Technical Specification Group Services and System Aspects **TSGS#13(01)0479**

Meeting #13, Beijing, China, 24-27 September 2001

Source: **SA5**

Title: **Rel-4 CR32.600-series Corrections**

Document for: **Approval**

Agenda Item: **7.5.3**

Doc-1st-Level	Doc-2nd-Level	Spec	CR	Rev	Phase	Subject	Cat	Version Current	Version-New	Workitem
SP-010479	S5-010580	32.612	001		Rel-4	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	F	4.0.0	4.1.0	OAM-CM
SP-010479	S5-010564	32.622	001		Rel-4	Correction of State Machine Pre and Post Conditions	F	4.0.0	4.1.0	OAM-CM
SP-010479	S5-010566	32.622	002		Rel-4	Correction of Generic NRM Containment/Naming and Association diagram	F	4.0.0	4.1.0	OAM-CM
SP-010479	S5-010571	32.622	003		Rel-4	Correct description of swVersion attribute	F	4.0.0	4.1.0	OAM-CM
SP-010479	S5-010581	32.623	001		Rel-4	Missing Mapping table added and attribute qualifier corrected	F	4.0.0	4.1.0	OAM-CM
SP-010479	S5-010583	32.624	002		Rel-4	Change the attribute “systemTitle” from mandatory to optional	F	4.0.0	4.1.0	OAM-CM

CR-Form-v4

CHANGE REQUEST

⌘ **32.612** **CR** **001** ⌘ ev **-** ⌘ Current version: **4.0.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☐ Radio Access Network **X** Core Network **X**

Title:	⌘	Correction of State Machine Pre and Post Conditions
Source:	⌘	SA5
Work item code:	⌘	OAM-CM
Date:	⌘	07/09/2001
Category:	⌘	**F**
Release:	⌘	REL-4

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)

Reason for change:	⌘	Table 15 ACTIVATION_FAILED is not a valid precondition state for fallback. No changes have occurred if the state is ACTIVATION_FAILED so fallback is unnecessary and not expected.
Summary of change:	⌘	Remove ACTIVATION_FAILED state as valid precondition for fallback operation.
Consequences if not approved:	⌘	Table 15 incorrect with an invalid precondition option and inconsitent with rest of document i.e. state transition figure 9, clause 7.2.3
Clauses affected:	⌘	7.3.
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications ⌘
Other comments:	⌘	

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G_Specs/CRs.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

7.3 State Machine Pre and Post Conditions Tables

For each operation Table 15 identifies the state machine pre and post conditions..

Table 15: State Machine Pre and Post Conditions

Operation	Pre-condition	Post Condition
startSession	No state – input sessionId provided by an IRPManager is not already in use in the IRPAgent by this or any other IRPManager	State = IDLE
endSession	not in a Transition status i.e. state <>. *_IN_PROGRESS	sessionId is released - No state.
upload	State = IDLE or UPLOAD_FAILED	Initially while operation is being performed: State= UPLOAD_IN_PROGRESS Finally when operation has completed: State = UPLOAD_COMPLETED or UPLOAD_FAILED
download	State = IDLE or DOWNLOAD_FAILED	Initially while operation is being performed: State= DOWNLOAD_IN_PROGRESS Finally when operation has completed: State = DOWNLOAD_COMPLETED or DOWNLOAD_FAILED
activate	State = DOWNLOAD_COMPLETED or ACTIVATION_PARTLY_REALISED or ACTIVATION_FAILED	Initially while operation is being performed: State= ACTIVATION_IN_PROGRESS Finally when operation has completed: State = ACTIVATION_COMPLETED or ACTIVATION_PARTLY_REALISED or ACTIVATION_FAILED
fallback	State = ACTIVATION_COMPLETED or ACTIVATION_PARTLY_REALISED or ~~ACTIVATION_FAILED or~~ FALLBACK_PARTLY_REALISED or FALLBACK_FAILED	Initially while operation is being performed: State= FALLBACK_IN_PROGRESS Finally when operation has completed: State = FALLBACK_COMPLETED or FALLBACK_PARTLY_REALISED or FALLBACK_FAILED
abortSessionOperation	State = UPLOAD_IN_PROGRESS or DOWNLOAD_IN_PROGRESS or ACTIVATION_IN_PROGRESS or FALLBACK_IN_PROGRESS	State = UPLOAD_FAILED or DOWNLOAD_FAILED or ACTIVATION_PARTLY_REALISED or ACTIVATION_FAILED or FALLBACK_PARTLY_REALISED or FALLBACK_FAILED
getSessionIds	N/A – State Machine independent	N/A

getSessionStatus	None	None
getSessionLog	None	None
getBulkCmIRPversion	N/A – State Machine independent	N/A

3GPP TSG SA WG5 S5-010564
Meeting #22, Paris, France, 3 - 7 September 2001 ***S5C010328***

CR-Form-v4

CHANGE REQUEST

⌘ **32.622** **CR** **001** ⌘ ev **-** ⌘ Current version: **4.0.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☐ Radio Access Network **X** Core Network **X**

Title:	⌘	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
Source:	⌘	SA5
Work item code:	⌘	OAM-CM
Date:	⌘	07/09/2001
Category:	⌘	**F**
Release:	⌘	REL-4

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
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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)

Reason for change:	⌘	Make TS 32.622 consistent with TS 32.111-2 (Alarm IRP IS). In the ManagedElement MOC definition, the managedElementType attribute description contains duplicate allowed members for this attribute.
Summary of change:	⌘	Add the notification *notifyComments* to the list of notifications supported by the MOCs that support alarms. Remove duplicate allowed members for the attribute managedElementType.
Consequences if not approved:	⌘	32.622 not consistent with TS 32.111-2 (Alarm IRP IS). Duplicate members will remain.

