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**3rd Generation Partnership Project;
Technical Specification Group Services and System Aspects
Telecommunication management;
Generic Integration Reference Point (IRP) management;
Common Object Request Broker Architecture (CORBA)
Solution Set (SS)
(Release 9)**

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Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

x the first digit:

1 presented to TSG for information;

2 presented to TSG for approval;

3 or greater indicates TSG approved document under change control.

y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.

z the third digit is incremented when editorial only changes have been incorporated in the document.

Introduction

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

32.311: Generic Integration Reference Point (IRP) management; Requirements

32.312: Generic Integration Reference Point (IRP) management; Information Service (IS)

32.313: Generic Integration Reference Point (IRP) management; Common Object Request Broker Architecture (CORBA) Solution Set (SS)

32.317: "Generic Integration Reference Point (IRP) management; SOAP Solution Set (SS)"

1 Scope

The present document specifies the CORBA Solution Set for Generic Integration Reference Point (IRP) management whose capabilities are specified in 3GPP TS 32.312 [1], the Generic IRP management: Information Service.

This Solution Set specification is related to TS 32.312 V9.0.X.

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 32.312: "Telecommunication management; Generic Integration Reference Point (IRP) management: Information Service (IS)".

    [2]   3GPP TS 32.311: "Telecommunication management; Generic Integration Reference Point (IRP) management; Requirements".

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

    [4]   3GPP TS 32.302: "Telecommunication management; Configuration Management (CM); Notification Integration Reference Point (IRP): Information Service (IS)".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in TS 32.312 [1] apply.

IRP document version number string (or "IRPVersion"): See 3GPP TS 32.311 [2] subclause 3.1.

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

    CORBA   Common Object Request Broker Architecture
    IDL   Interface Definition Language
    IRP   Integration Reference Point
    IOC   Information Object Class
    OMG   Object Management Group
    SS   Solution Set

4 Architectural Features

The overall architectural feature of this IRP is specified in 3G TS 32.312 [1]. This clause specifies features that are specific to the CORBA SS.

4.1 Abstract IOC

The capabilities of the Generic IRP management: IS [1] are captured by the definition of an IOC called ManagedGenericIRP. This IOC is an abstract class and is mapped to a MOC of the same name. The MOC is intended for inheritance by other MOCs specified in Interface IRPs such as AlarmIRP [3], NotificationIRP [4], etc.

5. Mapping

5.1 Operation mapping

Generic IRP management: IS [1] defines semantics of operation visible across the Itf-N. Table 1 indicates mapping of these operations to their equivalents defined in this SS.

Table 5.1: Mapping from IS Notification/Operation to SS equivalents

IS Operation TS 32.312 [1]	SS Method	Qualifier
getIRPVersion	get_irp_versions	M
getOperationProfile	get_interface_irp_operation_profile	O
getNotificationProfile	get_interface_irp_notification_profile	O

5.2 Operation parameter mapping

Generic IRP management: IS [1] defines semantics of parameters carried in operations across the Itf-N. The following set of tables indicates the mapping of these parameters, as per operation, to their equivalents defined in this SS.

Table 5.2 Mapping from IS `getIRPVersion` parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
versionNumberSet	Return value of type GenericIRPManagementConstDefs::VersionNumberSet	M
status	Exceptions: GenericIRPManagementSystem::GetIRPVersions	M

Table 5.3 Mapping from IS `getOperationProfile` parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
iRPVersion	GenericIRPManagementConstDefs::VersionNumber this_irp_version	M
operationNameProfile, operationParameterProfile	Return value of type GenericIRPManagementConstDefs::MethodList	M
status	Exceptions: GenericIRPManagementSystem::GetInterfaceIRPOperationsProfile, GenericIRPManagementSystem::OperationNotSupported, GenericIRPManagementSystem::InvalidParameter, GenericIRPManagementSystem::ValueNotSupported	M

Table 5.4 Mapping from IS `getNotificationProfile` parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
iRPVersion	GenericIRPManagementConstDefs::VersionNumber this_irp_version	M
notificationNameProfile, notificationParameterProfile	Return value of type GenericIRPManagementConstDefs::NotificationList	M
status	Exceptions: GenericIRPManagementSystem::GetInterfaceIRPNotificationProfile, GenericIRPManagementSystem::OperationNotSupported, GenericIRPManagementSystem::InvalidParameter, GenericIRPManagementSystem::ValueNotSupported	M

