -- | Rel-6 | Add missing definition of attribute meContextId | A | 6.0.0 | S5-049016 | OAM-NIM |
| SP-040808 | 32.624 | 021 | -- | Rel-6 | Add definitions for genericIRP | F | 6.0.0 | S5-047045 | OAM-NIM |
| SP-040808 | 32.625 | 012 | -- | Rel-5 | Correct attribute for the managementScope association - Align with IS in 32.622 | F | 5.3.0 | S5-048861 | OAM-NIM |
| SP-040808 | 32.625 | 013 | -- | Rel-6 | Correct attribute for the managementScope association - Align with IS in 32.622 | A | 6.2.0 | S5-048862 | OAM-NIM |

**3GPP TSG-SA5 (Telecom Management)** **S5-048924**
**Meeting #40, Sanya, CHINA, 15 - 19 November 2004**

*CR-Form-v7*

# CHANGE REQUEST

⌘ **32.622** **CR** **020** ⌘ **rev** **-** ⌘ Current version: **6.2.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

***Proposed change affects:*** UICC apps⌘ ☐ ME ☐ Radio Access Network [X] Core Network [X]

| | | |
|---|---|---|
| ***Title:*** | ⌘ | Correct the write qualification for VsDataContainer.vsData |
| ***Source:*** | ⌘ | **SA5** (edwin.tse@ericsson.com) |
| ***Work item code:*** | ⌘ | OAM-NIM |
| ***Date:*** | ⌘ | 19/11/2004 |
| ***Category:*** | ⌘ | **F** |
| ***Release:*** | ⌘ | Rel-6 |

*Use one of the following categories:*
***F*** *(correction)*
***A*** *(corresponds to a correction 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.

*Use one of the following releases:*

| | |
|---|---|
| *2* | *(GSM Phase 2)* |
| *R96* | *(Release 1996)* |
| *R97* | *(Release 1997)* |
| *R98* | *(Release 1998)* |
| *R99* | *(Release 1999)* |
| *Rel-4* | *(Release 4)* |
| *Rel-5* | *(Release 5)* |
| *Rel-6* | *(Release 6)* |

| | | |
|---|---|---|
| ***Reason for change:*** | ⌘ | The current write qualification for VsDataContainer.vsData is wrong. |
| ***Summary of change:*** | ⌘ | Modify the subject qualifier from M to O. |
| ***Consequences if not approved:*** | ⌘ | The current write qualification for VsDataContainer.vsData is wrong. Some vendor specific extended capabilities cannot be correctly modelled using the current VsDataContainer.vsData write qualification. |

| | | |
|---|---|---|
| ***Clauses affected:*** | ⌘ | 6.1.3.9.2 |

| | | Y | N | | |
|---|---|---|---|---|---|
| ***Other specs affected:*** | ⌘ | | X | Other core specifications | ⌘ |
| | | | X | Test specifications | |
| | | | X | O&M Specifications | |

***Other comments:*** ⌘

**Change in Clause “6.1.3.9”**

### 6.1.3.9 Class VsDataContainer

#### 6.1.3.9.1 Definition

The 'VsDataContainer' managed object is a container for vendor specific data. The number of instances of the 'VsDataContainer' can differ from vendor to vendor. This IOC shall only be used by the Bulk CM IRP for the UTRAN, GERAN and CN NRMs.

#### 6.1.3.9.2 Attribute

**Table 6.14: Attributes of `VsDataContainer`**

| Attribute Name | Support Qualifier | Read Qualifier | Write Qualifier |
|---|---|---|---|
| vsDataContainerId | M | M | - |
| vsDataType | M | M | - |
| vsData | M | M | O~~M~~ |
| vsDataFormatVersion | M | M | - |

**End of change in Clause “6.1.3.9”**

CR-Form-v7

# CHANGE REQUEST

⌘ 32.622 CR 021 ⌘rev - ⌘ Current version: 6.2.0 ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

***Proposed change affects:*** | UICC apps⌘ ☐ ME ☐ Radio Access Network X Core Network X

| | | |
|---|---|---|
| ***Title:*** | ⌘ | Correction of modelling of Media GateWay (MGW) |
| ***Source:*** | ⌘ | **SA5** (robert.petersen@ericsson.com) |
| ***Work item code:*** | ⌘ | OAM-NIM |
| ***Date:*** | ⌘ | 19/11/2004 |
| ***Category:*** | ⌘ | **F** |
| ***Release:*** | ⌘ | Rel-6 |

*Use one of the following categories:*
***F*** *(correction)*
***A*** *(corresponds to a correction 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.

*Use one of the following releases:*

| | |
|---|---|
| *2* | *(GSM Phase 2)* |
| *R96* | *(Release 1996)* |
| *R97* | *(Release 1997)* |
| *R98* | *(Release 1998)* |
| *R99* | *(Release 1999)* |
| *Rel-4* | *(Release 4)* |
| *Rel-5* | *(Release 5)* |
| *Rel-6* | *(Release 6)* |

| | | |
|---|---|---|
| ***Reason for change:*** | ⌘ | MGW is incorrectly modelled in Rel-6 |
| ***Summary of change:*** | ⌘ | Remove the restriction on “single function managedElements” and update the rule for mapping from managedFunction to managedElementType |
| ***Consequences if not approved:*** | ⌘ | It will not be possible to manage the full functionality of MGW in the core network. |

| | | |
|---|---|---|
| ***Clauses affected:*** | ⌘ | 6.1.3.3.1, 6.1.5.1 |

| | Y | N | | |
|---|---|---|---|---|
| ***Other specs affected:*** ⌘ | | X | Other core specifications | ⌘ |
| | | X | Test specifications | |
| | | X | O&M Specifications | |

***Other comments:*** ⌘ This is a late Rel-6 “Mirror” CR to

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Sep 2004 | S_25 | SP-040582 | 019 | -- | Correction of modelling of Media GateWay (MGW) | 5.4.0 | 5.5.0 |

## Change in Clause 6.1.3.3.1

### 6.1.3.3.1 Definition

This IOC represents telecommunications equipment or TMN entities within the telecommunications network that performs Managed Element (ME) functions, i.e. provides support and/or service to the subscriber.
An ME communicates with a manager (directly or indirectly) over one or more interfaces for the purpose of being monitored and/or controlled. MEs may or may not additionally perform element management functionality.
An ME contains equipment that may or may not be geographically distributed. An ME is often referred to as a "Network Element".