Clauses affected:	⌘	8.2.2
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.2.2 Managed Object Class (MOC) definitions

A general note regarding all the notification tables defined for each MOC below: Each MOC may potentially send the notifications listed in the notification table for the MOC. The notifications with qualifier (M) shall be supported by the MOC, and the notifications with qualifier (O) may be supported by the MOC.

For example, if Notification notifyObjectCreation defined in Basic CM IRP has the qualifier (M), then if a MOC is defined such that it emits such a notification, this notification shall be emitted when appropriate (i.e. when a new object is created). If Notification notifyChangedAlarm has the qualifier (O) in Alarm IRP (see 3GPP TS 32.111-2 [11]), then if a MOC is defined such that it emits such a notification, this notification may or may not be emitted when appropriate.

Further, if a notification in the qualifier column (of the MOC notification tables) has a reference to another specification, it means that the qualifier for the notification is specified in the referred specification.

8.2.2.1 MOC SubNetwork

This Managed Object Class represents a set of managed entities as seen over the Itf-N.

A SubNetwork may have 0...N instances. It shall be present if either a ManagementNode or multiple ManagedElements are present (i.e. ManagementNode and multiple ManagedElement instances shall have SubNetwork as parent). Restriction in R4: N=1.

Table 15: Attributes of SubNetwork

Name	Qualifier	Description
subNetworkId	READ-ONLY, M	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.
dnPrefix	READ- ONLY, C	It carries the DN Prefix information as defined in Annex C of 32.300 [13]. It shall only be specified if the instance of SubNetwork is a local root instance of the MIB. Otherwise the value shall carry the NULL semantics.
userLabel	READ-WRITE, M	A user-friendly (and user assigned) name of the associated object.
userDefinedNetworkType	READ-ONLY, M	Textual information regarding the type of network, e.g. UTRAN.

Table 16: Notifications of SubNetwork

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	

8.2.2.2 MOC ManagedElement

This Managed Object Class 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". This class is similar to the Managed Element class specified in ITU-T M.3100 [4], [5], [6].

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 MOC may be used to represent combined ME functionality (as indicated by the managedElementType attribute and the contained instances of different functional MOCs).

Single function ManagedElement managed object instances will have a 1..1 containment relationship to a function Managed Object (in this context a function MO is an MO derived from the ManagedFunction MOC). Multiple function ManagedElement managed object instances will have a 1..N containment relationship to function Managed Objects.

Table 17: Attributes of ManagedElement

Name	Qualifier	Description
managedElementId	READ-ONLY, M	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.
dnPrefix	READ- ONLY, C	It carries the DN Prefix information as defined in Annex C of 32.300 [13]. It shall only be specified if the instance of ManagedElement is a local root instance of the MIB. Otherwise the value shall carry the NULL semantics.
managedElementType	READ-ONLY, M	The type of managed element. It is a multi-valued attribute with one or more elements. Thus, it may represent one ME functionality, e.g. an RNC, or a combination of more than one functionality e.g. an MSC/HLR. The allowed members of this attribute are: RNC, NodeB, MSC, HLR, VLR, AUC, EIR, SMS-IWMSC, SMS-GMSC, GMSC, SGSN, GGSN, BG, BS, CBC, CGF, ~~EIR, GGSN,~~ GMLC, ~~GMSC,~~ GMSC Server, ~~HLR,~~ IWF, MGW, MNP-SRF, ~~MSC,~~ MSC Server, NPDB, R-SGW, SCF, ~~SGSN,~~ SMLC, ~~SMS-GMSC, SMS-IWMSC,~~ SRF, SSF~~, VLR~~. The actual syntax and encoding of this attribute is Solution Set specific.
userLabel	READ-WRITE, M	A user-friendly name of this object.
vendorName	READ-ONLY, M	The name of the ManagedElement vendor.
userDefinedState	READ-WRITE, M	An operator defined state for operator specific usage. (See also Note below)
locationName	READ-ONLY, M	The physical location of this entity (e.g. an address).
swVersion	READ-ONLY, M	The software version of the management node (this is used for determining which version of the vendor specific information is valid for the management node).
managedBy	READ-ONLY, M	The value of this attribute shall be the DN of the related managementNode instance. This is a reference attribute modelling the role (of the association MgmtAssociation) that this ME is managed by 0-1 managementNode.
NOTE: In addition to the userDefinedState, state management attributes are expected to be included in the next release.		

Table 18: Notifications of ManagedElement

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	

8.2.2.3 MOC MeContext

This Managed Object Class (MOC) is introduced for naming purposes. It may support creation of unique DNs in scenarios when some MEs have the same RDNs due to the fact that they have been manufacturer pre-configured. If some MEs have the same RDNs (for the above mentioned reason) and they are contained in the same SubNetwork instance, some measure shall be taken in order to assure the global uniqueness of DNs for all MOIs under those MEs. One way could be to set different DnPrefixes for those NEs, but that would require either that:

a) all LDNs or DNs are locally modified using the new DnPrefix for the upper portion of the DNs, or

b) a mapping (translation) of the old LDNs or DNs to the new DNs every time they are used externally, e.g. in alarm notifications.

As both the two alternatives above may involve unacceptable drawbacks (as the old RDNs for the MEs then would have to be changed or mapped to new values), using MeContext offers a new alternative to resolve the DN creation. Using MeContext as part of the naming tree (and thus the DN) means that the DnPrefix, including a unique MeContext for each ME, may be directly concatenated with the LDNs, without any need to change or map the existing ME RDNs to new values.

MeContext have 0..N instances. It may exist even if no SubNetwork exists. Every instance of MeContext contains exactly one ManagedElement during steady-state operations.

Table 19: Attributes of MeContext

Name	Qualifier	Description
meContextId	READ-ONLY, M	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.
dnPrefix	READ- ONLY, C	It carries the DN Prefix information as defined in Annex C of 3GPP TS 32.300 [13]. It shall only be specified if the instance of MeContext is a local root instance of the MIB. Otherwise the value shall carry the NULL semantics.

