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Kernel CM Information Service (IS)
(3GPP TS 32.662 version 15.1.0 Release 15)**



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Foreword

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

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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:

32.661 Configuration Management (CM); Kernel CM Requirements

32.662 Configuration Management (CM); Kernel CM Information Service (IS)

32.666: Configuration Management (CM); Kernel CM Integration Reference Point (IRP); Solution Set (SS) definitions

Configuration Management (CM), in general, provides the operator with the ability to assure correct and effective operation of the 3G network as it evolves. CM actions have the objective to control and monitor the actual configuration on the Network Elements (NEs) and network resources, and they may be initiated by the operator or by functions in the Operations Systems (OSs) or NEs.

CM actions may be requested as part of an implementation programme (e.g. additions and deletions), as part of an optimisation programme (e.g. modifications), and to maintain the overall Quality of Service (QoS). The CM actions are initiated either as single actions on single NEs of the 3G network, or as part of a complex procedure involving actions on many resources/objects in one or several NEs.

1 Scope

The present document defines Integration Reference Point (IRP) through which an 'IRP Agent' (typically an Element Manager or Network Element) can communicate Configuration Management related information to one or several 'IRP Managers' (typically Network Managers).

The function of this Kernel CM IRP Information Service is to define an interface that provides the essential CM services. While it is not expected that the Kernel CM IRP alone will provide adequate CM capability, The Kernel CM IRP is expected to provide the common supporting capability required for other IRPs such as the Basic CM IRP or the Bulk CM IRP, each of which require the Kernel CM IRP.

2 References

The following documents contain provisions, which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] 3GPP TS 32.101: "Telecommunication management; Principles and high level requirements".
- [2] 3GPP TS 32.102: "Telecommunication management; Architecture".
- [3] 3GPP TS 32.302: "Telecommunication management; Configuration Management (CM); Notification Integration Reference Point (IRP): Information Service (IS)".
- [4] 3GPP TS 32.312: "Telecommunication management; Generic Integration Reference Point (IRP) management; Information Service (IS)".
- [5] Void.
- [6] 3GPP TS 32.672: "Telecommunication management; Configuration Management (CM); State Management Integration Reference Point (IRP): Information Service (IS)".
- [7] ITU-T Recommendation X.710 (1997): "Information technology - Open Systems Interconnection - Common Management Information Service".
- [8] ITU-T Recommendation X.721 (1992): "Information technology - Open Systems Interconnection - Structure of Management Information: Definition of management information".
- [9] ITU-T Recommendation X.730 (1992): "Information technology - Open Systems Interconnection - Systems Management: Object Management Function".
- [10] ITU-T Recommendation X.733 (1992): "Information technology - Open Systems Interconnection - Systems Management: Alarm reporting function".
- [11] - [12] Void.
- [13] 3GPP TS 32.300: "Telecommunication management; Configuration Management (CM); Name convention for Managed Objects".
- [14] 3GPP TS 32.600: "Telecommunication management; Configuration Management (CM); Concept and high-level requirements".
- [15] ITU-T Recommendation X.720: "Information technology - Open Systems Interconnection - Structure of management information: Management information model".

- [16] Void.
- [17] Void.
- [18] Void.
- [19] 3GPP TS 32.150: "Telecommunication management; Integration Reference Point (IRP) Concept and definitions".
- [20] 3GPP TS 32.311: "Telecommunication management; Generic Integration Reference Point (IRP) management: Requirements.
- [21] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [22] 3GPP TS 28.622: "Telecommunication management; Generic Network Resource Model (NRM) 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 3GPP TR 21.905 [21], 3GPP TS 32.101 [1], 3GPP TS 32.102 [2] and 3GPP TS 32.600 [14] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in 3GPP TR 21.905 [21], 3GPP TS 32.101 [1], 3GPP TS 32.102 [2] and 3GPP 32.600 [14].

association: In general it is used to model relationships between Managed Objects.

NOTE 1: Associations can be implemented in several ways, such as:

- 1) name bindings,
- 2) reference attributes, and
- 3) association objects.

NOTE 2: This IRP stipulates that containment associations shall be expressed through name bindings, but it does not stipulate the implementation for other types of associations as a general rule. These are specified as separate entities in the object models (UML diagrams). Currently however, all (non-containment) associations are modelled by means of reference attributes of the participating MOs.

Managed Object (MO): software object that encapsulates the manageable characteristics and behaviour of a particular network resource.

NOTE 3: The MO is instance of a MO class defined in a MIM/NRM. An MO class has attributes that provide information used to characterize the objects that belong to the class. Furthermore, an MO class can have operations that represent the behaviour relevant for that class. An MO class may support notifications that provide information about an event occurrence within a network resource.

Management Information Base (MIB): A MIB is an instance of an NRM and has some values on the defined attributes and associations specific for that instance.

