TSGS#25(04)0581

Source:	**SA5 (Telecom Management)**
Title:	**3 Rel-6 CR 32.623/33/53 Add Inheritance in CORBA IDL**
Document for:	**Approval**
Agenda Item:	**7.5.3**

Doc-1st-Level	Doc-2nd-Level	Spec	CR	Rev	Phase	Subject	Cat	Ver-Cur	Wi
SP-040581	S5-048738	32.623	014	--	Rel-6	Add Inheritance in CORBA IDL	B	6.2.0	OAM-NIM
SP-040581	S5-048753	32.633	006	--	Rel-6	Add Inheritance in CORBA IDL	B	5.1.0	OAM-NIM
SP-040581	S5-048755	32.653	009	--	Rel-6	Add Inheritance in CORBA IDL	B	5.2.0	OAM-NIM

CR-Form-v7

CHANGE REQUEST

| ⌘ | **32.623** CR **014** | ⌘ **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: ⌘	Add Inheritance in CORBA IDL	
Source: ⌘	SA5 (thomas.tovinger@ericsson.com)	
Work item code: ⌘	OAM-NIM	***Date:*** ⌘ 20/08/2004
Category: ⌘	**B**	***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: ⌘	IDL inheritance to reflect the IOC inheritance specified by the corresponding IRP IS is missing. Definition of IDL for the Top MO class is missing. In subclause ìGeneral mappingsî, one statement about DN mapping is wrong and one statement about AttributeValueChange notifications is redundant/misplaced.
Summary of change: ⌘	1. Add IDL inheritance to reflect the IOC inheritance specified by the corresponding IRP IS. 2. Add IDL definition for the Top MO class. 3. In subclause ìGeneral mappingsî, delete the statement about DN mapping and AttributeValueChange notifications. 4. Delete all the text in subclause 4.2, which is obsolete since this is done by the Interface IRPs. 5. In subclause 4.3, delete the text about ìget versionî because this is misleading as it is since Rel-5 defined in Kernel CM IRP (getNRMIRPVersion operation). 6. Correct erroneous reference to 32.300 in Annex A.1.
Consequences if not approved: ⌘	The MOC IDL definitions copy and paste what they have ìinheritedî, and that is an incorrect way of defining these items which is error-prone and does not follow common O-O practices.

Clauses affected: ⌘	4.2, 4.3, 5.1, A.1, B.1

	Y	**N**		
Other specs ⌘		**X**	Other core specifications ⌘	
affected:		**X**	Test specifications	
	X		O&M Specifications	Rel-6 32.633/43/53

Other comments: ⌘	Rel-6 32.633/653 Syblings CRs in S5-04853/55. Related CR 32.643 in S5-048756.

How to create CRs using this form:

Change in 4.2

4.2 ~~Filter language~~Void

~~The filter language used in the SS is the Extended Trader Constraint Language (see OMG Notification Service [6]). IRPAgents may throw a FilterComplexityLimit exception when a given filter is too complex. However, for 3GPP Release 99 an "empty filter" shall be used i.e. a filter that satisfies all MOs of a scoped search (this does not affect the filter for notifications as defined in the Notification IRP ñ see 3GPP TS 32.303 [9]).~~

End of Change in 4.2

Change in 4.3

4.3 Syntax for Distinguished Names ~~and Versions~~

The format of a Distinguished Name is defined in 3GPP TS 32.300 [5].