Table 20: Notifications of MeContext

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	

8.2.2.4 MOC ManagementNode

This Managed Object Class represents a telecommunications management system (EM) within the TMN that contains functionality for managing a number of Managed Elements (MEs). The management system communicates with the MEs directly or indirectly over one or more interfaces for the purpose of monitoring and/or controlling these MEs.

This class has similar characteristics as the ManagedElement. The main difference between these two classes is that the ManagementNode has a special association to the managed elements that it is responsible for managing.

Table 21: Attributes of `ManagementNode`

Name	Qualifier	Description
managementNodeId	READ-ONLY, M	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.
userLabel	READ-WRITE, M	A user-friendly name of this object.
vendorName	READ-ONLY, M	The name of the ManagementNode vendor.
userDefinedState	READ-WRITE, M	An operator defined state for operator specific usage.
locationName	READ-ONLY, M	The physical location of this entity (e.g. an address).
swVersion	READ-ONLY, M	The software version of the management node (this is used for determining which version of the vendor specific information is valid for the management node).
manages	READ-ONLY, M	The value of this attribute shall be a list of the DN(s) of the related ManagedElement instance(s). This is a reference attribute modelling the role (of the association MgmtAssociation) that this managementNode is responsible for managing 0-N MEs.

Table 22: Notifications of `ManagementNode`

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	

8.2.2.5 MOC `ManagedFunction`

This Managed Object Class is similar to the class `gsmManagedFunction` defined in GSM 12.20 [12] and is provided for sub-classing only. It provides the attributes that are common to functional MO classes. Note that a Managed Element may contain several managed functions. The ManagedFunction may be extended in the future if more common characteristics to functional objects are identified.

Table 23: Attributes of `ManagedFunction`

Name	Qualifier	Description
userLabel	READ-WRITE, M	A user-friendly name of the associated object.

8.2.2.6 MOC `IRPAgent`

This Managed Object Class represents the functionality of an IRPAgent. It shall be present. For a definition of IRPAgent, see 3GPP TS 32.102 [2].

Restriction in R4: The IRPAgent will be contained under a managed object as follows (only one of the options shall be used):

1. ManagementNode, if the configuration contains a ManagementNode;
2. SubNetwork, if the configuration contains a SubNetwork and no ManagementNode;
3. ManagedElement, if the configuration contains no ManagementNode or SubNetwork.

Table 24: Attributes of `IRPAgent`

Name	Qualifier	Description
`irpAgentId`	READ-ONLY, M	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.
`systemDN`	READ-ONLY, C	The Distinguished Name (DN) of IRPAgent. Defined in 3GPP TS 32.302 [3].

Table 25: Notifications of `IRPAgent`

Name	Qualifier	Notes
`notifyAckStateChanged`	See Alarm IRP (3GPP TS 32.111-2 [11])	
`notifyAttributeValueChange`	O	
`notifyChangedAlarm`	See Alarm IRP (3GPP TS 32.111-2 [11])	
`notifyClearedAlarm`	See Alarm IRP (3GPP TS 32.111-2 [11])	
`notifyNewAlarm`	See Alarm IRP (3GPP TS 32.111-2 [11])	
`notifyObjectCreation`	O	
`notifyObjectDeletion`	O	
`notifyComments`	See Alarm IRP (3GPP TS 32.111-2 [11])	

Note that these notifications are issued based on occurrences on the IRPAgent MOC and not on occurrences on other Basic CM IRP managed objects.

3GPP TSG-SA5 (Telecom Management) **S5-010566**
Meeting #22, Paris, FRANCE, 3 – 7 September 2001 **S5C010345**

CR-Form-v4

CHANGE REQUEST

⌘ **32.622** **CR** **002** ⌘ ev **-** ⌘ Current version: **4.0.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☐ Radio Access Network **X** Core Network **X**

Title:	⌘	Correction of Generic NRM Containment/Naming and Association diagram
Source:	⌘	SA5
Work item code:	⌘	OAM-CM
Date:	⌘	07/09/2001
Category:	⌘	**F**
Release:	⌘	REL-4

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2 (GSM Phase 2)
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R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
REL-4 (Release 4)
REL-5 (Release 5)

Reason for change:	⌘	Correction of Generic NRM Containment/Naming and Association diagram for new methodology.
Summary of change:	⌘	The MgntAssociation in figure 5 is placed between the MOCs ManagementNode and ManagedElement.
Consequences if not approved:	⌘	The specification is faulty and not consistent (the picture for the old methodology, figure 8, is correct).
Clauses affected:	⌘	
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

