TSGS#27(05)0023

Source: **SA5 (Telecom Management)**

Title: **CR 32151-2 Telecommunication management IRP Information Service**

Document for: **Approval**

Agenda Item: **7.5.3**

Doc-1st-Level	Spec	CR	R	Phase	Subject	Ca	VerCr	Doc-2nd-Level	Workitem
SP-050023	32.151	001	--	Rel-6	Address 3GPP2 Liaison point 8 from tdoc S5-048704 to have a common notifications section	C	6.0.0	S5-056083	OAM-NIM
SP-050023	32.152	002	--	Rel-6	Add “abstract” adornment	F	6.1.0	S5-056081	OAM-NIM

CR-Form-v7

CHANGE REQUEST

⌘ 32.152 CR 002 ⌘rev - ⌘ Current version: 6.1.0 ⌘

*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 "abstract" adornment
Source:	⌘	**SA5** (Yangli, afi@huawei.com)
Work item code:	⌘	OAM-NIM
Date:	⌘	28/01/2005
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:	⌘	Standard UML notation should be introduced into 3GPP UML Repertoire 32.152 to show abstract adornment of a <<InformationObjectClass>> like ManagedGenericIRP.
Summary of change:	⌘	Add "abstract" adornment to 32.152
Consequences if not approved:	⌘	Class diagram will not show explicitly a <<InformationObjectClass>> as a base class with no instances

Clauses affected:	⌘	Add a new Section 5.5

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

Other comments: ⌘

Change in Clause 5.5

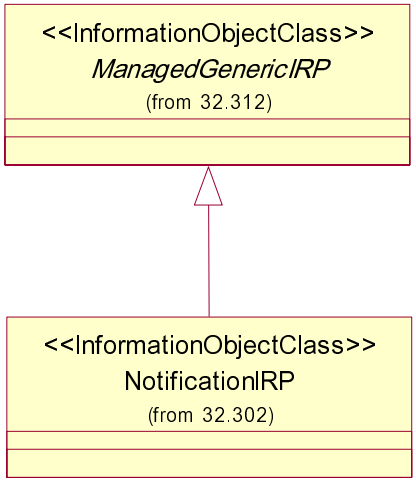
5.5 Abstract Class

It specifies a <<InformationObjectClass>> as a base class to be inherited by subclasses. An abstract class can not be.

Abstract class notation is the use of italics in the class name of the corresponding <<InformationObjectClass>> in the diagram.

5.5.1 Sample

This shows that ManagedGenericIRP is an abstract <<InformationObjectClass>>.



Abstract Class Notation

End of Change in Clause 5.5

Annex A (informative): Change history

Change history							
Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Old	New
Dec 2003	S_22	SP-030615	--	--	Submitted to TSG SA#22 for Information	1.0.0	
Mar 2004	S_23	SP-040115	--	--	Submitted to TSG SA#23 for Approval	2.0.0	6.0.0
Jun 2004	S_24	SP-040242	001		UML Repertoire Updates (Associations)	6.0.0	6.1.0

CR-Form-v7

CHANGE REQUEST

⌘ 32.151 CR 001 ⌘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:	⌘	Address 3GPP2 Liaison point 8 from tdoc S5-048704 to have a common notifications section
Source:	⌘	**SA5** (islip@lucent.com)
Work item code:	⌘	OAM-NIM
Date:	⌘	28/01/2005
Category:	⌘	**C**
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: ⌘ This CR makes 2 changes:-

Firstly
a change in response to item 8 in a liaison from 3GPP2 ref tdoc S5-048704
"

8. *3GPP2 TSG-S WG5 recommends investigate potential IS template change for SA5*
INITIAL WG5 COMMENT: In many cases the tables defining the notifications that may be emitted by a given IOC are repetitive. TSG-S WG5 feels that the specification of IOCs can be streamlined by the addition of tables specifying the set of common notifications for a set of IOCs and the identification of membership of a particular IOC within an IOC set for purposes of notification
"

Secondly
Provides clarification of text regarding the notification header, and related wording.