A ManagedElement may be contained in either a SubNetwork or in an MeContext instance. A single ManagedElement seen over the Itf-N may also exist stand-alone with no parent at all.

The ManagedElement IOC may be used to represent combined ME functionality (as indicated by the managedElementType attribute and the contained instances of different functional IOCs).

Single function ManagedElement IOC instances will have a 1..1 containment relationship to a function IOC instance (in this context a function IOC instance is an instance of an IOC derived from the ManagedFunction IOC). Multiple function ManagedElement instances will have a 1..N containment relationship to function IOC instances.

Note that for some specific functional IOCs a 1..N containment relationship is permitted. The specific functional entities will be identified in the NRMs that define subclasses of ManagedFunction..

## End of Change in Clause 6.1.3.3.1

## Change in Clause 6.1.5.1

### 6.1.5.1 Definitions and legal values

Table 6.16 defines the attributes that are present in several information object classes of the present document.

**Table 6.16: Attributes**

| Attribute Name | Definition | Legal Values |
|---|---|---|
| dnPrefix | It carries the DN Prefix information as defined in Annex C of 32.300 [13] or no information. | |
| managedElementId | An attribute whose 'name+value' can be used as an RDN when naming an instance of the ManagedElement object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance. | |
| managedElementType | The type of managed element. It is a multi-valued attribute with one or more unique elements. Thus, it may represent one ME functionality or a combination of more than one functionality.<br><br>The actual syntax and encoding of this attribute is Solution Set specific. | The legal values of this attribute are the names of the IOC(s) that are (a) derived/subclassed from ManagedFunction and (b) directly name-contained by ManagedElement IOC (on the first level below ManagedElement), but with the string "Function" excluded.<br><br>If a ManagedElement contains multiple instances of a ManagedFunction this attribute will not contain repeated values.<br><br>The capitalisation (usage of upper/lower case) of characters in this attribute is insignificant. Thus, the IRPManager should be case insensitive when reading these values.<br><br>Two examples of legal values are:<br>• NodeB;<br>• HLR,VLR. |
| irpAgentId | An attribute whose 'name+value' can be used as an RDN when naming an instance of this object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance. | |
| iRPId | An attribute whose 'name+value' can be used as an RDN when naming an instance of this object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance. | |
| locationName | The physical location of this entity (e.g. an address). | |
| managedElements | Models the role 'Manager' – see subclause 6.1.4.1.2. This attribute contains a list of the DN(s) of the related ManagedElement instance(s). | |
| managementNodeId | An attribute whose 'name+value' can be used as an RDN when naming an instance of this object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance. | |
| managedBy | Models the role 'Subordinate' – see subclause 6.1.4.1.2. This attribute contains a list of the DN(s) of the related ManagementNode instance(s). | |

| Attribute Name | Definition | Legal Values |
|---|---|---|
| meContextId | An attribute whose 'name+value' can be used as an RDN when naming an instance of this object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance. | |
| objectClass | An attribute which captures the name of the class from which the object instance is an occurrence of. | |
| objectInstance | An information which captures the Distinguished Name of any object. | |
| setOfMcc | Set of Mobile Country Code (MCC). The MCC uniquely identifies the country of domicile of the mobile subscriber. MCC is part of the IMSI (Ref. 3GPP TS 23.003).<br>This list contains all the MCC values in subordinate object instances to this SubNetwork instance.<br>Every unique value of MCC shall only appear once in the list. | |
| subNetworkId | An attribute whose 'name+value' can be used as an RDN when naming an instance of the SubNetwork object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance. | |
| swVersion | The software version of the ManagementNode or ManagedElement (this is used for determining which version of the vendor specific information is valid for the ManagementNode or ManagedElement). | |
| systemDN | The Distinguished Name (DN) of IRPAgent. Defined in 3GPP TS 32.300. | |
| userDefinedNetworkType | Textual information regarding the type of network, e.g. UTRAN. | |
| userDefinedState | An operator defined state for operator specific usage. (See also Note below) | |
| userLabel | A user-friendly name of this object. | |
| vendorName | The name of the vendor. | |
| vsData | Vendor specific attributes of the type vsDataType. The attribute definitions including constraints (value ranges, data types, etc.) are specified in a vendor specific data format file. | |
| vsDataContainerId | An attribute whose 'name+value' can be used as an RDN when naming an instance of this object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance. | |
| vsDataFormatVersion | Name of the data format file, including version. | |
| vsDataType | Type of vendor specific data contained by this instance, e.g. relation specific algorithm parameters, cell specific parameters for power control or re-selection or a timer. The type itself is also vendor specific. | |

**End of Change in Clause 6.1.5.1**
**End of Document**

# Annex B (informative): Change history

| Change history | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Date** | **TSG #** | **TSG Doc.** | **CR** | **Rev** | **Subject/Comment** | **Old** | **New** |
| Jun 2001 | S_12 | SP-010283 | -- | -- | Approved at TSG SA #12 and placed under Change Control | 2.0.0 | 4.0.0 |
| Sep 2001 | S_13 | SP-010479 | 001 | -- | Add the notification notifyComments in all MOCs that support alarms and correct the list of allowed members of the attribute managedElementType of the MOC managedElement | 4.0.0 | 4.1.0 |
| Sep 2001 | S_13 | SP-010479 | 002 | -- | Correction of Generic NRM Containment/Naming and Association diagram | 4.0.0 | 4.1.0 |
| Sep 2001 | S_13 | SP-010479 | 003 | -- | Correct description of swVersion attribute | 4.0.0 | 4.1.0 |
| Mar 2002 | S_15 | SP-020020 | 004 | -- | Addition of managedElementType value for GSM Radio Access Network support | 4.1.0 | 4.2.0 |
| Jun 2002 | S_16 | SP-020299 | 005 | -- | Remove R99-inherited restriction of self-containment for MOC SubNetwork | 4.2.0 | 4.3.0 |
| Sep 2002 | S_17 | SP-020488 | 006 | -- | Upgrade to Rel-5 (Add new IS method, MOC name convention) | 4.3.0 | 5.0.0 |
| Jun 2003 | S_20 | SP-030280 | 008 | -- | Correction of Notifications for IOCs | 5.0.0 | 5.1.0 |
| Dec 2003 | S_22 | SP-030643 | 010 | -- | Add Missing VsDataContainer for ManagedFunction & ManagedElement and Other IOCs (Version 2) | 5.1.0 | 5.2.0 |
| Dec 2003 | S_22 | SP-030644 | 011 | -- | Correction of UML diagram and other corrections | 5.1.0 | 5.2.0 |
| Dec 2003 | S_22 | SP-030648 | 012 | -- | Add SetofMcc attribute in Generic NRM IOCs for NRM alignment | 5.2.0 | 6.0.0 |
| Mar 2004 | S_23 | SP-040128 | 014 | -- | Addition of missing attributes for the managementScope association | 6.0.0 | 6.1.0 |
| Jun 2004 | S_24 | SP-040249 | 016 | -- | Add missing attribute constraints for dnPrefix | 6.1.0 | 6.2.0 |
| Jun 2004 | S_24 | SP-040251 | 018 | -- | Correction of legal values for managedElementType attribute | 6.1.0 | 6.2.0 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**3GPP TSG-SA5 (Telecom Management)** **S5-049015**
**Meeting #40, Sanya, CHINA, 15 - 19 November 2004**