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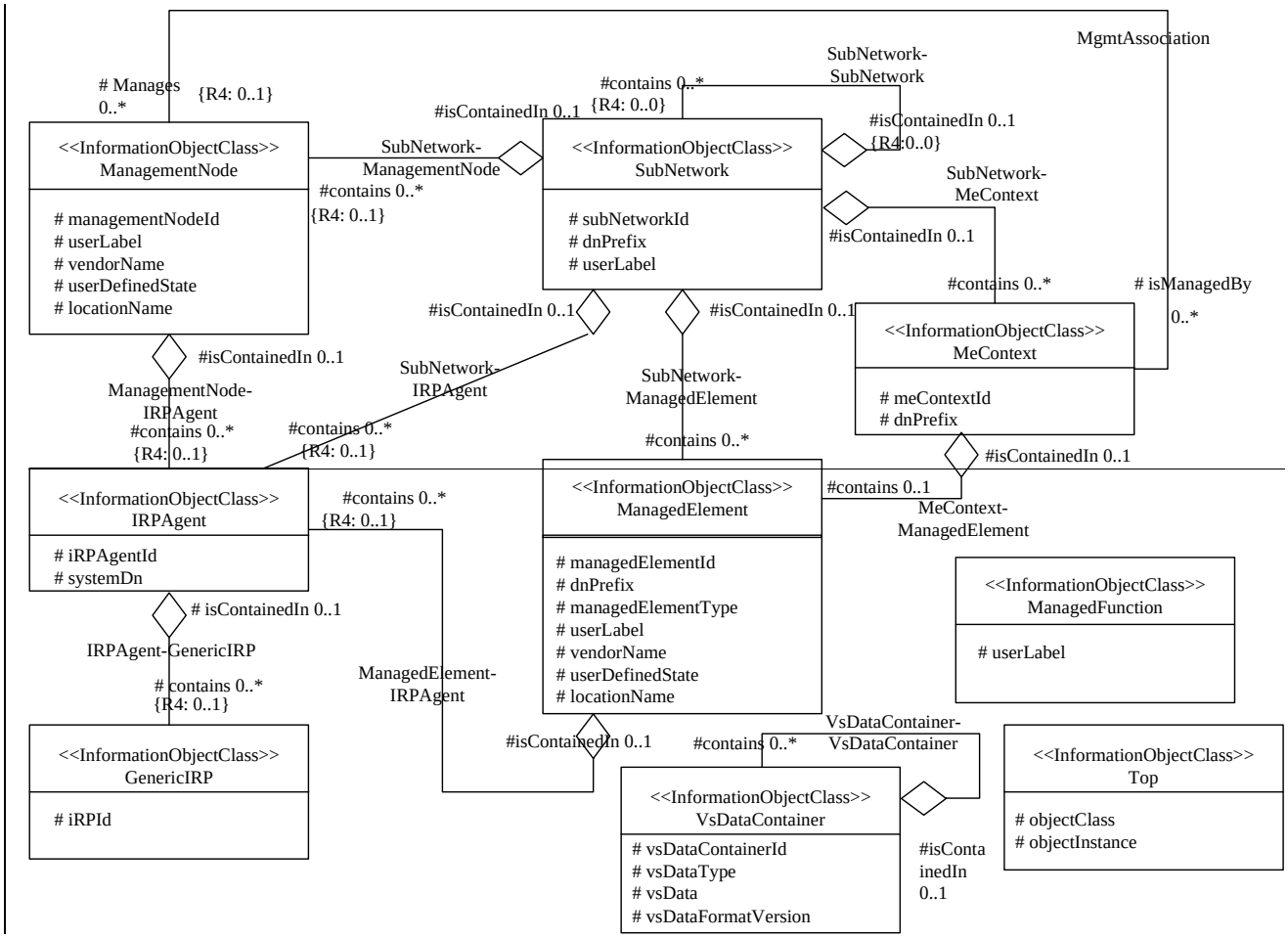
3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

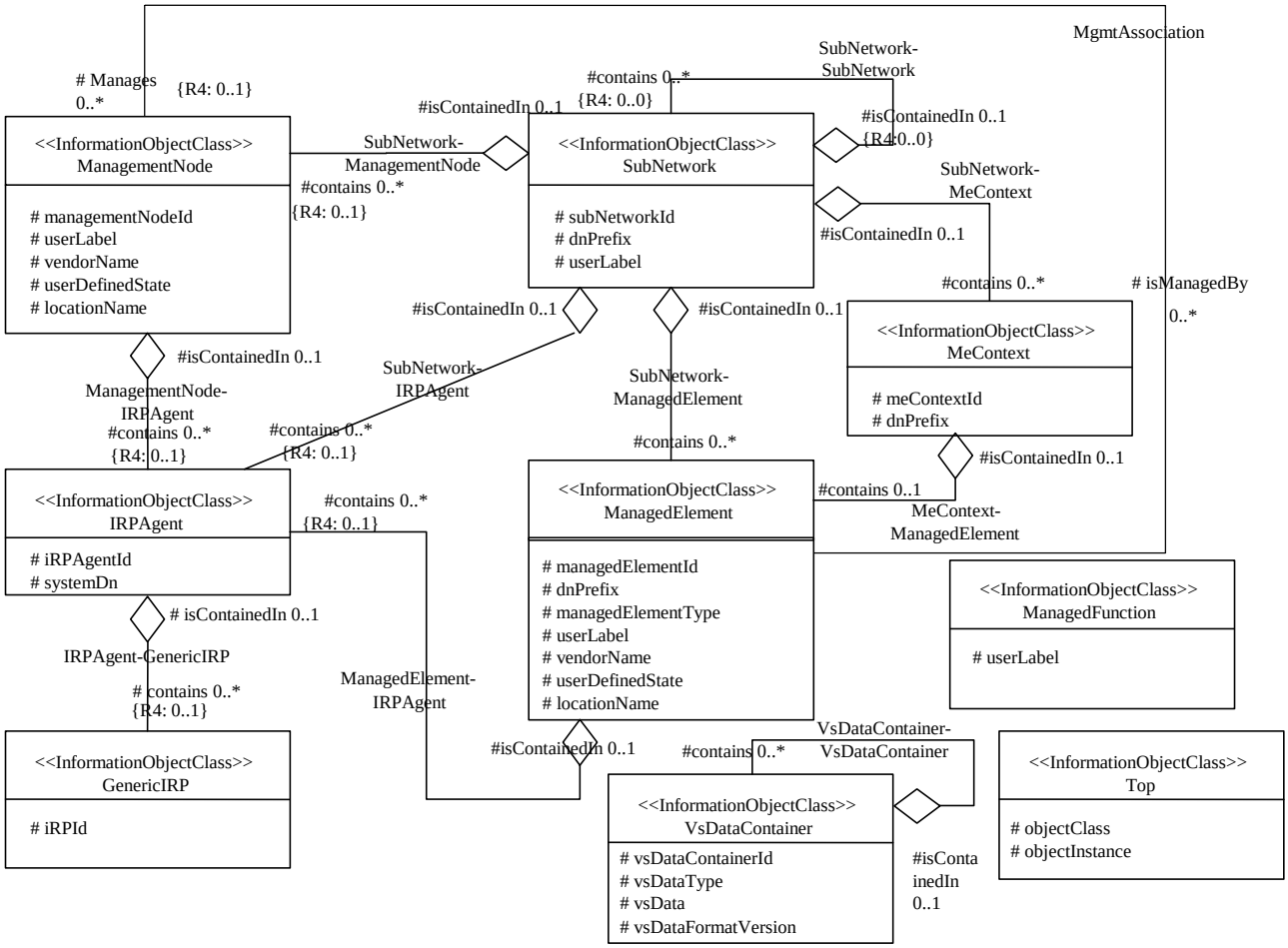
6.1.2.1 Attributes and relationships

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 provides more detailed specification of various aspects of these information object classes.