~~The Version of this IRP is represented as a string.~~

End of Change in 4.3

Change in 5.1

5.1 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.~~

End of Change in 5.1

Change in Annex A.1

Annex A (normative):
IDL specifications

A.1 IDL specification (file name "GenericNetworkResourcesIRPSystem.idl")

```
#ifndef GenericNetworkResourcesIRPSystem_idl
#define GenericNetworkResourcesIRPSystem_idl
```

```
#pragma prefix "3gppsa5.org"


module GenericNetworkResourcesIRPSystem
{
    /**
     * The format of Distinguished Name (DN) is specified in "Name Conventions
     * for Managed Objects (3GPP TS 32.300 [5])revision B".
     */
    typedef string DN;


    /**
     *  This module adds datatype definitions for types
     *  used in the NRM which are not basic datatypes defined
     *  already in CORBA.
     */
    module AttributeTypes
    {
        /**
         * An MO reference refers to an MO instance.
         * "otherMO" contains the  distinguished name of the referred MO.
         * A conceptual "null" reference (meaning no MO is referenced)
         * is represented as an empty string ("").
         *
         */
        struct MOReference
        {
            DN otherMO;
        };

        /**
         * MOReferenceSet represents a set of MO references.
         * This type is used to hold 0..n MO references.
         * A referred MO is not allowed to be repeated (therefore
         * it is denoted as a "Set")
         */
        typedef sequence<MOReference> MOReferenceSet;


        /**
         *  A set of strings.
         */
        typedef sequence<string> StringSet;

        /**
         *  A set of long.
         */
        typedef sequence<long> LongSet;
    };

};

#endif
```

End of Change in Annex A.1

Change in Annex B.1

Annex B (normative): IDL specifications

B.1 IDL specification (file name "GenericNetworkResourcesNRMDefs.idl")

```
#ifndef GenericNetworkResourcesNRMDefs_idl
#define GenericNetworkResourcesNRMDefs_idl

#pragma prefix "3gppsa5.org"

/**
 * This module defines constants for each MO class name and
 * the attribute names for each defined MO class.
 */
module GenericNetworkResourcesNRMDefs
{
      /**
       *  Definitions for MO class Top
       */
      interface Top
      {
         // Attribute Names
         //
         const string CLASS = "Top";
      };

      /**
       *  Definitions for MO class SubNetwork
       */
      interface SubNetwork : Top
      {
         const string CLASS = "SubNetwork";

         // Attribute Names
         //
         const string subNetworkId = "subNetworkId";
         const string dnPrefix = "dnPrefix";
         const string userLabel = "userLabel";
         const string userDefinedNetworkType = "userDefinedNetworkType";
         const string setOfMcc = "setOfMcc";
      };

      /**
       *  Definitions for MO class ManagedElement
       */
      interface ManagedElement : Top
      {
         const string CLASS = "ManagedElement";

         // Attribute Names
         //
         const string managedElementId = "managedElementId";
         const string dnPrefix = "dnPrefix";
         const string managedElementType = "managedElementType";
         const string userLabel = "userLabel";
         const string vendorName = "vendorName";
         const string userDefinedState ="userDefinedState";
```

3GPP

```
        const string locationName ="locationName";

        const string managedBy = "managedBy";

        const string swVersion = "swVersion";

    };


    /**
     *  Definitions for MO class MeContext
     */
    interface MeContext : Top
    {
        const string CLASS = "MeContext";

        // Attribute Names
        //
        const string meContextId = "meContextId";
        const string dnPrefix = "dnPrefix";
    };

    /**
     *  Definitions for MO class ManagementNode
     */
    interface ManagementNode : Top
    {
        const string CLASS = "ManagementNode";

        // Attribute Names
        //
        const string managementNodeId = "managementNodeId";
        const string userLabel = "userLabel";
        const string vendorName = "vendorName";
        const string userDefinedState = "userDefinedState";
        const string locationName = "locationName";
        const string managedElements = "managedElements";

        const string swVersion = "swVersion";
    };


    /**
     *  Definitions for abstract MO class ManagedFunction
     *
     */
    interface ManagedFunction : Top
    {
        const string CLASS = "ManagedFunction";

        // Attribute Names
        //
        const string userLabel = "userLabel";
    };


    /**
     *  Definitions for MO class IRPAgent
     */
    interface IRPAgent : Top
    {
        const string CLASS = "IRPAgent";

        // Attribute Names
        //
        const string irpAgentId = "irpAgentId";
```

```
        const string systemDN = "systemDN";
    };
    /**
     *  Definitions for MO class VsDataContainer
     */
    interface VsDataContainer : Top
    {
        const string CLASS = "VsDataContainer";

        // Attribute Names
        //
        const string vsDataContainerId = "vsDataContainerId";
        const string vsDataType = "vsDataType";
        const string vsData = "vsData";
        const string vsDataFormatVersion = "vsDataFormatVersion";
    };

};

#endif
```