*CR-Form-v7*

# CHANGE REQUEST

⌘ **32.624** **CR** **019** ⌘ **rev** **-** ⌘ Current version: **5.4.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

***Proposed change affects:*** | UICC apps⌘ ☐ ME ☐ Radio Access Network **X** Core Network **X**

| | | |
|---|---|---|
| ***Title:*** | ⌘ | Add missing definition of attribute meContextId |
| ***Source:*** | ⌘ | **SA5** (olaf.pollakowski@siemens.com) |
| ***Work item code:*** | ⌘ | OAM-NIM |
| ***Date:*** | ⌘ | 19/11/2004 |
| ***Category:*** | ⌘ | **F** |
| ***Release:*** | ⌘ | Rel-5 |

*Use one of the following categories:*
***F*** *(correction)*
***A*** *(corresponds to a correction 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.

*Use one of the following releases:*

| | |
|---|---|
| *2* | *(GSM Phase 2)* |
| *R96* | *(Release 1996)* |
| *R97* | *(Release 1997)* |
| *R98* | *(Release 1998)* |
| *R99* | *(Release 1999)* |
| *Rel-4* | *(Release 4)* |
| *Rel-5* | *(Release 5)* |
| *Rel-6* | *(Release 6)* |

| | | |
|---|---|---|
| ***Reason for change:*** | ⌘ | The attribute meContextId is not defined. |
| ***Summary of change:*** | ⌘ | The definition of meContextId is added |
| ***Consequences if not approved:*** | ⌘ | The meContextId is not defined resulting in not implementable GDMO code. |

| | | | | | |
|---|---|---|---|---|---|
| ***Clauses affected:*** | ⌘ | 5.2.18 | | | |
| ***Other specs affected:*** | ⌘ | **Y** | **N** | | |
| | | | **X** | Other core specifications | ⌘ |
| | | | **X** | Test specifications | |
| | | **X** | | O&M Specifications | Rel-6 32.624 |
| ***Other comments:*** | ⌘ | Rel-6 32.624 Mirror CR in S5-049016. | | | |

## Change in Clause 5.2.18

### 5.2.18 meContextIdrootOptionalPackage

```
meContextId ATTRIBUTE
   WITH ATTRIBUTE SYNTAX
      TS32-624TypeModule.GeneralObjectId;
   MATCHES FOR
      EQUALITY;
   BEHAVIOUR
      meContextIdBehaviour;
REGISTERED AS {ts32-624Attribute 17};

meContextIdBehaviour BEHAVIOUR
DEFINED AS
      "This attribute identifies an meContext instance.";
rootOptionalPackage PACKAGE
   BEHAVIOUR
      rootOptionalPackageBehaviour;
   ATTRIBUTES
      "Recommendation X.721: 1992" : systemTitle   GET;
REGISTERED AS {ts32-624Package 18};

rootOptionalPackageBehaviour BEHAVIOUR
DEFINED AS
      "This package shall be present in an instance of subNetwork, meContext or managedElement
       when it is the accessing point (root) of the MIB.";
```

## End of Change in Clause 5.2.18

**3GPP TSG-SA5 (Telecom Management)** **S5-049016**
**Meeting #40, Sanya, CHINA, 15 - 19 November 2004**

CR-Form-v7

# CHANGE REQUEST

⌘ **32.624** **CR** **020** ⌘ **rev** **-** ⌘ Current version: **6.0.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

***Proposed change affects:*** UICC apps⌘ ☐ ME ☐ Radio Access Network [X] Core Network [X]

| | | |
|---|---|---|
| ***Title:*** | ⌘ | Add missing definition of attribute meContextId |
| ***Source:*** | ⌘ | **SA5** (olaf.pollakowski@siemens.com) |
| ***Work item code:*** | ⌘ | OAM-NIM |
| ***Date:*** | ⌘ | 19/11/2004 |
| ***Category:*** | ⌘ | **A** |
| ***Release:*** | ⌘ | Rel-6 |

*Use one of the following categories:*
***F*** *(correction)*
***A*** *(corresponds to a correction 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.

