TSGS#26(04)0816

Source: **SA5 (Telecom Management)**

Title: **Rel-6 CR 32.692 Inventory Management (IM) network resources IRP NRM**

Document for: **Approval**

Agenda Item: **7.5.3**

Doc1stevel	Specific a	CR	R	Phase	Subject	Ca	VersCu	Doc2ndLev	WorkitemsI D
SP-040816	32.692	001	--	Rel-6	Align Inventory Management Network Resource Model with the latest template from Rel-6 TS 32.150	F	5.0.0	S5-049046	OAM-NIM

3GPP TSG-SA5 (Telecom Management) **S5-049046**
Meeting #40, Sanya, CHINA, 15 – 19 November 2004

CR-Form-v7

CHANGE REQUEST

⌘ **32.692** **CR** **001** ⌘ **rev** **-** ⌘ Current version: **5.0.0** ⌘

*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:	⌘	Align Inventory Management Network Resource Model with the latest template from Rel-6 TS 32.150
Source:	⌘	**SA5** (tapinder.pal@t-mobile.de)
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:	⌘	Inventory Management Network Resource Model needs to be aligned with the latest template from the Rel-6 TS 32.150 in order to be upgraded from release 5 to release 6.
Summary of change:	⌘	Release 5 Network Resource Model is replicated for release 6 with some editorial changes and using the latest template from TS 32.150.
Consequences if not approved:	⌘	There will be no Network Resource Model available for Inventory Management for Release 6.

Clauses affected:	⌘	Clauses 2 to 6.

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

Other comments:	⌘	

Change in Clauses 2 & 3

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 TS 32.101: "3G Telecom Management principles and high level requirements".

[2] 3GPP TS 32.102: "3G Telecom Management Architecture".

[3] 3GPP TS 32.302: "Telecommunication management; Configuration Management (CM); Notification Integration Reference Point (IRP): Information service version 1".

[4] 3GPP TS 32.600: "Telecommunication management; Configuration Management (CM); Concept and main requirements".

~~[5] 3GPP TS 23.002: "Network Architecture".~~

[5] 3GPP TS 32.622: "Telecommunication management; Configuration Management (CM); Generic network resources Integration Reference Point (IRP): Network Resource Model (NRM)".

[6] 3GPP TS 32.642: "Telecommunication management; Configuration Management (CM): UTRAN network resources Integration Reference Point (IRP): Network Resource Model (NRM)".

[7] 3GPP TS 32.300: "Telecommunication management; Configuration Management (CM); Name convention for Managed Objects".

[8] 3GPP TS 32.150: "Telecommunication management; Integration Reference Point (IRP) Concept and Definitions".

[9] 3GPP TS 32.151: "Telecommunication management; Integration Reference Point (IRP) Information Service (IS) template.

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TS 32.101 [1], 3GPP TS 32.102 [2] and 3GPP TS 32.600 [4] and the following apply:

association: in general it is used to model relationships between Managed Objects
Associations can be implemented in several ways, such as:

(1) name bindings;

(2) reference attributes; and

(3) association objects.

This IRP stipulates that containment associations shall be expressed through name bindings, but it does not stipulate the implementation for other types of associations as a general rule. These are specified as separate entities in the object models (UML diagrams). Currently ~~(in Release 1999)~~ however, all (non-containment) associations are modelled by means of reference attributes of the participating MOs.

Managed Element (ME): instance of the Managed Object Class Managed Element defined in [6]

Managed Object (MO): in the context of the present document, a Managed Object (MO) is a software object that encapsulates the manageable characteristics and behaviour of a particular Network Resource
The MO is instance of a class defined in a MIM/NRM. This class, called **Information Object Class (IOC)**has *attributes* that provide information used to characterize the objects that belong to the class (the term "attribute" is taken from TMN and corresponds to a "property" according to CIM). Furthermore, the IOC can have *operations* that represent the behaviour relevant for that class (the term "operation" is taken from TMN and corresponds to a "method" according to CIM). The IOC may support the emission of *notifications* that provide information about an event occurrence within a network resource.

Management Information Model (MIM): also referred to as NRM (see the NRM definition)

Network Resource Model (NRM): model representing the actual managed telecommunications network resources that a System is providing through the subject IRP
An NRM identifies and describes the IOCs, their associations, attributes and operations. The NRM is also referred to as "MIM" (see above), which originates from the ITU-T TMN.