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End of Change in Annex B.1
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Annex C (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	--	Missing Mapping table added and attribute qualifier corrected	4.0.0	4.1.0
Dec 2001	S_14	SP-010646	002	--	Change type "integer" to "long" in the Generic Network Resources IRP: CORBA SS	4.1.0	4.2.0
Dec 2001	S_14	SP-010647	003	--	Correction of Generic NRM CORBA Solution Set IDL definitions	4.1.0	4.2.0
Sep 2002	S_17	SP-020488	004	--	Upgrade the NRM CORBA Solution Set to Rel-5	4.2.0	5.0.0
Mar 2003	S_19	SP-030141	006	--	Replace Microsoft Word ìî with straight Double Quotes - to avoid CORBA IDL Compilation Errors	5.0.0	5.1.0
Dec 2003	S_22	SP-030648	007	--	Add SetofMcc attribute in Generic NRM IOCs for NRM alignment	5.1.0	6.0.0
Mar 2004	S_23	SP-040128	009	--	Addition/correction of attributes for the managementScope association - Alignment with 32.622	6.0.0	6.1.0
Jun 2004	S_24	SP-040251	011	--	Correction of legal values for managedElementType attribute	6.1.0	6.2.0

CR-Form-v7

CHANGE REQUEST

| ⌘ | **32.633** CR **006** | ⌘**rev** | **-** | ⌘ | Current version: | **5.1.0** | ⌘ |

*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 ☐ Core Network **X**

Title:	⌘	Add Inheritance in CORBA IDL
Source:	⌘	**SA5** (thomas.tovinger@ericsson.com)

Work item code:⌘	OAM-NIM		***Date:*** ⌘	20/08/2004

Category:	⌘	**B**	***Release:*** ⌘	Rel-6

Use <u>one</u> 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 <u>one</u> 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.	IDL inheritance to reflect the IOC inheritance specified by the corresponding IRP IS is missing.
	2.	Statement in Scope regarding relation to correct IS version is missing (as required by 32.150).
	3.	IDL File name specification at beginning of Annex A is missing (as required by 32.150).
	4.	In subclause ìGeneral mappingsî, one statement about DN mapping is wrong and one statement about AttributeValueChange notifications is redundant/misplaced.

Summary of change: ⌘	1.	Add IDL inheritance to reflect the IOC inheritance specified by the corresponding IRP IS.
	2.	Add statement in Scope regarding relation to correct IS version.
	3.	Add IDL File name specification at beginning of Annex A.
	4.	In subclause ìGeneral mappingsî, delete the statement about DN mapping and AttributeValueChange notifications.

Consequences if not approved: ⌘	The MOC IDL definitions copy and paste what they have ìinheritedî, and that is an incorrect way of defining these items which is error-prone and does not follow common O-O practices. Loose relation to the corresponding IS version. Missing IDL file name specification.

Clauses affected: ⌘	Scope, 5.1, Annex A.

	Y	**N**	
Other specs	⌘		**X**	Other core specifications ⌘
affected:		**X**	Test specifications
	X		O&M Specifications Rel-6 32.623/43/53

Other comments: ⌘	Rel-6 32.623/653 Syblings CRs in S5-048738/55.
	Related CR 32.643 in S5-048756.
	This CR must be approved together with a CR creating the first Rel6 version of 32.632 (or automatic upgrade of 32.632).

How to create CRs using this form:

Change in Scope

1 Scope

The purpose of this *Core Network Resources IRP: CORBA Solution Set* is to define the mapping of the IRP information model (see TS 32.632 [3]) to the protocol specific details necessary for implementation of this IRP in a CORBA/IDL environment.