Figure 5 shows the containment/naming hierarchy and the associations of the generic information object classes defined in this TS.

NOTE: The information objet containment relationships are, in the diagram(s) below, indicated by UML "Aggregation by reference" ("hollow diamonds").


MgmtAssociation
Manages
0..*
{R4: 0..1}
#contains 0..*
{R4: 0..0}
SubNetwork-
SubNetwork
#isContainedIn 0..1
#isContainedIn 0..1
{R4:0..0}
<<InformationObjectClass>>
ManagementNode
managementNodeId
userLabel
vendorName
userDefinedState
locationName
SubNetwork-
ManagementNode
#contains 0..*
{R4: 0..1}
<<InformationObjectClass>>
SubNetwork
subNetworkId
dnPrefix
userLabel
SubNetwork-
MeContext
#isContainedIn 0..1
#contains 0..*
isManagedBy
0..*
#isContainedIn 0..1
#isContainedIn 0..1
<<InformationObjectClass>>
MeContext
meContextId
dnPrefix
#isContainedIn 0..1
ManagementNode-
IRPAgent
#contains 0..*
{R4: 0..1}
SubNetwork-
IRPAgent
#contains 0..*
{R4: 0..1}
SubNetwork-
ManagedElement
#contains 0..*
<<InformationObjectClass>>
IRPAgent
iRPAgentId
systemDn
#contains 0..*
{R4: 0..1}
<<InformationObjectClass>>
ManagedElement
managedElementId
dnPrefix
managedElementType
userLabel
vendorName
userDefinedState
locationName
#contains 0..1
MeContext-
ManagedElement
<<InformationObjectClass>>
ManagedFunction
userLabel
isContainedIn 0..1
IRPAgent-GenericIRP
contains 0..*
{R4: 0..1}
ManagedElement-
IRPAgent
#isContainedIn 0..1
#contains 0..*
VsDataContainer-
VsDataContainer
<<InformationObjectClass>>
GenericIRP
iRPId
<<InformationObjectClass>>
VsDataContainer
vsDataContainerId
vsDataType
vsData
vsDataFormatVersion
#isConta
inedIn
0..1
<<InformationObjectClass>>
Top
objectClass
objectInstance



NOTE 1: ManagedElement may be contained in either a SubNetwork or an MeContext instance, or have no parent instance at all.

NOTE 2: The listed cardinality numbers represent transient as well as steady-state numbers, and reflect all managed object creation and deletion scenarios.

NOTE 3: Each instance of the vsDataContainer shall only be contained under one MOC. The vsDataContainer can be contained under MOCs defined in other NRMs.

Figure 5: Generic NRM Containment/Naming and Association diagram

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

`SubNetwork=Sweden,MeContext=MEC-Gbg-1,ManagedElement=RNC-Gbg-1.`

CR-Form-v4

CHANGE REQUEST

⌘ **32.622** **CR** **003** ⌘ ev **-** ⌘ Current version: **4.0.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☐ Radio Access Network **X** Core Network **X**

Title:	⌘	Correct description of swVersion attribute
Source:	⌘	SA5
Work item code:	⌘	OAM-CM
Date:	⌘	07/09/2001
Category:	⌘	**F**
Release:	⌘	Rel-4

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)*

Reason for change:	⌘	The description of swVersion in managedElement MOC has by mistake used the same text as the same attribute in managementNode MOC. Also, the generic description of the same attribute in section 6.1.5.1 does not cover the case that it applies to both these MOCs. In connection to this, an editorial error has also been found in table 11.
Summary of change:	⌘	swVersion attribute description is corrected in table 11 and 17. Empty table row in table 11 (below `managedElementId`) should be deleted (cannot be marked with revision marks below).
Consequences if not approved:	⌘	The swVersion attribute description is misleading and could cause implementation errors.

Clauses affected:	⌘	6.1.5.1, 8.2.2.2
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G_Specs/CRs.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

6.1.5 Information attribute definitions

6.1.5.1 Definitions and legal values

The table below defines the attributes that are present in several information object classes of this TS.

Table 11: Attributes

Attribute Name	Definition	Legal Values
dnPrefix	It carries the DN Prefix information as defined in Annex C of 32.300 [13]. It shall only be specified if the instance of the information object class supporting this attribute is a local root instance of the MIB. Otherwise the value shall carry the NULL semantics.	
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 elements. Thus, it may represent one ME functionality, e.g. an RNC, or a combination of more than one functionality e.g. an MSC/HLR. The actual syntax and encoding of this attribute is Solution Set specific.	RNC, NodeB, MSC, HLR, VLR, AUC, EIR, SMS-IWMSC, SMS-GMSC, GMSC, SGSN, GGSN,BG, BS, CBC, CGF, EIR, GGSN, GMLC, GMSC, GMSC Server, HLR, IWF, MGW, MNP-SRF, MSC, MSC Server, NPDB, R-SGW, SCF, SGSN, SMLC, SMS-GMSC, SMS-IWMSC, SRF, SSF, 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).	
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.	
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.	
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 MmanagementN node or ManagedElement (this is used for determining which version of the vendor specific information is valid for the MmanagementN node 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.	

8.2.2.2 MOC ManagedElement

....