*Use one of the following releases:*

| | |
|---|---|
| *2* | *(GSM Phase 2)* |
| *R96* | *(Release 1996)* |
| *R97* | *(Release 1997)* |
| *R98* | *(Release 1998)* |
| *R99* | *(Release 1999)* |
| *Rel-4* | *(Release 4)* |
| *Rel-5* | *(Release 5)* |
| *Rel-6* | *(Release 6)* |

| | | |
|---|---|---|
| ***Reason for change:*** | ⌘ | The attribute meContextId is not defined. |
| ***Summary of change:*** | ⌘ | The definition of meContextId is added |
| ***Consequences if not approved:*** | ⌘ | The meContextId is not defined resulting in not implementable GDMO code. |
| ***Clauses affected:*** | ⌘ | 5.2.18 |

| | Y | N | | |
|---|---|---|---|---|
| ***Other specs affected:*** ⌘ | | X | Other core specifications | ⌘ |
| | | X | Test specifications | |
| | | X | O&M Specifications | |

***Other comments:*** ⌘

## Change in Clause 5.2.18

## 5.2.18 meContextId~~rootOptionalPackage~~

```
meContextId ATTRIBUTE
   WITH ATTRIBUTE SYNTAX
      TS32-624TypeModule.GeneralObjectId;
   MATCHES FOR
      EQUALITY;
   BEHAVIOUR
      meContextIdBehaviour;
REGISTERED AS {ts32-624Attribute 17};

meContextIdBehaviour BEHAVIOUR
```

```
DEFINED AS
      "This attribute identifies an meContext instance.";
rootOptionalPackage PACKAGE
   BEHAVIOUR
      rootOptionalPackageBehaviour;
   ATTRIBUTES
      "Recommendation X.721: 1992" : systemTitle   GET;
REGISTERED AS {ts32-624Package 18};

rootOptionalPackageBehaviour BEHAVIOUR
DEFINED AS
      "This package shall be present in an instance of meContext or managedElement when it is
      the accessing point (root) of a MIB.";
```

**End of Change in Clause 5.2.18**

CR-Form-v7

# CHANGE REQUEST

⌘ 32.624 CR 021 ⌘ rev - ⌘ Current version: 6.0.0 ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

***Proposed change affects:*** | UICC apps⌘ ☐ ME ☐ Radio Access Network X Core Networ X

| | | |
|---|---|---|
| ***Title:*** | ⌘ | Add definitions for genericIRP |
| ***Source:*** | ⌘ | **SA5** (clemens.suerbaum@siemens.com) |
| ***Work item code:*** | ⌘ | OAM-NIM |
| ***Date:*** | ⌘ | 19/11/2004 |
| ***Category:*** | ⌘ | **F** |
| ***Release:*** | ⌘ | Rel-6 |

*Use one of the following categories:*
***F*** *(correction)*
***A*** *(corresponds to a correction 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.

*Use one of the following releases:*

| | |
|---|---|
| *2* | *(GSM Phase 2)* |
| *R96* | *(Release 1996)* |
| *R97* | *(Release 1997)* |
| *R98* | *(Release 1998)* |
| *R99* | *(Release 1999)* |
| *Rel-4* | *(Release 4)* |
| *Rel-5* | *(Release 5)* |
| *Rel-6* | *(Release 6)* |

| | | |
|---|---|---|
| ***Reason for change:*** | ⌘ | Object class genericIRP is missing. |
| ***Summary of change:*** | ⌘ | Introduce object class genericIRP, its attribute and name binding. |
| ***Consequences if not approved:*** | ⌘ | - Other IRPs will not be able to re-use by inheritance the definitions of genericIRP.<br>- Inconsistencies with Information Service<br>- Error-prone duplication of definitions would be needed |

| | | |
|---|---|---|
| ***Clauses affected:*** | ⌘ | 4.3.1, new clauses in clauses 4 and 5 |

| | | Y | N | | |
|---|---|---|---|---|---|
| ***Other specs affected:*** | ⌘ | | X | Other core specifications | ⌘ |
| | | | X | Test specifications | |
| | | | X | O&M Specifications | |

| | | |
|---|---|---|
| ***Other comments:*** | ⌘ | |

## Change in Clause 4.3.1:

### 4.3.1 Mapping from IOCs to MOCs

Table 1 maps the information object classes defined in the Generic NRM onto the equivalent MOCs of the CMIP Solution Set.

**Table 1: Mapping of MOCs**

| IS IOC | CMIP SS MOC |
|---|---|
| ManagedElement | managedElement |
| SubNetwork | subNetworkR60 |
| IRPAgent | irpAgent |
| ManagedFunction | managedFunction |
| ManagementNode | managementNode |
| MeContext | meContext |
| GenericIRP | ~~no equivalence~~genericIRP |
| VsDataContainer | no equivalence |
| Top | top (ITU-T Rec. X.721 [6]) |

## End of change in clause 4.3.1

## New clause 4.3.2.7

**Table 7: Attribute mapping of the IOC *genericIRP***

| IS Attribute | CMIP SS Attribute | Support Qualifier | Read Qualifier | Write Qualifier |
|---|---|---|---|---|
| iRPId | irpId | M | M | -- |

## End of new clause 4.3.2.7

## Changes in Clause 5:

## New clause 5.1.11

### 5.1.11 genericIRP

```
genericIRP MANAGED OBJECT CLASS
   DERIVED FROM
      "Rec. X.721 | ISO/IEC 10165-2 : 1992":top;
   CHARACTERIZED BY
      irpIdPackage;
   REGISTERED AS {ts32-624ObjectClass 110600};
--this object class is only defined for inheritance purposes. It shall not be instantiated.
```

## End new clause 5.1.11

**New section 5.2.20/1**

## 5.2.20 irpIdPackage

```
irpIdPackage PACKAGE
   BEHAVIOUR
      irpIdPackageBehaviour;
   ATTRIBUTES
      irpId GET;
   REGISTERED AS {ts32-624Package 200600};

irpIdPackageBehaviour BEHAVIOUR
DEFINED AS
"An instance of the subclasses of MOC genericIRP is identified by the value of the attribute
irpId.";
```

## 5.3.21 irpId

```
irpId ATTRIBUTE
   WITH ATTRIBUTE SYNTAX
      TS32-624TypeModule.GeneralObjectId;
   MATCHES FOR
      EQUALITY;
   BEHAVIOUR
      irpIdBehaviour;
REGISTERED AS {ts32-624Attribute 210600};

irpIdBehaviour BEHAVIOUR
DEFINED AS
"This attribute names an instance of the subclasses of MOC genericIRP.";
```

**End new clause 5.3.21**

**New clause 5.4.20**

## 5.4.20 genericIRP – irpAgent

```
genericIRP-irpAgent NAME BINDING
   SUBORDINATE OBJECT CLASS
      genericIRP AND SUBCLASSES;
   NAMED BY SUPERIOR OBJECT CLASS
      "3GPP TS 32.624": irpAgent AND SUBCLASSES;
   WITH ATTRIBUTE
      irpId;
   BEHAVIOUR
      genericIRP-irpAgentBehaviour;
   CREATE
      WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
   DELETE
      ONLY-IF-NO-CONTAINED-OBJECTS;
REGISTERED AS {ts32-624NameBinding 200600};

genericIRP-irpAgentBehaviour BEHAVIOUR
DEFINED AS
   "The name binding represents a relationship in which an irpAgent contains a subclass of
   genericIRP. When automatic instance naming is used, the choice of name bindings is left as a
   local matter.";
```