This Solution Set specification is related to 3GPP TS 32.632 V6.0.X.

End of Change in Scope

Change in 5.1

5.1 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.~~

End of Change in 5.1

Change in Annex A

Annex A (normative): CORBA IDL, NRM Definitions

A.1 IDL specification (file name "CoreNetworkResourcesNRMDefs.idl")

```
#ifndef CoreNetworkResourcesNRMDefs_idl
#define CoreNetworkResourcesNRMDefs_idl
#include "GenericNetworkResourcesNRMDefs.idl"

#pragma prefix "3gppsa5.org"

/**
 * This module defines constants for each MO class name and
 * the attribute names for each defined MO class.
```

```
 */
module CoreNetworkResourcesNRMDefs
{


     /**
      *  Definitions for MO class MscServerFunction
      */
     interface MscServerFunction :
GenericNetworkResourcesNRMDefs::ManagedFunction
     {
         const string CLASS = "MscServerFunction";

         // Attribute Names
         //
         const string mscServerFunctionId = "mscServerFunctionId";
         const string userLabel = "userLabel";
         const string mccList = "mccList";
         const string mncList = "mncList";
         const string lacList = "lacList";
         const string sacList = "sacList";
         const string gcaList = "gcaList";
         const string mscId = "mscId";
         const string mscServerFunctionGSMcell = "mscServerFunctionGSMcell";
         const string mscServerFunctionExternalGSMcell =
"mscServerFunctionExternalGSMcell";
         const string mscServerFunctionCsMgwFunction =
"mscServerFunctionCsMgwFunction";
     };


     /**
      *  Definitions for MO class HlrFunction
      */
     interface HlrFunction : GenericNetworkResourcesNRMDefs::ManagedFunction
     {
         const string CLASS = "HlrFunction";

         // Attribute Names
         //
         const string hlrFunctionId = "hlrFunctionId";
         const string userLabel = "userLabel";
     };


     /**
      *  Definitions for MO class VlrFunction
      */
     interface VlrFunction : GenericNetworkResourcesNRMDefs::ManagedFunction
     {
         const string CLASS = "VlrFunction";

         // Attribute Names
         //
         const string vlrFunctionId = "vlrFunctionId";
         const string userLabel = "userLabel";
     };



     /**
      *  Definitions for MO class AucFunction
      */
     interface AucFunction : GenericNetworkResourcesNRMDefs::ManagedFunction
     {
         const string CLASS = "AucFunction";
```

```
        // Attribute Names
        //
        const string aucFunctionId = "aucFunctionId";
        const string userLabel = "userLabel";
    };


    /**
     *  Definitions for MO class EirFunction
     */
    interface EirFunction : GenericNetworkResourcesNRMDefs::ManagedFunction
    {
        const string CLASS = "EirFunction";

        // Attribute Names
        //
        const string eirFunctionId = "eirFunctionId";
        const string userLabel = "userLabel";
    };


    /**
     *  Definitions for MO class SmsIwmscFunction
     */
    interface SmsIwmscFunction :
GenericNetworkResourcesNRMDefs::ManagedFunction
    {
        const string CLASS = "SmsIwmscFunction";

        // Attribute Names
        //
        const string smsIwmscFunctionId = "smsIwmscFunctionId";
        const string userLabel = "userLabel";
    };


    /**
     *  Definitions for MO class SmsGmscFunction
     */
    interface SmsGmscFunction :
GenericNetworkResourcesNRMDefs::ManagedFunction
    {
        const string CLASS = "SmsGmscFunction";

        // Attribute Names
        //
        const string smsGmscFunctionId = "smsGmscFunctionId";
        const string userLabel = "userLabel";
    };


    /**
     *  Definitions for MO class SgsnFunction
     */
    interface SgsnFunction : GenericNetworkResourcesNRMDefs::ManagedFunction
    {
        const string CLASS = "SgsnFunction";

        // Attribute Names
        //
        const string sgsnFunctionId = "sgsnFunctionId";
        const string userLabel = "userLabel";
        const string mccList = "mccList";
        const string mncList = "mncList";
        const string lacList = "lacList";
```

```
            const string racList = "racList";
            const string sacList = "sacList";
            const string sgsnId = "sgsnId";