NOTE 4: an MIB consists of:

- 1) a Name space (describing the MO containment hierarchy in the MIB through Distinguished Names),
- 2) a number of Managed Objects with their attributes, and
- 3) a number of Associations between these MOs. Also note that TMN (ITU-T Recommendation X.710 [7]) defines a concept of a Management Information Tree (also known as a Naming Tree) that corresponds to the name space (containment hierarchy) portion of this MIB definition. Figure 3.1 depicts the relationships

between a Name space and a number of participating MOs (the shown association is of a non-containment type).

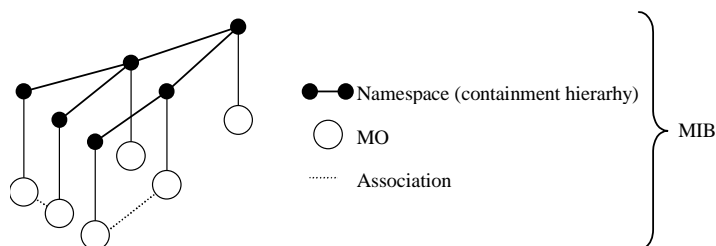


Figure 3.1: Relationships between a Name space and a number of participating MOs

Name space: A name space is a collection of names.

NOTE 5: The IRP name convention (see TS 32.300 [13]) restricts the name space to a hierarchical containment structure, including its simplest form - the one-level, flat name space.

All Managed Objects in a MIB are included in the corresponding name space and the MIB/name space shall only support a strict hierarchical containment structure (with one root object). A Managed Object that contains another is said to be the superior (parent); the contained Managed Object is referred to as the subordinate (child). The parent of all MOs in a single name space is called a Local Root. The ultimate parent of all MOs of all managed systems is called the Global Root.

Network resource: See definition in TS 28.622 [22].

Network Resource Model (NRM): See definition in TS 28.622 [22].

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [21] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [21].

DN	Distinguished Name (see TS 32.300 [13])
MO	Managed Object
MOC	Managed Object Class
MOI	Managed Object Instance
PM	Performance Management
RDN	Relative Distinguished Name (see TS 32.300 [13])
SS	Solution Set
VSE	Vendor Specific Extensions

4 System overview

4.1 System Context

The general definition of the System Context for the present IRP is found in 3GPP TS 32.150 [19] subclause 4.7.

In addition, the set of related IRP(s) relevant to the present IRP is shown in the two diagrams below.

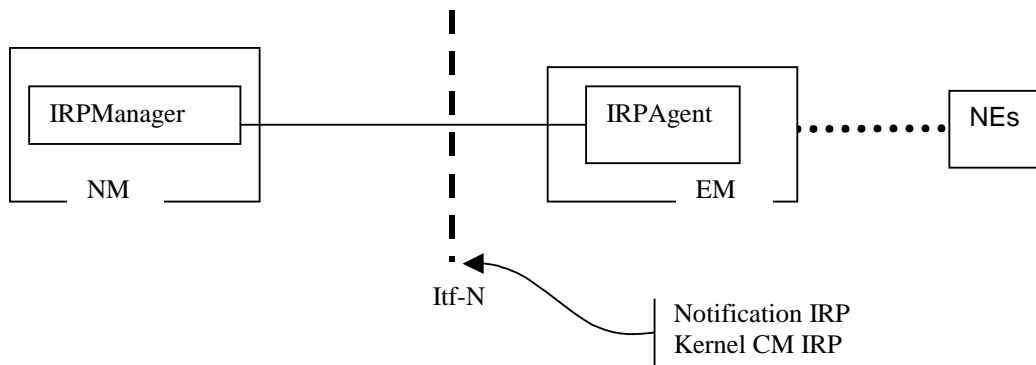


Figure 4.1: System Context A

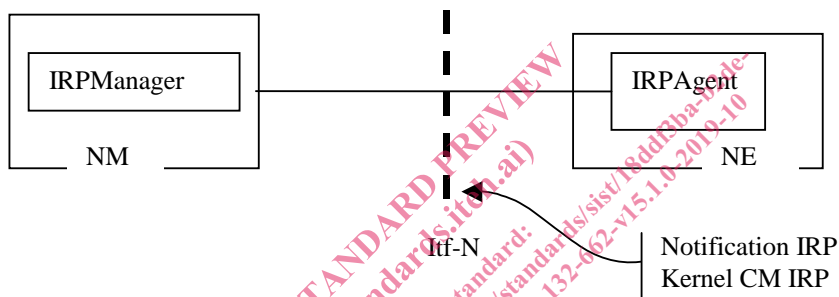


Figure 4.2: System Context B

4.2 Compliance rules

For general definitions of compliance rules related to qualifiers (Mandatory/Optional/Conditional) for *operations, notifications and parameters* (of operations and notifications) please refer to TS 32.150 [19].

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

Given that

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

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

5 Modelling approach

See 3GPP TS 32.150 [19].