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*Technical Specification*

**Digital cellular telecommunications system (Phase 2+);  
Universal Mobile Telecommunications System (UMTS);  
Telecommunication management;  
Configuration Management (CM);  
State Management Integration Reference Point (IRP):  
Information Service (IS)  
(3GPP TS 32.672 version 6.0.0 Release 6)**

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## Foreword

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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.

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## Introduction

The present document is part of the 32.67x-series covering the 3<sup>rd</sup> Generation Partnership Project; Technical Specification Group Services and System Aspects; Telecommunication management; Configuration Management (CM), as identified below:

- 32.671: "State Management Integration Reference Point (IRP): Requirements";
- 32.672: "State Management Integration Reference Point (IRP): Information Service (IS)";**
- 32.673: "State Management Integration Reference Point (IRP): Common Object Request Broker Architecture (CORBA) Solution Set (SS)";
- 32.674: "State Management Integration Reference Point (IRP): Common Management Information Protocol (CMIP) Solution Set (SS)".

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 (NRs), 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 a deployment program (e.g. additions and deletions), as part of an optimisation program (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.

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# 1 Scope

The present document defines the Information Service (IS) part of the State Management IRP. It specifies the semantics of the network resource state and status information visible across the Itf-N. It also specifies the interaction required for the management of the state and status information.

The state and status attributes specified in this document shall be used, where applicable, as attributes in Information Object Class (IOC) definitions of other 3GPP IRPs. When used by the IOC definition, the semantics of the state and status attributes can be qualified and enhanced if deemed necessary.

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# 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 32.300: "Telecommunication management; Configuration Management (CM); Name convention for Managed Objects".
- [4] 3GPP TS 32.302: "Telecommunication management; Configuration Management (CM); Notification Integration Reference Point (IRP): Information Service (IS)".
- [5] 3GPP TS 32.312: "Telecommunication management; Generic Integration Reference Point (IRP) management; Information Service (IS)".
- [6] 3GPP TS 32.600: "Telecommunication management; Configuration Management (CM); Concept and high-level requirements".
- [7] ITU-T Recommendation X.731: "Information technology - Open Systems Interconnection - Systems Management: State management function".
- [8] ITU-T Recommendation X.733: "Information technology - Open Systems Interconnection - Systems Management: Alarm reporting function".

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# 3 Definitions and abbreviations

## 3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TS 32.101 [1], 3GPP TS 32.102 [2] and 3GPP TS 32.600 [6] apply.

## 3.2 Abbreviations

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

|     |  |
|-----|--|
| CM  | Configuration Management                     |
| EM  | Element Manager                              |
| IOC | Information Object Class                     |
| IRP | Integration Reference Point                  |
| IS  | Information Service (see 3GPP TS 32.101 [1]) |
| M   | Mandatory                                    |
| NE  | Network Element                              |
| NM  | Network Manager                              |
| NR  | Network Resource                             |
| O   | Optional                                     |
| OMG | Object Management Group                      |
| OS  | Operations System                            |
| QoS | Quality of Service                           |
| UML | Unified Modelling Language (OMG)             |

# 4 System overview

## 4.1 System context for Notification

Figure 1 and figure 2 identify System contexts of State Management IRP in terms of implementations called IRPAgent and IRPManager. For a definition of IRPManager and IRPAgent, see 3GPP TS 32.102 [2].

The IRPAgent implements and supports the State Management IRP attributes. The IRPAgent can be an Element Manager (EM) or a mediator that interfaces one or more NEs (see figure 1), or it can be a Network Element (NE) (see figure 2). In the former case, the interfaces (represented by a thick dotted line) between the EM and the NEs are not subject of this IS.

An IRPManager using this IRP shall choose one of the two System Contexts defined here, for each NE. For instance, if an EM is responsible for managing a number of NEs, the NM shall access this IRP through the EM and not directly to those NEs. For another IRP though, the System Context may be different.