            const string sgsnFunctionGSMcell = "sgsnFunctionGSMcell";
            const string sgsnFunctionExternalGSMcell = "sgsnFunctionExternalGSMcell";
        };


        /**
         *  Definitions for MO class GgsnFunction
         */
        interface GgsnFunction : GenericNetworkResourcesNRMDefs::ManagedFunction
        {
            const string CLASS = "GgsnFunction";

            // Attribute Names
            //
            const string ggsnFunctionId = "ggsnFunctionId";
            const string userLabel = "userLabel";
        };


        /**
         *  Definitions for MO class BgFunction
         */
        interface BgFunction : GenericNetworkResourcesNRMDefs::ManagedFunction
        {
            const string CLASS = "BgFunction";

            // Attribute Names
            //
            const string bgFunctionId = "bgFunctionId";
            const string userLabel = "userLabel";
        };


        /**
         *  Definitions for MO class GmscFunction
         */
        interface GmscFunction : GenericNetworkResourcesNRMDefs::ManagedFunction
        {
            const string CLASS = "GmscFunction";

            // Attribute Names
            //
            const string gmscFunctionId = "gmscFunctionId";
            const string userLabel = "userLabel";
        };


        /**
         *  Definitions for MO class SmlcFunction
         */
        interface SmlcFunction : GenericNetworkResourcesNRMDefs::ManagedFunction
        {
            const string CLASS = "SmlcFunction";

            // Attribute Names
            //
            const string smlcFunctionId = "smlcFunctionId";
            const string userLabel = "userLabel";
        };


        /**
```

```
 *  Definitions for MO class GmlcFunction
 */
interface GmlcFunction : GenericNetworkResourcesNRMDefs::ManagedFunction
{
   const string CLASS = "GmlcFunction";

   // Attribute Names
   //
   const string gmlcFunctionId = "gmlcFunctionId";
   const string userLabel = "userLabel";
};


/**
 *  Definitions for MO class ScfFunction
 */
interface ScfFunction : GenericNetworkResourcesNRMDefs::ManagedFunction
{
   const string CLASS = "ScfFunction";

   // Attribute Names
   //
   const string scfFunctionId = "scfFunctionId";
   const string userLabel = "userLabel";
};



/**
 *  Definitions for MO class SrfFunction
 */
interface SrfFunction : GenericNetworkResourcesNRMDefs::ManagedFunction
{
   const string CLASS = "SrfFunction";

   // Attribute Names
   //
   const string srfFunctionId = "srfFunctionId";
   const string userLabel = "userLabel";
};


/**
 *  Definitions for MO class CbcFunction
 */
interface CbcFunction : GenericNetworkResourcesNRMDefs::ManagedFunction
{
   const string CLASS = "CbcFunction";

   // Attribute Names
   //
   const string cbcFunctionId = "cbcFunctionId";
   const string userLabel = "userLabel";
};


/**
 *  Definitions for MO class CgfFunction
 */
interface CgfFunction : GenericNetworkResourcesNRMDefs::ManagedFunction
{
   const string CLASS = "CgfFunction";

   // Attribute Names
   //
   const string cgfFunctionId = "cgfFunctionId";
```

```
        const string userLabel = "userLabel";
    };


    /**
     *  Definitions for MO class MgwFunction
     */
    interface MgwFunction : GenericNetworkResourcesNRMDefs::ManagedFunction
    {
        const string CLASS = "MgwFunction";

        // Attribute Names
        //
        const string mgwFunctionId = "mgwFunctionId";
        const string userLabel = "userLabel";
    };



    /**
     *  Definitions for MO class GmscServerFunction
     */
    interface GmscServerFunction :
GenericNetworkResourcesNRMDefs::ManagedFunction
    {
        const string CLASS = "GmscServerFunction";

        // Attribute Names
        //
        const string gmscServerFunctionId = "gmscServerFunctionId";
        const string userLabel = "userLabel";
    };


    /**
     *  Definitions for MO class IwfFunction
     */
    interface IwfFunction : GenericNetworkResourcesNRMDefs::ManagedFunction
    {
        const string CLASS = "IwfFunction";

        // Attribute Names
        //
        const string iwfFunctionId = "iwfFunctionId";
        const string userLabel = "userLabel";
    };


    /**