Table 17: Attributes of ManagedElement

Name	Qualifier	Description
managedElementId	READ-ONLY, M	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.
dnPrefix	READ- ONLY, C	It carries the DN Prefix information as defined in Annex C of 32.300 [13]. It shall only be specified if the instance of ManagedElement is a local root instance of the MIB. Otherwise the value shall carry the NULL semantics.
managedElementType	READ-ONLY, M	The type of managed element. It is a multi-valued attribute with one or more elements. Thus, it may represent one ME functionality, e.g. an RNC, or a combination of more than one functionality e.g. an MSC/HLR. The allowed members of this attribute are: RNC, NodeB, MSC, HLR, VLR, AUC, EIR, SMS-IWMSC, SMS-GMSC, GMSC, SGSN, GGSN, BG, BS, CBC, CGF, EIR, GGSN, GMLC, GMSC, GMSC Server, HLR, IWF, MGW, MNP-SRF, MSC, MSC Server, NPDB, R-SGW, SCF, SGSN, SMLC, SMS-GMSC, SMS-IWMSC, SRF, SSF, VLR. The actual syntax and encoding of this attribute is Solution Set specific.
userLabel	READ-WRITE, M	A user-friendly name of this object.
vendorName	READ-ONLY, M	The name of the ManagedElement vendor.
userDefinedState	READ-WRITE, M	An operator defined state for operator specific usage. (See also Note below)
locationName	READ-ONLY, M	The physical location of this entity (e.g. an address).
swVersion	READ-ONLY, M	The software version of the M~~m~~anagedElement ~~node~~ (this is used for determining which version of the vendor specific information is valid for the M~~m~~anagedElement ~~node~~).
managedBy	READ-ONLY, M	The value of this attribute shall be the DN of the related managementNode instance. This is a reference attribute modelling the role (of the association MgmtAssociation) that this ME is managed by 0-1 managementNode.
NOTE: In addition to the userDefinedState, state management attributes are expected to be included in the next release.		

3GPP TSG-SA5 (Telecom Management) **S5-010581**
Meeting #22, Paris, France, 3 – 7 September 2001 **S5C010372**

CR-Form-v4

CHANGE REQUEST

⌘ **32.623** **CR** **001** ⌘ ev **-** ⌘ Current version: **4.0.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☐ Radio Access Network **X** Core Network **X**

Title:	⌘	Missing Mapping table added and attribute qualifier corrected
Source:	⌘	SA5
Work item code:	⌘	OAM-CM
Date:	⌘	07/09/2001
Category:	⌘	**F**
Release:	⌘	REL-4

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)*

Reason for change:	⌘	The userLabel attribute qualifier is not aligned with TS 32.622. No mapping is provided for the ManagedFunction MOC and IOC.
Summary of change:	⌘	Change the userLabel attribute qualifier from Read-Only to Read-Write in all MOCs and IOCs mapping tables. Addition of a mapping table for the ManagedFunction MOC and IOC.
Consequences if not approved:	⌘	Sub-clauses 5.2 and 6.2 will not be consistent with TS 32.622 and TS 32.623 Annex B.

Clauses affected:	⌘	5.2 and 6.2
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

How to create CRs using this form:
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1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

5.2 Managed Object Classes (MOCs) mapping

This Solution Set supports reference attributes for relations other than containment relations between objects. Reference attributes are therefore introduced in each MOC where needed.

5.2.1 MOC SubNetwork

Table 1: Mapping from NRM MOC SubNetwork attributes to SS equivalent MOC SubNetwork attributes

NRM Attributes of MOC SubNetwork in 3GPP TS 32.622 [4]	SS Attributes	SS Type	Qualifier
subNetworkId	subNetworkId	string	Read-Only, M
dnPrefix	dnPrefix	string	Read-Only, M
userLabel	userLabel	string	Read-Write~~Only~~, M
userDefinedNetworkType	userDefinedNetworkType	string	Read-Only, M

5.2.2 MOC ManagedElement

Table 2: Mapping from NRM MOC ManagedElement attributes and association roles to SS equivalent MOC ManagedElement attributes

NRM Attributes/Association roles in 3GPP TS 32.622 [4]	SS Attributes	SS Type	Qualifier
managedElementId	managedElementId	string	Read-Only, M
dnPrefix	dnPrefix	string	Read-Only, M
userLabel	userLabel	string	Read-Write~~Only~~, M
locationName	locationName	string	Read-Only, M
vendorName	vendorName	string	Read-Only, M
userDefinedState	userDefinedState	string	Read-Write, M
managedElementType	managedElementType	GenericNRIRPSystem::AttributeTypes::StringSet	Read-Only, M
managedBy	managedBy	GenericNRIRPSystem::AttributeTypes::MOReferenceSet	Read-Only, M
swVersion	swVersion	string	Read-Only, M

5.2.3 MOC MeContext

Table 3: Mapping from NRM MOC MeContext attributes to SS equivalent MOC MeContext attributes

NRM Attributes of MOC MeContext in 3GPP TS 32.622 [4]	SS Attributes	SS Type	Qualifier
meContextId	meContextId	string	Read-Only, M
dnPrefix	dnPrefix	string	Read-Only, M

5.2.4 MOC ManagementNode

Table 4: Mapping from NRM MOC ManagementNode attributes and association roles to SS equivalent MOC ManagementNode attributes

NRM Attributes/association roles of MOC ManagementNode in 3GPP TS 32.622 [4]	SS Attributes	SS Type	Qualifier
managementNodeId	managementNodeId	string	Read-Only, M
userLabel	userLabel	string	Read-WriteOnly, M
locationName	locationName	string	Read-Only, M
vendorName	vendorName	string	Read-Only, M
userDefinedState	userDefinedState	string	Read-Write, M
manages	manages	GenericNRIRPSystem::AttributeTypes::MOReferenceSet	Read-Only, M
swVersion	swVersion	string	Read-Only, M