Annex A (normative):
IDL specifications

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

```
//File: GenericIRPManagementConstDefs.idl
#ifndef _GENERIC_IRP_MANAGEMENT_CONST_DEFS_IDL_
#define _GENERIC_IRP_MANAGEMENT_CONST_DEFS_IDL_
#include <TimeBase.idl>
// This statement must appear after all include statements
#pragma prefix "3gppsa5.org"
/* ## Module: GenericIRPManagementConstDefs
This module contains definitions commonly used among all IRPs.
============================================================
*/
module GenericIRPManagementConstDefs
{
   /*
    * Definition imported from CosTime.
    * The time refers to time in Greenwich Time Zone.
    * It also consists of a time displacement factor in the form of minutes of
    * displacement from the Greenwich Meridian.
    */
   typedef TimeBase::UtcT IRPTime;
   typedef string DN;
   typedef sequence <DN> DNList;

   enum Signal {OK, FULL_FAILURE, PARTIAL_FAILURE};
   enum Result {SUCCESS, FAILURE};
   /*
    * This holds a list of notification Ids
    */
   typedef sequence <long> NotifIdSet;

   /*
    * This holds identifiers of notifications that are correlated.
    */
   struct CorrelatedNotification
   {
       DN source;// Contains DN of MO that emitted the set of notifications
                 // DN string format in compliance with Name Convention for
                 // Managed Object.
                 // This may be a zero-length string. In this case, the MO
                 // is identified by the value of the MOI attribute
                 // of the Structured Event, i.e., the notification.
       NotifIdSet notif_id_set;  // Set of related notification ids
   };
   /*
    * The VersionNumber is a string that identifies the IRP specification name
    * and its version number. See definition "IRP document version number
    * string" or "IRPVersion".
    * The VersionNumberSet is a sequence of such VersionNumber. It is returned
    * by get_XXX_IRP_versions(). The sequence order has no significance.
    */
   typedef string VersionNumber;
   typedef sequence <VersionNumber> VersionNumberSet;
   typedef string MethodName;
   typedef string ParameterName;
   typedef sequence <ParameterName> ParameterList;
   /*
    * The Method defines the structure to be returned as part of
    * get_supported_operations_profile(). The name shall be the actual method
    * name (ex. "attach_push", "change_subscription_filter", etc.)
    * The parameter_list contains a list of strings. Each string shall be
    * the actual parameter name (ex. "manager_reference", "filter", etc.)
    */
   struct Method
   {
       MethodName name;
       ParameterList parameter_list;
   };
```

```
   /*
    * List of all methods and their associated parameters.
    */
   typedef sequence <Method> MethodList;
   typedef string NotificationName;
   struct Notification
   {
       NotificationName name;
       ParameterList parameter_list;
   };
   typedef sequence <Notification> NotificationList;
  /*
    * Defines the name of an attribute of a Managed Object
    */
   typedef string MOAttributeName;
  /*
    * Defines the value of an attribute of a Managed Object in form of a CORBA
    * Any. Apart from basic datatypes already defined in CORBA, the allowed
    * attribute value types are defined in the AttributeTypes module.
    */
   typedef any MOAttributeValue;
  /*
    * Represents an attribute: "name" is the attribute name
    * and "value" is the attribute value.
    */
   struct MOAttribute
   {
       MOAttributeName name;
       MOAttributeValue value;
   };
   typedef sequence <MOAttribute> MOAttributeSet;

   typedef string ManagerIdentifier;
  /*
    * The following are types carrying an optional parameter.
    * If the boolean is TRUE, then the value is present.
    * Otherwise the value is absent.
    */
   union StringOpt switch (boolean)
   {
       case TRUE: string value;
   };
   union ShortOpt switch (boolean)
   {
       case TRUE: short value;
   };
   union UnsignedShortOpt switch (boolean)
   {
       case TRUE: unsigned short value;
   };
   union LongOpt switch (boolean)
   {
       case TRUE: long value;
   };
   union UnsignedLongOpt switch (boolean)
   {
       case TRUE: unsigned long value;
   };
   union IRPTimeOpt switch (boolean)
   {
      case TRUE: GenericIRPManagementConstDefs::IRPTime value;
   };};
#endif // _GENERIC_IRP_MANAGEMENT_CONST_DEFS_IDL_
```