     *  Definitions for MO class MnpSrfFunction
     */
    interface MnpSrfFunction : GenericNetworkResourcesNRMDefs::ManagedFunction
    {
        const string CLASS = "MnpSrfFunction";

        // Attribute Names
        //
        const string mnpSrfFunctionId = "mnpSrfFunctionId";
        const string userLabel = "userLabel";
    };


    /**
     *  Definitions for MO class NpdbFunction
     */
    interface NpdbFunction : GenericNetworkResourcesNRMDefs::ManagedFunction
```

```
        {
            const string CLASS = "NpdbFunction";

            // Attribute Names
            //
            const string npdbFunctionId = "npdbFunctionId";
            const string userLabel = "userLabel";
        };


        /**
         *  Definitions for MO class SgwFunction
         */
        interface SgwFunction : GenericNetworkResourcesNRMDefs::ManagedFunction
        {
            const string CLASS = "SgwFunction";

            // Attribute Names
            //
            const string sgwFunctionId = "sgwFunctionId";
            const string userLabel = "userLabel";
        };


        /**
         *  Definitions for MO class SsfFunction
         */
        interface SsfFunction : GenericNetworkResourcesNRMDefs::ManagedFunction
        {
            const string CLASS = "SsfFunction";

            // Attribute Names
            //
            const string ssfFunctionId = "ssfFunctionId";
            const string userLabel = "userLabel";
        };


        /**
         *  Definitions for MO class BsFunction
         */
        interface BsFunction : GenericNetworkResourcesNRMDefs::ManagedFunction
        {
            const string CLASS = "BsFunction";

            // Attribute Names
            //
            const string bsFunctionId = "bsFunctionId";
            const string userLabel = "userLabel";
        };


        /**
         *  Definitions for MO class IucsLink
         */
        interface IucsLink : GenericNetworkResourcesNRMDefs::ManagedFunction
        {
            const string CLASS = "IucsLink";

            // Attribute Names
            //
            const string iucsLinkId = "iucsLinkId";
            const string userLabel = "userLabel";
            const string connectedRnc = "connectedRnc";
            const string connectedBss = "connectedBss";
        };
```

```
/**
 *  Definitions for MO class IupsLink
 */
interface IupsLink : GenericNetworkResourcesNRMDefs::ManagedFunction
{
   const string CLASS = "IupsLink";

   // Attribute Names
   //
   const string iupsLinkId = "iupsLinkId";
   const string userLabel = "userLabel";
   const string connectedRnc = "connectedRnc";
   const string connectedBss = "connectedBss";
};


/**
 *  Definitions for MO class IubcLink
 */
interface IubcLink : GenericNetworkResourcesNRMDefs::ManagedFunction
{
   const string CLASS = "IubcLink";

   // Attribute Names
   //
   const string iubcLinkId = "iubcLinkId";
   const string userLabel = "userLabel";
   const string connectedRnc = "connectedRnc";
};


/**
 *  Definitions for MO class ALink
 */
interface ALink : GenericNetworkResourcesNRMDefs::ManagedFunction
{
   const string CLASS = "ALink";

   // Attribute Names
   //
   const string aLinkId = "aLinkId";
   const string userLabel = "userLabel";
   const string connectedBss = "connectedBss";
};


/**
 *  Definitions for MO class GbLink
 */
interface GbLink : GenericNetworkResourcesNRMDefs::ManagedFunction
{
   const string CLASS = "GbLink";

   // Attribute Names
   //
   const string gbLinkId = "gbLinkId";
   const string userLabel = "userLabel";
   const string connectedBss = "connectedBss";
};


/**
 *  Definitions for MO class CsMgwFunction
```

```
     */
     interface CsMgwFunction : GenericNetworkResourcesNRMDefs::ManagedFunction
     {
         const string CLASS = "CsMgwFunction";

         // Attribute Names
         //
         const string csMgwFunctionId = "csMgwFunctionId";
         const string userLabel = "userLabel";
         const string csMgwFunctionMscServerFunction =
"csMgwFunctionMscServerFunction";
         const string csMgwFunctionIucsLink = "csMgwFunctionIucsLink";
         const string csMgwFunctionALink = "csMgwFunctionALink";
     };


};

#endif
```