**End new clause 5.4.20**
**End of Document**

**3GPP TSG-SA5 (Telecom Management)** **S5-048861**
**Meeting #39bis, Sophia Antipolis, France, 27 Sep – 1 Oct 2004**

CR-Form-v7

# CHANGE REQUEST

⌘ **32.625** **CR** **012** ⌘ **rev** **-** ⌘ Current version: **5.3.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

***Proposed change affects:*** UICC apps⌘ ☐ ME ☐ Radio Access Network **X** Core Network **X**

| | | |
|---|---|---|
| ***Title:*** | ⌘ | Correct attribute for the managementScope association - Align with IS in 32.622 |
| ***Source:*** | ⌘ | **SA5** (thomas.tovinger@ericsson.com) |
| ***Work item code:*** | ⌘ | OAM-NIM |
| ***Date:*** | ⌘ | 1/10/2004 |
| ***Category:*** | ⌘ | **F** |
| ***Release:*** | ⌘ | Rel-5 |

*Use one of the following categories:*
***F*** *(correction)*
***A*** *(corresponds to a correction 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.

*Use one of the following releases:*
*2 (GSM Phase 2)*
*R96 (Release 1996)*
*R97 (Release 1997)*
*R98 (Release 1998)*
*R99 (Release 1999)*
*Rel-4 (Release 4)*
*Rel-5 (Release 5)*
*Rel-6 (Release 6)*

| | | |
|---|---|---|
| ***Reason for change:*** | ⌘ | The name of the attribute modelling the managementScope association in IOC ManagementNode is not consistent with the definition in the IS in 32.622 (and the CORBA and CMIP solution sets). |
| ***Summary of change:*** | ⌘ | 1. Align the name of the attribute modelling the managementScope association in IOC ManagementNode with 32.622.<br>2. Correct the Scope statement regarding version relation to the IS in 32.622 (since it has been stepped due to another CR). |
| ***Consequences if not approved:*** | ⌘ | Risk for wrong implementation of this TS and interoperability problems due to other name for the same attribute in the IS, CORBA and CMIP solution sets. |

| | | |
|---|---|---|
| ***Clauses affected:*** | ⌘ | Scope, Annex A. |

***Other specs affected:*** ⌘

| Y | N | |
|---|---|---|
| | X | Other core specifications |
| | X | Test specifications |
| X | | O&M Specifications |

⌘ Rel-6 32.625

***Other comments:*** ⌘ Rel-6 Mirror CR 32.625 in S5-048862.

Note: If this CR is approved, the XML schema electronic file specified in Annex B of this TS needs to be re-generated as well.

**Change in Scope**

# 1 Scope

The present document provides the NRM-specific part related to the Generic Network Resources IRP NRM [1] of the XML file format definition for the Bulk Configuration Management IRP IS [2].

The main part of this XML file format definition is provided by 3GPP TS 32.615 [3].

Bulk CM XML file formats are based on XML [4], XML Schema [5] [6] [7] and XML Namespace [8] standards.

This File Format Definition specification is related to 3GPP TS 32.622 (V5.54.X).