A.2 IDL specification (file name "GenericIRPManagementSystem.idl")

```
//File: GenericIRPManagementSystem.idl
#ifndef _GENERIC_IRP_MANAGEMENT_SYSTEM_IDL_
#define _GENERIC_IRP_MANAGEMENT_SYSTEM_IDL_

#include <GenericIRPManagementConstDefs.idl>

// This statement must appear after all include statements
#pragma prefix "3gppsa5.org"

module GenericIRPManagementSystem
{
    exception GetInterfaceIRPNotificationProfile { string reason; };
    exception GetInterfaceIRPOperationProfile { string reason; };
    exception GetIRPVersions { string reason; };

    /*
    Exception thrown when an unsupported optional parameter
    is passed with information.
    The parameter shall be the actual unsupported parameter name.
    */
    exception ParameterNotSupported {
        GenericIRPManagementConstDefs::ParameterName parameter; };

    /*
    Exception thrown when an invalid parameter value is passed.
    The parameter shall be the actual parameter name.
    */
    exception InvalidParameter {
        GenericIRPManagementConstDefs::ParameterName parameter; };

    /*
    Exception thrown when a valid but unsupported parameter value is passed.
    The parameter shall be the actual parameter name.
    */
    exception ValueNotSupported {
        GenericIRPManagementConstDefs::ParameterName parameter; };

    /*
    Exception thrown when an unsupported optional method is called.
    */
    exception OperationNotSupported {};

    interface GenericIRPManagement
    {
        /*
        Return the list of all supported Interface IRP versions
        Each IRPVersion is defined by the rule in the definition
        "IRP document version number string" or "IRPVersion"
        (see subclause 3.1).
        */
        GenericIRPManagementConstDefs::VersionNumberSet get_irp_versions
        (
        )
        raises (GetIRPVersions);

        /*
        Return the list of all supported methods and their supported
        parameters for this Interface IRPVersion.
        */
        GenericIRPManagementConstDefs::MethodList
          get_interface_irp_operation_profile
        (
            in GenericIRPManagementConstDefs::VersionNumber this_irp_version
        )
        raises (GetInterfaceIRPOperationProfile,
                OperationNotSupported,
                InvalidParameter,
                ValueNotSupported);

        /*
        Return the list of all supported notifications and their supported
        parameters for this Interface IRPVersion.
```

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```
      */
      typedef GenericIRPManagementConstDefs::NotificationList NotificationList;

      NotificationList get_interface_irp_notification_profile
      (
         in GenericIRPManagementConstDefs::VersionNumber this_irp_version
      )
      raises (GetInterfaceIRPNotificationProfile,
              OperationNotSupported,
              InvalidParameter,
              ValueNotSupported);
   };

};

#endif // _GENERIC_IRP_MANAGEMENT_SYSTEM_IDL_
```

Annex B (informative):
Change history

Change history								
Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Cat	Old	New
Dec 2004	S_26	SP-040795	--	--	Submitted to SA#26 for Approval	--	1.0.0	6.0.0
Jun 2005	S_28	SP-050288	0001	--	Correction of IDL syntax errors in GenericIRPManagement{ConstDefs|System}.idl	F	6.0.0	6.1.0
Sep 2005	SA_29	SP-050461	0002	--	Align the CORBA SS IDL with TS 32.150 Style Guide	F	6.1.0	6.2.0
Sep 2006	SA_33	SP-060529	0003	--	Capture all CORBA common types in 32.313	F	6.2.0	6.3.0
Mar 2007	SA_35	SP-070035	0004	--	Correct the compiling errors in the CORBA IDL	F	6.3.0	6.4.0
Jun 2007	SA_36	--	--	--	Automatic upgrade to Rel-7 (no CR) at freeze of Rel-7. Deleted reference to CMIP SS, discontinued from R7 onwards.	--	6.4.0	7.0.0
Dec 2008	SA_42	--	--	--	Upgrade to Release 8	--	7.0.0	8.0.0
Dec 2009	-	-	-	-	Update to Rel-9 version (MCC)	-	8.0.0	9.0.0