End of Change in Clause 3

Change in Clause 4

4 System overview

4.1 ~~System context~~Void

~~Figure 4.1 and figure 4.2 identify system contexts of the IRP defined by the present specification in terms of its implementation called IRPAgent and the user of the IRPAgent, called IRPManager. For a definition of IRPManager and IRPAgent, see 3GPP TS 32.102 [2].~~

~~The IRPAgent implements and supports this IRP. The IRPAgent can reside in an Element Manager (EM, for definition see 3GPP TS 32.101 [1]) or a Network Element (NE) (see also 3GPP TS 32.102 [2] clause 8). In the former case, the interfaces (represented by a thick dotted line) between the EM and the NEs is not the subject of this IRP.~~

~~An IRPManager using this IRP shall choose one of the two System Contexts defined here, for each NE. For instance, if an EM is responsible for managing a number of NEs, the NM shall access this IRP through the EM and not directly to those NEs. For another IRP though, the System Context may be different.~~

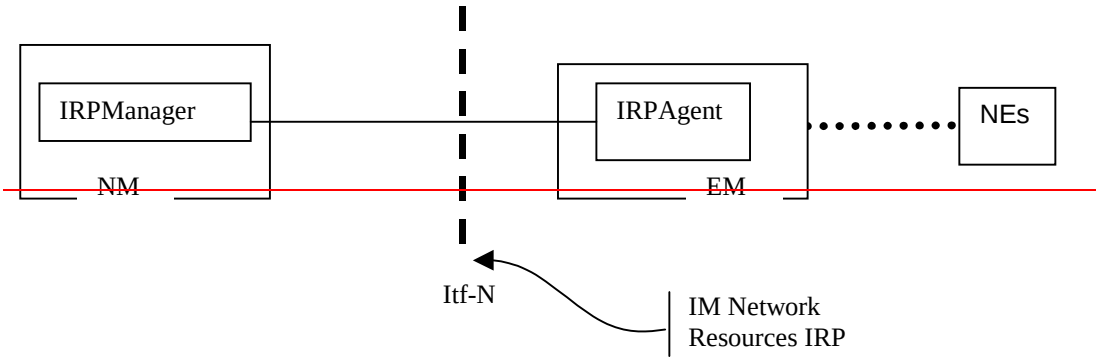


Figure 4.1: System Context A

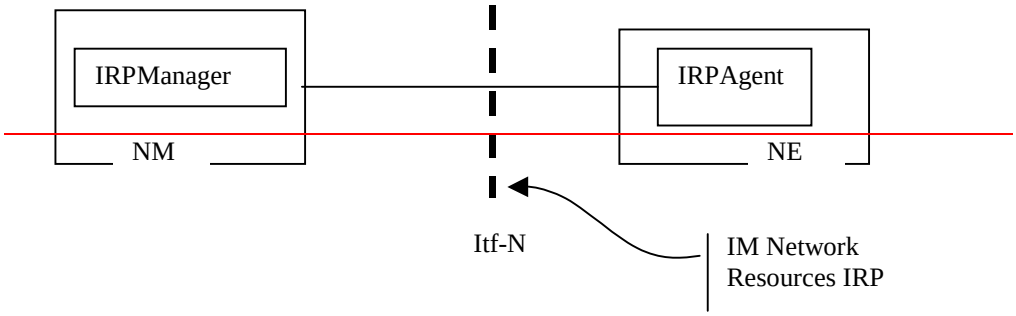


Figure 4.2: System Context B

4.2 Compliance rules

For general definitions of compliance rules related to qualifiers (Mandatory/Optional/Conditional) for *operations*, *notifications and parameters* (of operations and notifications) please refer to 3GPP TS 32.102 [2].

The following defines the meaning of Mandatory and Optional IOC attributes and associations between IOCs, in Solution Sets to the IRP defined by the present specification:

- The IRPManager shall support all mandatory attributes/associations. The IRPManager shall be prepared to receive information related to mandatory as well as optional attributes/associations without failure; however the IRPManager does not have to support handling of the optional attributes/associations.
- The IRPAgent shall support all mandatory attributes/associations. It may support optional attributes/associations.

An IRPAgent that incorporates vendor-specific extensions shall support normal communication with a 3GPP SA5-compliant IRPManager with respect to all Mandatory and Optional managed object classes, attributes, associations, operations, parameters and notifications without requiring the IRPManager to have any knowledge of the extensions.