**End of Change in Scope**

**Change in Annex A**

# Annex A (normative): Configuration data file NRM-specific XML schema (file name "genericNrm.xsd")

The following XML schema genericNrm.xsd is the NRM-specific schema for the Generic Network Resources IRP NRM defined in 3GPP TS 32.622 [1]:

```
<?xml version="1.0" encoding="UTF-8"?>

<!--
  3GPP TS 32.625 Generic Network Resources IRP
  Bulk CM Configuration data file NRM-specific XML schema
  genericNrm.xsd
-->

<schema
  targetNamespace=
"http://www.3gpp.org/ftp/specs/archive/32_series/32.625#genericNrm"
  elementFormDefault="qualified"
  xmlns="http://www.w3.org/2001/XMLSchema"
  xmlns:xn=
"http://www.3gpp.org/ftp/specs/archive/32_series/32.625#genericNrm"
>

  <!-- Base XML type for all NRM class associated XML elements -->

  <complexType name="NrmClass">
    <attribute name="id" type="string" use="required"/>
    <attribute name="modifier" use="optional">
      <simpleType>
        <restriction base="string">
          <enumeration value="create"/>
          <enumeration value="delete"/>
          <enumeration value="update"/>
        </restriction>
      </simpleType>
    </attribute>
  </complexType>

  <!-- Generic Network Resources IRP NRM class associated XML elements -->

  <element name="SubNetwork">
    <complexType>
      <complexContent>
        <extension base="xn:NrmClass">
          <sequence>
            <element name="attributes" minOccurs="0">
              <complexType>
                <all>
                  <element name="userLabel" minOccurs="0"/>
                  <element name="userDefinedNetworkType" minOccurs="0"/>
                </all>
              </complexType>
            </element>
            <choice minOccurs="0" maxOccurs="unbounded">
              <element ref="xn:SubNetwork"/>
              <element ref="xn:ManagedElement"/>
              <element ref="xn:MeContext"/>
              <element ref="xn:ManagementNode"/>
```

```
            <element ref="xn:IRPAgent"/>
            <element ref="xn:SubNetworkOptionallyContainedNrmClass"/>
            <element ref="xn:VsDataContainer"/>
          </choice>
        </sequence>
      </extension>
    </complexContent>
  </complexType>
</element>

<element name="ManagedElement">
  <complexType>
    <complexContent>
      <extension base="xn:NrmClass">
        <sequence>
          <element name="attributes" minOccurs="0">
            <complexType>
              <all>
                <element name="managedElementType" minOccurs="0"/>
                <element name="userLabel" minOccurs="0"/>
                <element name="vendorName" minOccurs="0"/>
                <element name="userDefinedState" minOccurs="0"/>
                <element name="locationName" minOccurs="0"/>
                <element name="swVersion" minOccurs="0"/>
                <element name="managedBy" minOccurs="0"/>
              </all>
            </complexType>
          </element>
          <choice minOccurs="0" maxOccurs="unbounded">
            <element ref="xn:IRPAgent"/>
            <element ref="xn:ManagedElementOptionallyContainedNrmClass"/>
            <element ref="xn:VsDataContainer"/>
          </choice>
        </sequence>
      </extension>
    </complexContent>
  </complexType>
</element>

<element name="MeContext">
  <complexType>
    <complexContent>
      <extension base="xn:NrmClass">
        <sequence>
          <element name="attributes" minOccurs="0">
            <complexType>
            </complexType>
          </element>
          <choice minOccurs="0" maxOccurs="unbounded">
            <element ref="xn:ManagedElement"/>
          </choice>
        </sequence>
      </extension>
    </complexContent>
  </complexType>
</element>

<element name="ManagementNode">
  <complexType>
    <complexContent>
      <extension base="xn:NrmClass">
        <sequence>
          <element name="attributes" minOccurs="0">
```

```
            <complexType>
              <all>
                <element name="userLabel" minOccurs="0"/>
                <element name="vendorName" minOccurs="0"/>
                <element name="userDefinedState" minOccurs="0"/>
                <element name="locationName" minOccurs="0"/>
                <element name="managedElements" minOccurs="0"/>
                <element name="swVersion" minOccurs="0"/>
              </all>
            </complexType>
          </element>
          <choice minOccurs="0" maxOccurs="unbounded">
            <element ref="xn:IRPAgent"/>
            <element ref="xn:VsDataContainer"/>
          </choice>
        </sequence>
      </extension>
    </complexContent>
  </complexType>
</element>

<element name="IRPAgent">
  <complexType>
    <complexContent>
      <extension base="xn:NrmClass">
        <sequence>
          <element name="attributes" minOccurs="0">
            <complexType>
              <all>
                <element name="systemDN" minOccurs="0"/>
              </all>
            </complexType>
          </element>
          <choice minOccurs="0" maxOccurs="unbounded">
            <element ref="xn:NotificationIRP"/>
            <element ref="xn:AlarmIRP"/>
            <element ref="xn:BasicCmIRP"/>
            <element ref="xn:BulkCmIRP"/>
          </choice>
        </sequence>
      </extension>
    </complexContent>
  </complexType>
</element>

<element name="NotificationIRP">
  <complexType>
    <complexContent>
      <extension base="xn:NrmClass">
        <sequence>
          <element name="attributes" minOccurs="0">
            <complexType>
              <all>
                <element name="irpVersion" minOccurs="0"/>
              </all>
            </complexType>
          </element>
        </sequence>
      </extension>
    </complexContent>
  </complexType>
</element>
```

```
<element name="AlarmIRP">
  <complexType>
    <complexContent>
      <extension base="xn:NrmClass">
        <sequence>
          <element name="attributes" minOccurs="0">
            <complexType>
              <all>
                <element name="irpVersion" minOccurs="0"/>
              </all>
            </complexType>
          </element>
        </sequence>
      </extension>
    </complexContent>
  </complexType>
</element>

<element name="BasicCmIRP">
  <complexType>
    <complexContent>
      <extension base="xn:NrmClass">
        <sequence>
          <element name="attributes" minOccurs="0">
            <complexType>
              <all>
                <element name="irpVersion" minOccurs="0"/>
              </all>
            </complexType>
          </element>
        </sequence>
      </extension>
    </complexContent>
  </complexType>
</element>

<element name="BulkCmIRP">
  <complexType>
    <complexContent>
      <extension base="xn:NrmClass">
        <sequence>
          <element name="attributes" minOccurs="0">
            <complexType>
              <all>
                <element name="irpVersion" minOccurs="0"/>
              </all>
            </complexType>
          </element>
        </sequence>
      </extension>
    </complexContent>
  </complexType>
</element>

<element name="VsDataContainer">
  <complexType>
    <complexContent>
      <extension base="xn:NrmClass">
        <sequence>
          <element name="attributes" minOccurs="0">
            <complexType>
              <all>
                <element name="vsDataType" minOccurs="0"/>
```

```
                <element name="vsDataFormatVersion" minOccurs="0"/>
                <element ref="xn:vsData" minOccurs="0"/>
              </all>
            </complexType>
          </element>
          <choice minOccurs="0" maxOccurs="unbounded">
            <element ref="xn:VsDataContainer"/>
          </choice>
        </sequence>
      </extension>
    </complexContent>
  </complexType>
</element>

<!--
  VsDataContainer NRM class vsData attribute associated empty XML element
-->

<element name="vsData">
  <complexType/>
</element>

<!--
  Abstract head XML element for all XML elements associated to further
  NRM classes optionally contained under SubNetwork NRM class
-->

<element
  name="SubNetworkOptionallyContainedNrmClass"
  type="xn:NrmClass"
  abstract="true"
/>

<!--
  Abstract head XML element for all XML elements associated to further
  NRM classes optionally contained under ManagedElement NRM class
-->

<element
  name="ManagedElementOptionallyContainedNrmClass"
  type="xn:NrmClass"
  abstract="true"
/>

</schema>
```

**End of Change in Annex A**

**End of document**

**3GPP TSG-SA5 (Telecom Management)** **S5-048862**
**Meeting #39bis, Sophia Antipolis, France, 27 Sep – 1 Oct 2004**

CR-Form-v7

# CHANGE REQUEST

⌘ **32.625** **CR** **013** ⌘ **rev** **-** ⌘ Current version: **6.2.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

***Proposed change affects:*** UICC apps⌘ ☐ ME ☐ Radio Access Network **X** Core Network **X**

| | | |
|---|---|---|
| ***Title:*** | ⌘ | Correct attribute for the managementScope association - Align with IS in 32.622 |
| ***Source:*** | ⌘ | **SA5** (thomas.tovinger@ericsson.com) |
| ***Work item code:*** | ⌘ | OAM-NIM |
| ***Date:*** | ⌘ | 1/10/2004 |
| ***Category:*** | ⌘ | **A** |
| ***Release:*** | ⌘ | Rel-6 |

*Use one of the following categories:*
***F*** *(correction)*
***A*** *(corresponds to a correction 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.