Summary of change: ⌘ A new clasues is added to define notifications which are common to all IOCs in this IS in clause X.5

The Each IOC definition has provision to specifying additional notifications to the common ones in (new) section X.5.
The new clause X.5 also proposes deletion and re wording of text suggested at SA5 #39bis.

Consequences if not approved: ⌘ There is no no major impact, but it may provide easier reading and reduce maintenance by removal of repetitive statements which need to remain consistent.

Clauses affected: ⌘ 2,
X.3.a.6:- amended. With note to new ref. .
X.5:- is a new clause .

		Insertion of the new clause X.5 requires subsequent clasues are re numbered.				
		Y	**N**			
Other specs affected:	⌘		**X**	Other core specifications	⌘	
			X	Test specifications		
			X	O&M Specifications		
Other comments:	⌘					

Change in Clause 2

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: "Telecommunication management; Principles and high level requirements".

[2] 3GPP TS 32.102: "Telecommunication management; Architecture".

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

[4] 3GPP TS 32.152: "Telecommunication management; Integration Reference Point (IRP) Information Service (IS) Unified Modelling Language (UML) repertoire".

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

[6] 3GPP TS 32.111-2: "Telecommunication management; Fault Management; Part 2: Alarm Integration Reference Point (IRP): Information Service".

[7] 3GPP TS 32.302: "Telecommunication Management; Configuration Management (CM); Notification Integration Reference Point (IRP): Information Service (IS)".

End change in Clause 2

X.2.2 Inheritance

This second diagram represents the inheritance hierarchy of all information object classes defined in this IS. This diagram does not need to contain the complete inheritance hierarchy but shall at least contain the parent information object classes of all information object classes defined in the present document. By default, an information object class inherits from the information object class "top". This shall be a UML compliant class diagram.

Characteristics (attributes, relationships) of imported information object classes need not to be repeated in the diagram. Information object classes should be defined using the stereotype <<InformationObjectClass>>.

NOTE: some inheritance relationships presented in clause X.2.2 can be repeated in clause X.2.1 to enhance readability.

X.3 Information object class definitions

Each information object class is defined using the following structure.

X.3.a InformationObjectClassName

InformationObjectClassName is the name of the information object class.

"a" represents a number, starting at 1 and increasing by 1 with each new definition of an information object class.

X.3.a.1 Definition

The <definition> subclause is written in natural language. The <definition> subclause refers to the information object class itself. The characteristics related to the relationships that the object class can have with other object classes can't be found in the definition. The reader has to refer to relationships definition to find such kind of information. Information related to inheritance shall be precised here.

X.3.a.2 Attributes

The <attributes> subclause presents the list of attributes, which are the manageable properties of the object class. Each element is a tuple (attributeName, visibilityQualifier, supportQualifier, readQualifier, writeQualifier):

- *The visibilityQualifier indicates whether the attribute is public, private or IRPAgent Internal ("+","—", and "%" respectively). The semantics of public and private are as per the UML specification. The semantic of IRPAgent Internal is defined within the 3GPP UML Repertoire (3GPP TS 32.152 [4]).*

- *The supportQualifier indicates whether the attribute is Mandatory, Optional, Conditional or not supported ("M","O","C", or "—", respectively).*

- *The readQualifier indicates whether the attribute shall be readable by the IRPManager. The semantics for readQualifier is identical to supportQualifier, for "M, "O", and "—".*

- *The writeQualifier indicates whether the attribute shall be writeable by the IRPManager. The semantics for writeQualifier is identical to supportQualifier, for "M", "O", and "—".*

There is a dependency relationship between the supportQualifier and visibilityQualifier, readQualifier, and writeQualifier. The supportQualifier indicates the requirements for the support of the attribute. For any given attribute, regardless of the value of the supportQualifier, at least one of the readQualifier or writeQualifier must be "M". The implication of the "O" supportQualifier is that the attribute is optional, however the read and write qualifiers indicate how the optional attribute shall be supported, should the optional attribute be supported. Regardless of the supportQualifier, if an attribute is supported then it shall be supported in accordance with the specified visibilityQualifier.

Private or IRPAgent Internal attributes are per definition not readable by the IRPManager. Their readQualifier is hence always "—".