Given that:

- rules for vendor-specific extensions remain to be fully specified; and
- many scenarios under which IRPManager and IRPAgent interwork may exist;

it is recognised that ~~in Release 4/5~~ the IRPManager, even though it is not required to have knowledge of vendor-specific extensions, may be required to be implemented with an awareness that extensions can exist and behave accordingly.

End of Change in Clause 4

Change in Clause 5

5 Modelling approach

See 3GPP TS 32.~~102~~150 [~~2~~8] ~~clause 10.~~ ~~The modelling approach adopted and used in this IRP is described in the Generic Network Resources IRP: NRM.~~

End of Change in Clause 5

Change in Clause 6

6 ~~IRP Information Model~~Information Object Classes

6.1 ~~Information entities imported~~Imported information entities and local labels

~~None.~~

Label reference	Local label
32.622 [5], information object class, Top	Top
32.622 [5], information object class, ManagedElement	ManagedElement

6.2 Class diagram

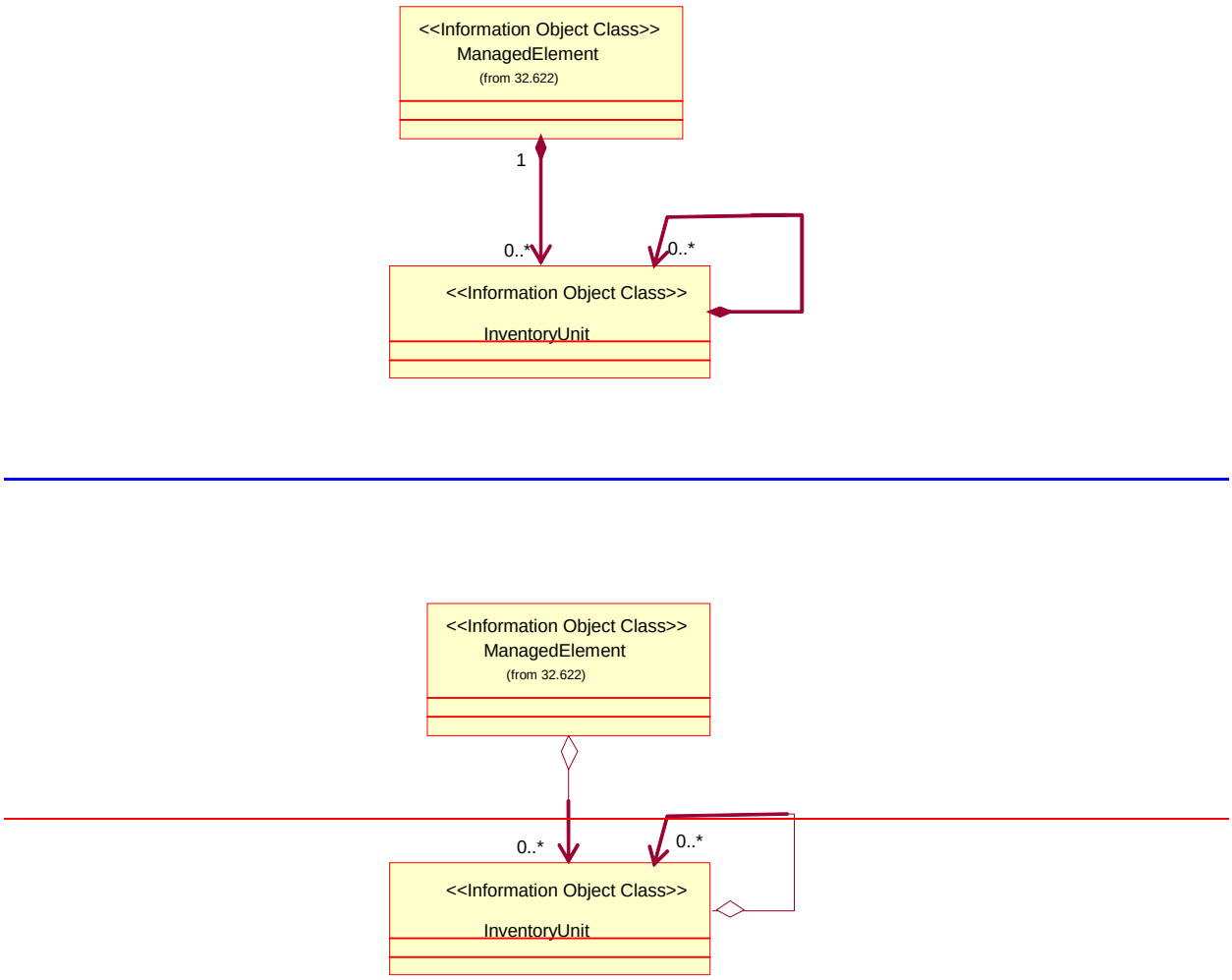
6.2.1 Attributes and relationships

This sub-clause depicts the set of IOCs that encapsulate information relevant for this service. This sub-clause provides the overview of all information object classes in UML. Subsequent sub-clauses provide more detailed specification of various aspects of these information object classes.