5.2.5 MOC ManagedFunction

~~This Managed Object Class is provided for sub-classing only. Therefore no mapping for this class is provided in this document.~~

Table x: Mapping from NRM MOC ManagedFunction attributes to SS equivalent MOC ManagedFunction attributes

NRM Attributes of MOC ManagedFunction in 3GPP TS 32.622 [4]	SS Attributes	SS Type	Qualifier
userLabel	userLabel	string	Read-Write, M

5.2.6 MOC IRPAgent

Table 5: Mapping from NRM MOC IRPAgent attributes to SS equivalent MOC IRPAgent attributes

NRM Attributes of MOC IRPAgent in 3GPP TS 32.622 [4]	SS Attributes	SS Type	Qualifier
irpAgentId	irpAgentId	string	Read-Only, M
systemDN	systemDN	string	Read-Only, M

5.2.7 MOC BasicCmIRP

Table 6: Mapping from NRM MOC BasicCmIRP attributes to SS equivalent MOC BasicCmIRP attributes

NRM Attributes of MOC BasicCmIRP in 3GPP TS 32.622 [4]	SS Attributes	SS Type	Qualifier
basicCmIRPId	basicCmIRPid	string	Read-Only, M
irpVersion	irpVersion	CommonIRPConstDefs::VersionNumberSet	Read-Only, M

5.2.8 MOC BulkCmIRP

Table 6: Mapping from NRM MOC BulkCmIRP attributes to SS equivalent MOC BulkCmIRP attributes

NRM Attributes of MOC BulkCmIRP in 3GPP TS 32.622 [4]	SS Attributes	SS Type	Qualifier
bulkCmIRPId	bulkCmIRPId	string	Read-Only, M
irpVersion	irpVersion	CommonIRPConstDefs::VersionNumberSet	Read-Only, M

5.2.9 MOC VsDataContainer

Table 6: Mapping from NRM MOC VsDataContainer attributes to SS equivalent MOC VsDataContainer attributes

NRM Attributes of MOC VsDataContainer in 3GPP TS 32.622 [4]	SS Attributes	SS Type	Qualifier
vsDataContainerId	vsDataContainerId	string	Read-Only, M
vsDataType	vsDataType	string	Read-Only, M
vsData	vsData	vsDataType	Read-Write, M
vsDataFormatVersion	vsDataFormatVersion	string	Read-Only, M

6 New methodology Mapping

6.1 General mappings

The IS parameter name managedObjectInstance is mapped into DN.

Attributes modelling associations as defined in the NRM (here also called “reference attributes”) are in this SS mapped to attributes. The names of the reference attributes in the NRM are mapped to the corresponding attribute names in the MOC. When the cardinality for an association is 0..1 or 1..1 the datatype for the reference attribute is defined as an MOReference. The value of an MO reference contains the distinguished name of the associated MO. When the cardinality for an association allows more than one referred MO, the reference attribute will be of type MOReferenceSet, which contains a sequence of MO references.

If a reference attribute is changed, an AttributeValueChange notification is emitted.

6.2 Generic NRM Information Object Class (IOC) mapping

This Solution Set supports reference attributes for relations other than containment relations between objects. Reference attributes are therefore introduced in each MOC where needed.

6.2.1 IOC SubNetwork

Table 7: Mapping from NRM IOC SubNetwork attributes to SS equivalent MOC SubNetwork attributes

NRM Attributes of IOC SubNetwork in 3GPP TS 32.622 [4]	SS Attributes	SS Type	Qualifier
subNetworkId	subNetworkId	string	Read-Only, M
dnPrefix	dnPrefix	string	Read-Only, M
userLabel	userLabel	string	Read-Write~~Only~~, M
userDefinedNetworkType	userDefinedNetworkType	string	Read-Only, M

6.2.2 IOC ManagedElement

Table 8: Mapping from NRM IOC ManagedElement attributes and association roles to SS equivalent MOC ManagedElement attributes

NRM Attributes/Association roles	SS Attributes	SS Type	Qualifier
managedElementId	managedElementId	string	Read-Only, M
dnPrefix	dnPrefix	string	Read-Only, M
userLabel	userLabel	string	Read-Write~~Only~~, M
locationName	locationName	string	Read-Only, M
vendorName	vendorName	string	Read-Only, M
userDefinedState	userDefinedState	string	Read-Write, M
managedElementType	managedElementType	GenericNRIRPSystem::AttributeTypes::StringSet	Read-Only, M
managedBy	managedBy	GenericNRIRPSystem::AttributeTypes::MOReferenceSet	Read-Only, M
swVersion	swVersion	string	Read-Only, M

6.2.3 IOC MeContext

Table 9: Mapping from NRM IOC MeContext attributes to SS equivalent MOC MeContext attributes

NRM Attributes of IOC MeContext in 3GPP TS 32.622 [4]	SS Attributes	SS Type	Qualifier
meContextId	meContextId	string	Read-Only, M
dnPrefix	dnPrefix	string	Read-Only, M

6.2.4 IOC ManagementNode

Table 10: Mapping from NRM IOC ManagementNode attributes and association roles to SS equivalent MOC ManagementNode attributes

NRM Attributes/association roles of IOC ManagementNode in 3GPP TS 32.622 [4]	SS Attributes	SS Type	Qualifier
managementNodeId	managementNodeId	string	Read-Only, M
userLabel	userLabel	string	Read-WriteOnly, M
locationName	locationName	string	Read-Only, M
vendorName	vendorName	string	Read-Only, M
userDefinedState	userDefinedState	string	Read-Write, M
manages	manages	GenericNRIRPSystem::AttributeTypes::MOReferenceSet	Read-Only, M
swVersion	swVersion	string	Read-Only, M

6.2.5 IOC VsDataContainer

Table 10: Mapping from NRM IOC VsDataContainer attributes and association roles to SS equivalent MOC VsDataContainer attributes