Private or IRPAgent Internal attributes are per definition not writable by the IRPManager. Their writeQualifier is hence always "—".

The readQualifier and writeQualifier of a supported attribute, that is public, may not be both "—".

The use of "—" in supportQualifier is reserved for documenting support of attributes defined by an «Archetype» IOC. Attributes with a supportQualifier of "—" are not implemented by the IOC that is realizing a subset of the attributes defined by the «Archetype». The readQualifier and writeQualifier are of no relevance in this case. However, a not supported attribute is neither readable nor writable. For this reason the readQualifier and writeQualifier shall be "—" for unsupported attributes.

For any IOC that uses one or more attributes from an «Archetype», a separate table shall be used to indicate the supported attributes. This table is absent if no «Archetype» attributes are supported. For example, if a particular IOC has defined attributes (i.e. attributes not defined by an «Archetype») and encapsulates attributes from two «Archetype»s, then the totality of the attributes of said IOC will be contained in three separate tables.

This information is provided in a table. An example of such a table is given below:

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
ntfSubscriptionId	+	M	M	O

Another example, where the support qualifier is "O" is given here below:

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
ntfSubscriptionId	+	O	M	O

In this example, the ntfSubscriptionId is an optional attribute. If the implementation chose to support ntfSubscriptionId, then the said implementation is required to support read and may support write.

NOTE: This subclause does not need to be present when there is no attribute to define.

X.3.a.3 Attribute constraints

The <attribute constraints> subclause presents constraints between attributes that are always held to be true. Those properties are always held to be true during the lifetime of the attributes and in particular don't need to be repeated in pre or post conditions of operations or notifications.

NOTE: This subclause does not need to be present when there are no attribute constraints to define.

X.3.a.4 Relationships

The <relationship> subclause presents the list of relationships in which this class in involved. Each element is a relationshipName.

NOTE: This subclause is optional and may be avoided since all relationships are represented in the class diagram in clause X.2.1.

X.3.a.5 State diagram

The <state diagram> subclause contains state diagrams. A state diagram of an information object class defines permitted states of this information object class and the transitions between those states. A state is expressed in terms of individual attribute values or a combination of attribute values or involvement in relationships of the information object class being defined. This shall be a UML compliant state diagram.

NOTE: This subclause does not need to be present when there is no state diagram to define.

Change in Clause X.3.a.6

X.3.a.6 Additional Notifications

The <Additional notifications> subclause, for this IOC, presents the list of additional notifications (to the common notifications in section X.6), that can be emitted across the Itf-N, ~~with~~ where the "object class" and "object instance" parameters of the notification header (see note 2) of these notifications identifies~~ying~~ an instance of the IOC defined by the encapsulating subclause (i.e. clause X.3.a). Please refer to note 3.

The notifications identified in this sub clause, may originate from implementation object(s) whose identifier is mapped in the implementation, to the object instance identifier used over the ITF-N. Hence The presence of notifications in this~~e present~~ subclause (i.e. clause X.3.a.6) does not imply nor identify those notifications as being originated from an instance of the IOC defined by the encapsulating subclause (i.e. clause X.3.a).

This information is provided in a table. An example of such a table is given below:

Name	Qualifier	Notes
NotifyAckStateChanged.....	See Alarm IRP (3GPP TS 32.111-2 [6]).....	Additional Notifications to common notifications in section X.5 added here
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [6])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [6])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [6])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
...	...	

NOTE1: This subclause and table does not need to be present when there is are no additional notifications to those in clause i X.5. to define.

NOTE2: The notification header is defined in the notification IRP Information service TS 32.302 [7]

NOTE3: This clause was modifiied during the closing stages of release 6, to help other SDOs re use the 3GPP IRP technique .
Consequently not all 3GPP Information service specifications will be aligned during release 6. Some specificiations will have a single clause titled "Notifications" and will not have clause X.6
Complete alignment will be made during the next release.

End change in Clause X.3.a.6

X.4 Information relationship definitions

Each information relationship is defined using the following structure.

X.4.a InformationRelationshipName (supportQualifier)

InformationRelationshipName is the name of the information relationship followed by a qualifier indicating whether the relationship is Mandatory, Optional or Conditional (M, O, C).