<div style="border:1px solid black; text-align:center;">

End of Change in Annex A
End of Document

</div>

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
Jun 2002	S_16	SP-020302	001	--	Align with Rel-4 Network Architecture (23.002) by changing Roaming Signalling Gateway (R-SGW) to Signalling Gateway (SGW)	4.0.0	4.1.0
Sep 2002	S_17	SP-020489	002	--	Upgrade to Rel-5 the CORBA SS for Core Network NRM (add Managed Object Classes (MOCs)	4.1.0	5.0.0
Dec 2002	S_18	SP-020747	003	--	Removal of faulty attribute uraList (alignment with Rel-5 32.632 Network Resource Model)	5.0.0	5.1.0

CR-Form-v7

CHANGE REQUEST

| | ⌘ | **32.653** CR **009** | ⌘**rev** | **-** | ⌘ | Current version: | **5.2.0** | ⌘ |

*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 ☐

Title:	⌘	Add Inheritance in CORBA IDL
Source:	⌘	**SA5** (thomas.tovinger@ericsson.com)
Work item code:⌘	OAM-NIM	*Date:* ⌘ 20/08/2004
Category:	⌘ **B**	*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. IDL inheritance to reflect the IOC inheritance specified by the corresponding IRP IS is missing. 2. IDL File name specification at beginning of Annex A is missing (as required by 32.150). 3. In subclause ìGeneral mappingsî, one statement about DN mapping is wrong and one statement about AttributeValueChange notifications is redundant/misplaced.
Summary of change:⌘		1. Add IDL inheritance to reflect the IOC inheritance specified by the corresponding IRP IS. 2. Update statement in Scope regarding relation to new Rel6 IS version. 3. Add IDL File name specification at beginning of Annex A. 4. In subclause ìGeneral mappingsî, delete the statement about DN mapping and AttributeValueChange notifications.
Consequences if not approved:	⌘	The MOC IDL definitions copy and paste what they have ìinheritedî, and that is an incorrect way of defining these items which is error-prone and does not follow common O-O practices. Missing IDL file name specification.

Clauses affected:	⌘	Scope, 5.1, Annex A.

			Y	N		
Other specs affected:	⌘			X	Other core specifications	⌘
				X	Test specifications	
			X		O&M Specifications	Rel-6 32.623/33/43

Other comments:	⌘	Rel-6 32.633/623 Syblings CRs in S5-048738/53. Related CR 32.643 in S5-048756. This CR must be approved together with a CR creating the first Rel6 version of 32.652 (or automatic upgrade of 32.652).

1 Scope

The purpose of this *GERAN Network Resources IRP: CORBA Solution Set* is to define the mapping of the IRP information model (see 3GPP TS 32.652 [4]) to the protocol specific details necessary for implementation of this IRP in a CORBA/IDL environment.

This Solution Set specification is related to 3GPP TS 32.652 V6.0~~5.2~~.X.