NRM Attributes/association roles of IOC VsDataContainer in 3GPP TS 32.622 [4]	SS Attributes	SS Type	Qualifier
vsDataContainerId	vsDataContainerId	string	Read-Only, M
vsDataType	vsDataType	string	Read-Only, M
vsData	vsData	vsDataType	Read-Write, M
vsDataFormatVersion	vsDataFormatVersion	string	Read-Only, M

6.2.6 IOC ManagedFunction

~~This Information Object Class is provided for sub-classing only. Therefore no mapping for this class is provided in this document.~~

Table y: Mapping from NRM IOC ManagedFunction attributes and association roles to SS equivalent MOC ManagedFunction attributes

NRM Attributes/association roles of IOC ManagedFunction in 3GPP TS 32.622 [4]	SS Attributes	SS Type	Qualifier
userLabel	userLabel	string	Read-Write, M

CR-Form-v4

CHANGE REQUEST

⌘ **32.624** **CR** **002** ⌘ ev **-** ⌘ Current version: **4.0.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☐ Radio Access Network **X** Core Network **X**

Title:	⌘	Change the attribute "systemTitle" from mandatory to optional
Source:	⌘	SA5
Work item code:	⌘	OAM-CM
Date:	⌘	07/09/2001
Category:	⌘	**F**
Release:	⌘	REL-4

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)*

Reason for change:	⌘	The attribute "systemTitle" shall be present only at the root (accessing point) of a MIB. Since instances of meContext and managedElement are not always roots of MIBs the attribute "systemTitle" shall not be mandatory there.
Summary of change:	⌘	Change the definition of "systemTitle" in meContext and managedElement from mandatory to optional.
Consequences if not approved:	⌘	The object model is not correct.

Clauses affected:	⌘	5.1 and 5.2
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

How to create CRs using this form:
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1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

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5.1.2 managedElement

managedElement MANAGED OBJECT CLASS
DERIVED FROM "Recommendation X.721: 1992":top;
CHARACTERIZED BY
managedElementBasicPackage,
managedElementAssociationPackage;
CONDITIONAL PACKAGES
rootOptionalPackage PRESENT IF
"An instance of managedElement is the accessing root of a MIB.",
"Recommendation M.3100: 1995":createDeleteNotificationsPackage PRESENT IF
"the objectCreation and the objectDeletion defined in Recommendation
X.721 are supported by an instance of this class.",
"Recommendation M.3100: 1995":attributeValueChangeNotificationPackage PRESENT IF
"the attributeValueChange notifications defined in Recommendation X.721
are supported by an instance of this class.",
"Recommendation M.3100: 1995":processingErrorAlarmPackage PRESENT IF
"the processingErrorAlarm notifications defined in Recommendation X.721
are supported by an instance of this class.",
"Recommendation M.3100: 1995":environmentalAlarmPackage PRESENT IF
"the environmentalAlarm notifications defined in Recommendation X.721
are supported by an instance of this class.",
communicationsAlarmPackage PRESENT IF
"the communicationsAlarm notifications defined in Recommendation X.721
are supported by an instance of this class.",
equipmentAlarmPackage PRESENT IF
"the equipmentAlarm notifications defined in Recommendation X.721
are supported by an instance of this class.";
REGISTERED AS {ts32-624ObjectClass 2};

……..

5.1.8 meContext

meContext MANAGED OBJECT CLASS
DERIVED FROM "Recommendation X.721: 1992":top;
CHARACTERIZED BY
meContextBasicPackage;
CONDITIONAL PACKAGES
rootOptionalPackage PRESENT IF
"An instance of meContext is the accessing root of a MIB.",

"Recommendation M.3100: 1995":createDeleteNotificationsPackage PRESENT IF
"the objectCreation and the objectDeletion defined in Recommendation
X.721 are supported by an instance of this class.";
REGISTERED AS {ts32-624ObjectClass 8};

……..

5.2.2 managedElementBasicPackage

managedElementBasicPackage PACKAGE
BEHAVIOUR
managedElementBasicPackageBehaviour;
ATTRIBUTES
managedElementId GET,
managedElementType GET,
userDefinedState GET-REPLACE,
~~"Recommendation X.721: 1992" : systemTitle GET,~~
"Recommendation M.3100: 1995" : userLabel GET-REPLACE,
"Recommendation M.3100: 1995" : vendorName GET,
"Recommendation M.3100: 1995" : locationName GET,
swVersion GET;
REGISTERED AS {ts32-624Package 2};

managedElementBasicPackageBehaviour BEHAVIOUR
DEFINED AS
"This managed object class represents telecommunications equipment within the telecommunications network that performs managed element functions, i.e. provides support and/or service to the subscriber. A managed element communicates with a manager (directly or indirectly) over one or more standard interfaces for the purpose of being monitored and/or controlled. A managed element contains equipment that may or may not be geographically distributed. A Managed Element is often referred to as a 'node' or a 'network element'.";

……..

5.2.12 meContextBasicPackage

meContextBasicPackage PACKAGE
BEHAVIOUR
meContextBasicPackageBehaviour;
ATTRIBUTES
meContextId GET~~,~~;

~~"Recommendation X.721: 1992" : systemTitle GET;~~
REGISTERED AS {ts32-624Package 12};

meContextBasicPackageBehaviour BEHAVIOUR
DEFINED AS
"This managed object class represents the Managed Element from the network perspective. It can be used to hold surveillance status information, and also planning status information for the case when the managed element is part of a planned configuration in a management system, before it has been taken into service. It can also support unambiguous naming in all cases, also for scenarios when the Managed Elements have been pre-configured where some of them may have equal names (to avoid necessary administration to make all of them globally unique at creation/installation time). Thus, by means of globally unique names for the MEContext instances, and by using these in the DN, the DNs for all MEs (and MOIs contained in them) can be assured to be globally unique, even in such a scenario as described above.";

…….

5.2.18 rootOptionalPackage

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.";

……