"a" represents a number, starting at 1 and increasing by 1 with each new definition of an information relationship.

X.4.a.1 Definition

The <definition> subclause is written in natural language.

X.4.a.2 Roles

The <roles> subclause identifies the roles played in the relationship by object classes. Each element is a pair (roleName, roleDefinition).

This information is provided in a table. An example of such a table is given here below:

Name	Definition
isSubscribedBy	This role represents the one who has subscribed.

X.4.a.3 Constraints

The <constraints> subclause contains the list of properties specifying the semantic invariants that must be preserved on the relationship. Each element is a pair (propertyName, propertyDefinition). Those properties are always held to be true during the lifetime of the relationship and don't need to be repeated in pre or post conditions of operations or notifications.

This information is provided in a table. An example of such a table is given here below:

Name	Definition
inv_notificationCategoriesAllDistinct	The notification categories contained in the ntfNotificationCategorySet attribute of ntfSubscription playing the role hasSubscription are all distinct from each other.

X.5 Information attribute definitions

Each information attribute is defined using the following structure:

X.5.1 Definition and legal values

This subclause contains for each attribute being defined its name, its definition written in natural language and a list of legal values supported by the attribute.

In the case where the legal values can be enumerated, each element is a pair (legalValueName, legalValueDefinition), unless a legalValueDefinition applies to several values in which case the definition is provided only once. When the legal values cannot be enumerated, the list of legal values is defined by a single definition.

This information is provided in a table. An example of such a table is given here below:

Attribute Name	Definition	Legal Values
ntfSubscriptionId	It identifies uniquely a subscription	N/A
ntfSusbcriptionState	It indicates the activation state of a subscription	"suspended"*:* the subscription is suspended. "notSuspended"*:* the subscription is active.

X.5.2 Constraints

The <constraints> subclause indicates whether there are any constraints affecting attributes. Each constraint is defined by a pair (propertyName, propertyDefinition). PropertyDefinitions are expressed in natural language.

An example is given here below:

Name	Definition
inv_TimerConstraints	The ntfTimeTickTimer is lower than or equal to ntfTimeTick.

change new clause X.6

X.6 Common Notifications

This <Common Notifications> subclause presents the list of notifications that can be emitted across the Itf-N, where the "object class" and "object instance" parameters of the notification header(see Note 2) of these notifications identifies an instance of an IOC defined by this IRP specification. Please refer to Note 3 below.

Exceptions if a small number of IOCs don't support all of the notifications.

The Notifications provided in the following table do not apply the following IOCs.

The notifications in this sub clause, may originate from implementation objects, which are mapped by an implementation to the object instance used across the ITF-N. Hence the presence of notifications in this subclause (i.e. clauseX.6) does not imply nor identify those notifications as being originated from an instance of the IOC defined by this NRM IRP specification.

This information is provided in a table. An example of such a table is given below:

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [6])	Example common notification
notifyAttributeValueChange	O	example
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [6])	example
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [6])	example
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [6])	example
notifyObjectCreation	O	example
notifyObjectDeletion	O	example

NOTE1: This subclause does not need to be present when there are no common notifications.

NOTE2: The notification header is defined in the notification IRP Information service TS 32.302 [7]

NOTE3: This clause was modifiied during the closing stages of release 6, to help other SDOs re use the 3GPP IRP technique .
Consequently not all 3GPP Information service specifications will be aligned during release 6. Some specificiations will have a single clause titled "Notifications" and will not have clause X.6
Complete alignment will be made during the next release.

End of change new clause X.6

X.~~6~~7 Particular information configurations

Some configurations of information are special or complex enough to justify the usage of a state diagram to clarify them. A state diagram in this clause defines permitted states of the system and the transitions between those states. A state is expressed in terms of a combination of attribute values constraints or involvement in relationships of one or more information object classes.

End change in Clause X.6

Annex A (informative): Change history

Change history							
Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Old	New
Dec 2003	S_22	SP-030614	--	--	Submitted to TSG SA#22 for Information	1.0.0	
Mar 2004	S_23	SP-040114	--	--	Submitted to TSG SA#23 for Approval	2.0.0	6.0.0