*Use one of the following releases:*
*2 (GSM Phase 2)*
*R96 (Release 1996)*
*R97 (Release 1997)*
*R98 (Release 1998)*
*R99 (Release 1999)*
*Rel-4 (Release 4)*
*Rel-5 (Release 5)*
*Rel-6 (Release 6)*

| | | |
|---|---|---|
| ***Reason for change:*** | ⌘ | 1. The name of the attribute modelling the managementScope association in IOC ManagementNode is not consistent with the definition in the IS in 32.622 (and the CORBA and CMIP solution sets).<br>2. Obsolete text in the Introduction regarding the organisation of XML FF specifications in Rel5. |
| ***Summary of change:*** | ⌘ | 1. Align the name of the attribute modelling the managementScope association in IOC ManagementNode with 32.622.<br>2. Remove the obsolete text in the Introduction. |
| ***Consequences if not approved:*** | ⌘ | Risk for wrong implementation of this TS and interoperability problems due to other name for the same attribute in the IS, CORBA and CMIP solution sets. |

| | | |
|---|---|---|
| ***Clauses affected:*** | ⌘ | Introduction, Annex A. |

| ***Other specs affected:*** | ⌘ | Y | N | | ⌘ |
|---|---|---|---|---|---|
| | | | X | Other core specifications | |
| | | | X | Test specifications | |
| | | | X | O&M Specifications | |

| | | |
|---|---|---|
| ***Other comments:*** | ⌘ | Rel-6 Mirror CR 32.625 to S5-048861.<br><br>Note: If this CR is approved, the XML schema electronic file specified in Annex B of this TS needs to be re-generated as well. |

## Change in Introduction

# Introduction

The present document is part of a TS-family covering the 3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Telecommunication management; Configuration Management (CM), as identified below:

32.621: "Generic network resources Integration Reference Point (IRP): Requirements".

32.622: "Generic network resources Integration Reference Point (IRP): Network Resource Model (NRM)".

32.623: "Generic network resources Integration Reference Point (IRP): Common Object Request Broker Architecture (CORBA) Solution Set (SS)";

32.624: "Generic network resources: Integration Reference Point (IRP): Common Management Information Protocol (CMIP) Solution Set (SS)".

**32.625: "Generic network resources Integration Reference Point (IRP): Bulk CM eXtensible Markup Language (XML) file format definition".**

Configuration Management (CM), in general, provides the operator with the ability to assure correct and effective operation of the 3G network as it evolves. CM actions have the objective to control and monitor the actual configuration on the Network Elements (NEs) and Network Resources (NRs), and they may be initiated by the operator or by functions in the Operations Systems (OSs) or NEs.

CM actions may be requested as part of an implementation programme (e.g. additions and deletions), as part of an optimisation programme (e.g. modifications), and to maintain the overall Quality of Service (QoS). The CM actions are initiated either as single actions on single NEs of the 3G network, or as part of a complex procedure involving actions on many resources/objects in one or several NEs.

~~Due to the number of specifications defining Network Resource Models (NRMs) for Configuration Management as well as their expected growth in size from Release 5 onwards, a new structure of specifications is already needed in Release 5 for the definition of the XML file formats for the Bulk CM IRP (in Release 4 solely defined in 3GPP TS 32.615). This structure is needed to enable independent development and release for CM NRMs and corresponding NRM specific parts of the Bulk CM XML file format definition, from each other and from the non NRM specific part of the Bulk CM XML file format definition.~~

**~~Table 1: Cross-3GPP-Releases specification structure for Bulk CM IRP XML file format definition~~**

| ~~3GPP Rel-4~~ | ~~3GPP Rel-5~~ | ~~TS no.~~ | ~~TS title~~ |
|---|---|---|---|
| ~~New~~ | ~~Yes~~ | ~~32.615~~ | ~~Bulk Configuration Management IRP: XML File Format Definition~~ |
| | ~~**New**~~ | ~~**32.625**~~ | ~~**Generic network resources IRP: Bulk CM XML file format definition**~~ |
| | ~~New~~ | ~~32.635~~ | ~~Core network resources IRP: Bulk CM XML file format definition~~ |
| | ~~New~~ | ~~32.645~~ | ~~UTRAN network resources IRP: Bulk CM XML file format definition~~ |
| | ~~New~~ | ~~32.655~~ | ~~GERAN network resources IRP: Bulk CM XML file format definition~~ |