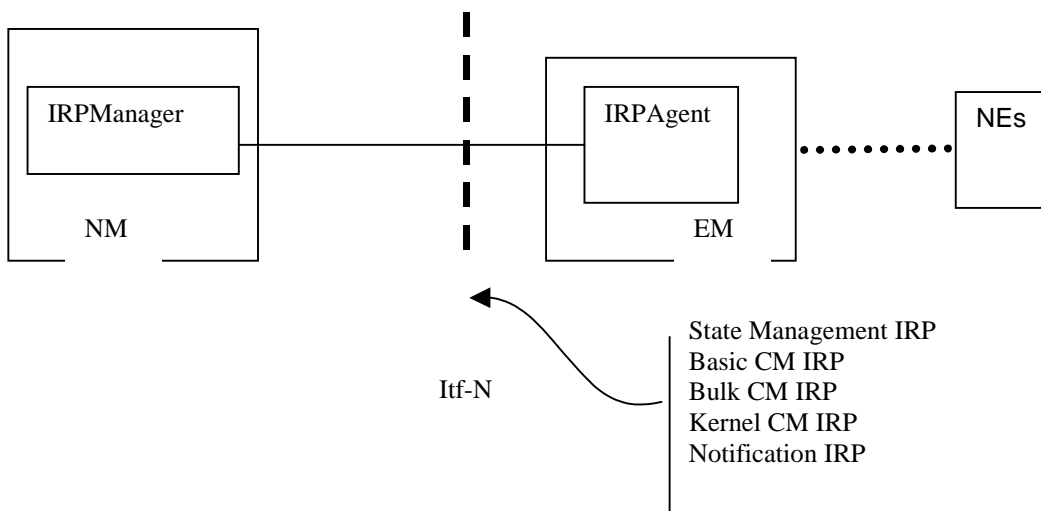


Figure 1: System Context A

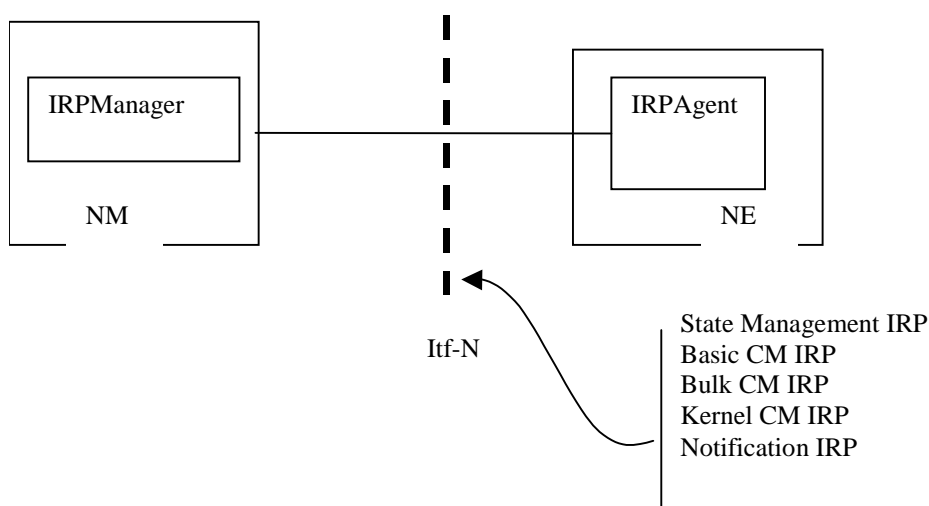


Figure 2: System Context B



## 5 Information Object Classes (IOCs)

### 5.1 Information entities imported and local labels

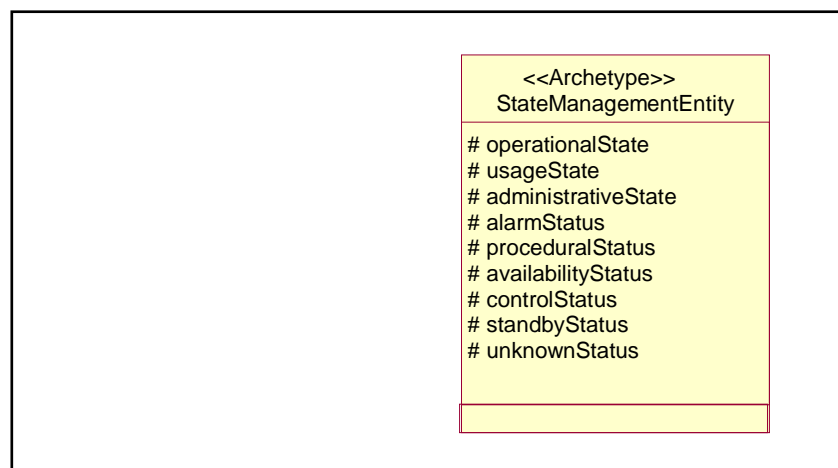
| Label reference | Local label |
|-----------------|-------------|
|                 |             |
|                 |             |

There are no information entities imported.

### 5.2 Class diagram

#### 5.2.1 Attributes and relationships

This subclause depicts the set of information object classes (IOCs) that encapsulate information within the Generic State Management IRP. The intent is to identify the information required for the State Management IRP implementation of its operations and notification emission. This subclause provides the overview of all information object classes in UML. Subsequent subclauses provide more detailed specification of various aspects of these information object classes.



#### 5.2.2 Inheritance

There are no inheritance relationships.

### 5.3 Information object classes definition

#### 5.3.1 StateManagementEntity

##### 5.3.1.1 Definition

`StateManagementEntity` is a Archetype, that may represent any IOC defined in the Network Resource Models, e.g. Generic Network Resource Model, Core Network Resource Model, UTRAN Network Resource Model or GERAN Network Resource Model.