~~NOTE 1: For Release 5, the data in this NRM shall be accessed by a vendor specific file transfer mechanism.~~

~~Figure 6.2.1 show the name-containment relation and other types of relations of the Inventory Management NRM.~~

~~NOTE 2: The name-containment relations between IOCs are indicated by UML "unidirectional aggregation by reference" ("hollow diamonds").~~



NOTE: The listed cardinality numbers represent transient as well as steady-state numbers, and reflect all managed object creation and deletion scenarios.

Figure 6.2.1: Inventory Management NRM Containment/Naming and Association diagram

Each IOC instance is identified with~~:~~ a Distinguished Name (DN) according to 3GPP TS 32.300 [~~13~~7] that expresses its containment hierarchy. As an example, the DN of a IOC representing a ~~InventoryDataContainer~~ InventoryUnit could have a format like:

```
SubNetwork=Sweden,meContext=MEC-Gbg-1,ManagedElement=RNC-Gbg-1,InventoryUnit=Inv-1.
```

6.2.2 Inheritance

This subclause depicts the inheritance relationships that exist between IOCs.

Figure 6.2.2 shows the inheritance hierarchy for the IM NRM.

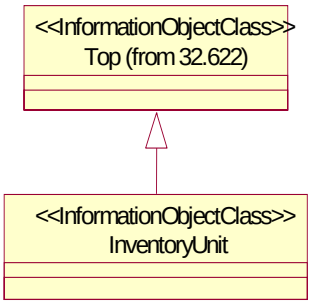


Figure 6.2.2: Inventory Management NRM Inheritance Hierarchy

6.3 Information object classes definitions

6.3.1 InventoryUnit

6.3.1.1 Definition

This IOC represents inventory information for a Inventory Unit.

6.3.1.2 Attributes

Table 1: Attributes of `InventoryUnit`

Attribute Name	Support Qualifier	READ	WRITE
inventoryUnitId	M	M	-
inventoryUnitType	M	M	-
vendorUnitFamilyType	M	M	-
vendorUnitTypeNumber	M	M	-
vendorName	M	M	-
serialNumber	M	M	-
dateOfManufacture	O	M	-
dateOfLastService	O	M	-
unitPosition	O	M	-
manufacturerData	O	M	-

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
inventoryUnitId	+	M	M	-
inventoryUnitType	+	M	M	-
vendorUnitFamilyType	+	M	M	-
vendorUnitTypeNumber	+	M	M	-
vendorName	+	M	M	-
serialNumber	+	M	M	-
dateOfManufacture	+	O	M	-
dateOfLastService	+	O	M	-
unitPosition	+	O	M	-
manufacturerData	+	O	M	-

6.3.1.3 Attribute constraints

None.

6.3.1.4 Relationships

None.

6.3.1.5 State diagram

None.

6.3.1.6 Notifications

None.

6.4 Information relationship~~s~~ definitions

Not applicable.

6.5 Information attribute~~s~~ definitions

6.5.1 Definition and legal values

Table 2 defines the attributes that are present in several Information Object Classes of the present document.

Table 2: Attributes

Attribute Name	Definition	Legal Values
`dateOfManufacture`	Date of Manufacture of inventory unit.	String
`dateOfLastService`	Date of last service or repair of inventory unit.	String
`inventoryUnitId`	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.	String
`inventoryUnitType`	Type of inventory unit (HW, FW).	String
`manufacturerData`	Manufacturer specific data of inventory unit.	String
`serialNumber`	Serial number of inventory unit.	String
`unitPosition`	Position of inventory unit (Rack, shelf, slot).	String
`vendorName`	Name of inventory unit vendor.	String
`vendorUnitFamilyType`	Mnemonic of inventory unit family type (e.g. Fan, PSU) assigned by vendor.	String
`vendorUnitTypeNumber`	A vendor/manufacturer defined and assigned number which uniquely identifies the unit type and version (used for replacing HW units, spares).	String

6.5.2 Constraints

None.

6.6 Particular information configurations

None.

End of Change in Clause 6