5.1 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.~~

Annex A (normative): CORBA IDL, NRM Definitions

A.1 IDL specification (file name "GeranNetworkResourcesNRMDefs.idl")

```
#ifndef GeranNetworkResourcesNRMDefs_idl
#define GeranNetworkResourcesNRMDefs_idl
#include "GenericNetworkResourcesNRMDefs.idl"

#pragma prefix "3gppsa5.org"

/**
 * This module defines constants for each MO class name and
 * the attribute names for each defined MO class.
 */
module GeranNetworkResourcesNRMDefs
{
```

```
        /**
         *  Definitions for MO class BssFunction
         */
        interface BssFunction : GenericNetworkResourcesNRMDefs::ManagedFunction
        {
            const string CLASS = "BssFunction";

            // Attribute Names
            //
            const string bssFunctionId = "bssFunctionId";
            const string userLabel = "userLabel";
    };


        /**
         *  Definitions for MO class BtsSiteMgr
         */
        interface BtsSiteMgr : GenericNetworkResourcesNRMDefs::ManagedFunction
        {
            const string CLASS = "BtsSiteMgr";

            // Attribute Names
            //
            const string btsSiteMgrId = "btsSiteMgrId";
            const string userLabel = "userLabel";
            const string latitude = "latitude";
            const string longitude = "longitude";
    };


        /**
         *  Definitions for MO class GsmCell
         */
        interface GsmCell : GenericNetworkResourcesNRMDefs::ManagedFunction
        {
            const string CLASS = "GsmCell";

            // Attribute Names
            //
            const string gsmCellId = "gsmCellId";
            const string userLabel = "userLabel";
            const string cellIdentity = "cellIdentity";
            const string cellAllocation = "cellAllocation";
            const string ncc = "ncc";
            const string bcc = "bcc";
            const string lac = "lac";
            const string mcc = "mcc";
            const string mnc = "mnc";
            const string rac = "rac";
            const string racc = "racc";
            const string tsc = "tsc";
            const string rxLevAccessMin = "rxLevAccessMin";
            const string msTxPwrMaxCCH = "msTxPwrMaxCCH";
            const string hoppingSequenceNumber = "hoppingSequenceNumber";
            const string plmnPermitted = "plmnPermitted";

    };


        /**
         *  Definitions for MO class GsmRelation
         */
        interface GsmRelation : Top
        {
```

```
        const string CLASS = "GsmRelation";

        // Attribute Names
        //
        const string gsmRelationId = "gsmRelationId";
        const string adjacentCell = "adjacentCell";
        const string bcchFrequency = "bcchFrequency";
        const string ncc = "ncc";
        const string bcc = "bcc";
        const string lac = "lac";

    };


    /**
     *  Definitions for MO class ExternalGsmCell
     */
    interface ExternalGsmCell :
GenericNetworkResourcesNRMDefs::ManagedFunction
    {
        const string CLASS = "ExternalGsmCell";

        // Attribute Names
        //
        const string externalGsmCellId = "externalGsmCellId";
        const string userLabel = "userLabel";
        const string cellIdentity = "cellIdentity";
        const string bcchFrequency = "bcchFrequency";
        const string ncc = "ncc";
        const string bcc = "bcc";
        const string lac = "lac";
        const string mcc = "mcc";
        const string mnc = "mnc";
        const string rac = "rac";
        const string racc = "racc";


    /**
     *  Definitions for MO class ExternalBssFunction
     */
    interface ExternalBssFunction :
GenericNetworkResourcesNRMDefs::ManagedFunction
    {
        const string CLASS = "ExternalBssFunction";

        // Attribute Names
        //
        const string externalBssFunctionId = "externalBssFunctionId";
        const string userLabel = "userLabel";

    };

    };

    #endif
```

Annex B (informative): Change history

Change history								
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Jun 2003	S_20	SP-030283	005	--	Deletion of GERAN attribute relationType from CORBA SS	5.0.1	5.1.0
Sep 2003	S_21	SP-030418	006	--	Inclusion of External BSS Function in GERAN CORBA solution set - Alignment with 32.652	5.1.0	5.2.0