## End of Change in Introduction

**Change in Annex A**

# Annex A (normative): Configuration data file NRM-specific XML schema (file name "genericNrm.xsd")

The following XML schema genericNrm.xsd is the NRM-specific schema for the Generic Network Resources IRP NRM defined in 3GPP TS 32.622 [1]:

```
<?xml version="1.0" encoding="UTF-8"?>

<!--
  3GPP TS 32.625 Generic Network Resources IRP
  Bulk CM Configuration data file NRM-specific XML schema
  genericNrm.xsd
-->

<schema
  targetNamespace=
"http://www.3gpp.org/ftp/specs/archive/32_series/32.625#genericNrm"
  elementFormDefault="qualified"
  xmlns="http://www.w3.org/2001/XMLSchema"
  xmlns:xn=
"http://www.3gpp.org/ftp/specs/archive/32_series/32.625#genericNrm"
>

  <!-- Base XML type for all NRM class associated XML elements -->

  <complexType name="NrmClass">
    <attribute name="id" type="string" use="required"/>
    <attribute name="modifier" use="optional">
      <simpleType>
        <restriction base="string">
          <enumeration value="create"/>
          <enumeration value="delete"/>
          <enumeration value="update"/>
        </restriction>
      </simpleType>
    </attribute>
  </complexType>

  <!-- Generic Network Resources IRP NRM class associated XML elements -->

  <element name="SubNetwork">
    <complexType>
      <complexContent>
        <extension base="xn:NrmClass">
          <sequence>
            <element name="attributes" minOccurs="0">
              <complexType>
                <all>
                  <element name="userLabel" minOccurs="0"/>
                  <element name="userDefinedNetworkType" minOccurs="0"/>
                  <element name="setOfMcc" minOccurs="0"/>
                </all>
```

```
            </complexType>
          </element>
          <choice minOccurs="0" maxOccurs="unbounded">
            <element ref="xn:SubNetwork"/>
            <element ref="xn:ManagedElement"/>
            <element ref="xn:MeContext"/>
            <element ref="xn:ManagementNode"/>
            <element ref="xn:IRPAgent"/>
            <element ref="xn:SubNetworkOptionallyContainedNrmClass"/>
            <element ref="xn:VsDataContainer"/>
          </choice>
        </sequence>
      </extension>
    </complexContent>
  </complexType>
</element>

<element name="ManagedElement">
  <complexType>
    <complexContent>
      <extension base="xn:NrmClass">
        <sequence>
          <element name="attributes" minOccurs="0">
            <complexType>
              <all>
                <element name="managedElementType" minOccurs="0"/>
                <element name="userLabel" minOccurs="0"/>
                <element name="vendorName" minOccurs="0"/>
                <element name="userDefinedState" minOccurs="0"/>
                <element name="locationName" minOccurs="0"/>
                <element name="swVersion" minOccurs="0"/>
                <element name="managedBy" minOccurs="0"/>
              </all>
            </complexType>
          </element>
          <choice minOccurs="0" maxOccurs="unbounded">
            <element ref="xn:IRPAgent"/>
            <element ref="xn:ManagedElementOptionallyContainedNrmClass"/>
            <element ref="xn:VsDataContainer"/>
          </choice>
        </sequence>
      </extension>
    </complexContent>
  </complexType>
</element>

<element name="MeContext">
  <complexType>
    <complexContent>
      <extension base="xn:NrmClass">
        <sequence>
          <element name="attributes" minOccurs="0">
            <complexType>
            </complexType>
          </element>
          <choice minOccurs="0" maxOccurs="unbounded">
            <element ref="xn:ManagedElement"/>
          </choice>
        </sequence>
      </extension>
    </complexContent>
  </complexType>
</element>
```

```
<element name="ManagementNode">
  <complexType>
    <complexContent>
      <extension base="xn:NrmClass">
        <sequence>
          <element name="attributes" minOccurs="0">
            <complexType>
              <all>
                <element name="userLabel" minOccurs="0"/>
                <element name="vendorName" minOccurs="0"/>
                <element name="userDefinedState" minOccurs="0"/>
                <element name="locationName" minOccurs="0"/>
                <element name="managedElements" minOccurs="0"/>
                <element name="swVersion" minOccurs="0"/>
              </all>
            </complexType>
          </element>
          <choice minOccurs="0" maxOccurs="unbounded">
            <element ref="xn:IRPAgent"/>
            <element ref="xn:VsDataContainer"/>
          </choice>
        </sequence>
      </extension>
    </complexContent>
  </complexType>
</element>

<element name="IRPAgent">
  <complexType>
    <complexContent>
      <extension base="xn:NrmClass">
        <sequence>
          <element name="attributes" minOccurs="0">
            <complexType>
              <all>
                <element name="systemDN" minOccurs="0"/>
              </all>
            </complexType>
          </element>
          <choice minOccurs="0" maxOccurs="unbounded">
            <element ref="xn:NotificationIRP"/>
            <element ref="xn:AlarmIRP"/>
            <element ref="xn:BasicCmIRP"/>
            <element ref="xn:BulkCmIRP"/>
          </choice>
        </sequence>
      </extension>
    </complexContent>
  </complexType>
</element>

<element name="NotificationIRP">
  <complexType>
    <complexContent>
      <extension base="xn:NrmClass">
        <sequence>
          <element name="attributes" minOccurs="0">
            <complexType>
              <all>
                <element name="irpVersion" minOccurs="0"/>
              </all>
            </complexType>
```

```
          </element>
        </sequence>
      </extension>
    </complexContent>
  </complexType>
</element>

<element name="AlarmIRP">
  <complexType>
    <complexContent>
      <extension base="xn:NrmClass">
        <sequence>
          <element name="attributes" minOccurs="0">
            <complexType>
              <all>
                <element name="irpVersion" minOccurs="0"/>
              </all>
            </complexType>
          </element>
        </sequence>
      </extension>
    </complexContent>
  </complexType>
</element>

<element name="BasicCmIRP">
  <complexType>
    <complexContent>
      <extension base="xn:NrmClass">
        <sequence>
          <element name="attributes" minOccurs="0">
            <complexType>
              <all>
                <element name="irpVersion" minOccurs="0"/>
              </all>
            </complexType>
          </element>
        </sequence>
      </extension>
    </complexContent>
  </complexType>
</element>

<element name="BulkCmIRP">
  <complexType>
    <complexContent>
      <extension base="xn:NrmClass">
        <sequence>
          <element name="attributes" minOccurs="0">
            <complexType>
              <all>
                <element name="irpVersion" minOccurs="0"/>
              </all>
            </complexType>
          </element>
        </sequence>
      </extension>
    </complexContent>
  </complexType>
</element>

<element name="VsDataContainer">
  <complexType>
```

```
      <complexContent>
        <extension base="xn:NrmClass">
          <sequence>
            <element name="attributes" minOccurs="0">
              <complexType>
                <all>
                  <element name="vsDataType" minOccurs="0"/>
                  <element name="vsDataFormatVersion" minOccurs="0"/>
                  <element ref="xn:vsData" minOccurs="0"/>
                </all>
              </complexType>
            </element>
            <choice minOccurs="0" maxOccurs="unbounded">
              <element ref="xn:VsDataContainer"/>
            </choice>
          </sequence>
        </extension>
      </complexContent>
    </complexType>
  </element>

  <!--
    VsDataContainer NRM class vsData attribute associated empty XML element
  -->

  <element name="vsData">
    <complexType/>
  </element>

  <!--
    Abstract head XML element for all XML elements associated to further
    NRM classes optionally contained under SubNetwork NRM class
  -->

  <element
    name="SubNetworkOptionallyContainedNrmClass"
    type="xn:NrmClass"
    abstract="true"
  />

  <!--
    Abstract head XML element for all XML elements associated to further
    NRM classes optionally contained under ManagedElement NRM class
  -->

  <element
    name="ManagedElementOptionallyContainedNrmClass"
    type="xn:NrmClass"
    abstract="true"
  />

</schema>
```

**End of Change in Introduction**

**End of document**