The attributes defined for this Archetype can be imported and used in any IOC of the Network Resource Models, where such attributes are needed. These attributes shall be used in the same way as defined in the ITU-T Recommendation X.731 [7] and ITU-T Recommendation X.733 [8], unless otherwise stated. That document gives also examples of state diagrams, defining possible state transitions when one or more of the state attributes defined here are used in a class.

### 5.3.1.2 Attributes

The following attributes are defined for this information object class.

| Attribute name      | Support Qualifier |
|---------------------|-------------------|
| operationalState    | N/A               |
| usageState          | N/A               |
| administrativeState | N/A               |
| alarmStatus         | N/A               |
| proceduralStatus    | N/A               |
| availabilityStatus  | N/A               |
| controlStatus       | N/A               |
| standbyStatus       | N/A               |
| unknownStatus       | N/A               |

## 5.4 Information attributes definition

### 5.4.1 Definition and legal values

The following table gives the definition and legal values for each attribute.

| Attribute Name      | Definition   | Legal Values  |
|---------------------|--|---|
| operationalState    | It indicates the operational state of the object instance. "It describes whether or not the resource is physically installed and working." [7] This attribute is READ-ONLY.  | "Enabled", "Disabled"<br>The meaning of these values is as defined in ITU-T Recommendation X.731 [7].   |
| usageState          | It indicates the usage state of the object instance. "It describes whether or not the resource is actively in use at a specific instant, and if so, whether or not it has spare capacity for additional users at that instant." [7] This attribute is READ-ONLY. | "Idle", "Active", "Busy"<br>The meaning of these values is as defined in ITU-T Recommendation X.731 [7].  |
| administrativeState | It indicates the administrative state of the object instance. "It describes the permission to use or prohibition against using the resource, imposed through the management services." [7]   | "Locked", "Shutting down", "Unlocked"<br>The meaning of these values is as defined in ITU-T Recommendation X.731 [7].   |
| alarmStatus         | It indicates the alarm status of the object instance. This is mapped to the perceived severity of the most severe active alarm associated to the object instance.  | "Cleared", "Indeterminate", "Warning", "Minor", "Major", "Critical", The meaning of these values is as defined for the attribute perceived severity in ITU-T Recommendation X.733 [8].  |
| proceduralStatus    | It indicates the procedural status of the object instance.   | A set consisting of zero or more of the following values: "Initialisation required", "Not initialised", "Initialising", "Reporting", "Terminating". The meaning of these values is as defined in ITU-T Recommendation X.731 [7].                          |
| availabilityStatus  | It indicates the availability status of the object instance.   | A set consisting of zero or more of the following values: "In test", "Failed", "Power off", "Off line", "Off duty", "Dependency", "Degraded", "Not installed", "Log full"<br>The meaning of these values is as defined in ITU-T Recommendation X.731 [7]. |
| controlStatus       | It indicates the control status of the object instance.  | A set consisting of zero or more of the following values: "Subject to test", "Part of services locked", "Reserved for test", "Suspended".<br>The meaning of these values is as defined in ITU-T Recommendation X.731 [7].                                 |
| standbyStatus       | It indicates the standby status of the object instance.  | "Hot standby", "Cold standby", "Providing service", .<br>The meaning of these values is as defined in ITU-T   |

| Attribute Name | Definition   | Legal Values   |
|----------------|--|--|
| UnknownStatus  | It indicates whether the state of the resource represented by the managed object is unknown. | Recommendation X.731 [7].<br>"True" (state is unknown, the values of the state attributes may not reflect the actual state of the resource);<br>"False" (state is known, the values of the state attributes reflect the actual state of the resource). |

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## Annex A (informative): Change history

| Change history |       |           |    |     |   |       |       |
|----------------|-------|-----------|----|-----|---|-------|-------|
| Date           | TSG # | TSG Doc.  | CR | Rev | Subject/Comment                         | Old   | New   |
| Jun 2002       | S_16  | SP-020329 | -- | --  | Submitted to TSG SA #16 for Information | 1.0.0 |       |
| Sep 2002       | S_17  | SP-020469 | -- | --  | Submitted to TSG SA #17 for Approval    | 2.0.0 | 5.0.0 |
| Mar 2004       | S_23  | SP-040105 | -- | --  | Automatic upgrade to Rel-6 (no CR)      | 5.0.0 | 6.0.0 |
|                |       |           |    |     |   |       |       |
|                |       |           |    |     |   |       |       |

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## History

| <b>Document history</b> |            |             |
|-------------------------|------------|-------------|
| V6.0.0                  | March 2004 | Publication |
|                         |            |             |
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