

3GPP TS 32.674 V6.1.0 (2004-12)

Technical Specification

**3rd Generation Partnership Project;
Technical Specification Group Services and System Aspects;
Telecommunication management;
Configuration Management (CM);
State Management Integration Reference Point (IRP):
Common Management Information Protocol (CMIP)
Solution Set (SS)
(Release 6)**



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Foreword

This Technical Specification (TS) 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:

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

1 Scope

The present document specifies the Common Management Information Protocol (CMIP) Solution Set (SS) for the State Management IRP: Information Service defined in 3GPP TS 32.672 [6]. In detail:

- Clause 4 contains an introduction to some concepts that are the base for some specific aspects of the CMIP interfaces.
- Clause 5 contains the GDMO definitions for the State Management IRP over the CMIP interfaces.
- Clause 6 contains the ASN.1 definitions supporting the GDMO definitions provided in clause 5.

This Solution Set is related to 3GPP TS 32.672 V6.0.X [6].

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 32.304: "Telecommunication management; Configuration Management (CM); Notification Integration Reference Point (IRP): Common Management Information Protocol (CMIP) Solution Set (SS)".
- [4] 3GPP TS 32.600: "Telecommunication management; Configuration Management (CM); Concept and high-level requirements".
- [5] 3GPP TS 32.602: "Telecommunication management; Configuration Management (CM); Basic CM Integration Reference Point (IRP): Information Service (IS)".
- [6] 3GPP TS 32.672: "Telecommunication management; Configuration Management (CM); State Management Integration Reference Point (IRP): Information Service (IS)".
- [7] ITU-T Recommendation X.721 / ISO/IEC 10165-2: "Information technology - Open Systems Interconnection - Structure of management information: Definition of management information".
- [8] ITU-T Recommendation M.3100 (1995): "Generic network information model".

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 [4] apply.

3.2 Abbreviations

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

| | |
|-------|---|
| ASN.1 | Abstract Syntax Notation 1 |
| CM | Configuration Management |
| CMIP | Common Management Information Protocol |
| GDMO | Guidelines for the Definition of Managed Objects |
| IEC | International Electro-technical Commission |
| IOC | Information Object Class |
| IRP | Integration Reference Point |
| IS | Information Service (see 3GPP TS 32.101 [1]) |
| ISO | International Standards Organization |
| ITU-T | International Telecommunication Union, Telecommunication Sector |
| MOC | Managed Object Class |
| NE | Network Element |
| NR | Network Resource |
| OS | Operations System |
| QoS | Quality of Service |
| SS | Solution Set |

4 Basic aspects

4.1 General

The present document provides all the GDMO definitions necessary to implement the State Management IRP Information Service (3GPP TS 32.672 [6]) for the CMIP interface.

4.2 State and Status Attributes

This Solution Set introduces the following packages:

- operationalStateAttributePackage
- usageStateAttributePackage
- administrativeStateAttributePackage
- alarmStatusAttributePackage
- proceduralStatusAttributePackage
- availabilityStatusAttributePackage
- controlStatusAttributePackage
- standbyStatusAttributePackage
- unknownStatusAttributePackage

Each of these packages contains just one single State Management Attribute as defined in ITU-T Recommendation X.721 [7] or ITU-T Recommendation M.3100 [8]. The packages can be used in the GDMO definition of a MOC by explicitly including one or more of these packages, depending on the needs of that MOC.

4.3 Mapping

The semantics of the State Management IRP are defined in 3GPP TS 32.672 [6]. The definitions of the management services and management information defined there are independent of any implementation technology and protocol. This subclause maps these technology and protocol independent definitions onto the equivalencies of the CMIP Solution Set of the State Management IRP.

4.3.1 Mapping of IOCs

Table 4.1 shows the mapping of the information object classes defined in the IS of the State Management IRP to the equivalent MOCs of this CMIP Solution Set.

Table 4.1: Mapping of IOCs

| IS IOC | CMIP SS MOC |
|-----------------------|------------------------------------|
| StateManagementEntity | no mapping needed for an archetype |

4.3.2 Mapping of Attributes

Table 4.2 shows the mapping of the IOC attributes defined in the IS of the State Management IRP to their equivalents in this CMIP Solution Set.

Table 4.2: Mapping of Attributes

| IS Attribute | CMIP SS Attribute |
|---------------------|--|
| operationalState | operationalState (ITU-T Recommendation X.721 [7]) |
| usageState | usageState (ITU-T Recommendation X.721 [7]) |
| administrativeState | administrativeState (ITU-T Recommendation X.721 [7]) |
| alarmStatus | alarmStatus (ITU-T Recommendation M.3100 [8]) |
| proceduralStatus | proceduralStatus (ITU-T Recommendation X.721 [7]) |
| availabilityStatus | availabilityStatus (ITU-T Recommendation X.721 [7]) |
| controlStatus | controlStatus (ITU-T Recommendation X.721 [7]) |
| standbyStatus | standbyStatus (ITU-T Recommendation X.721 [7]) |
| unknownStatus | unknownStatus (ITU-T Recommendation X.721 [7]) |

5 GDMO Definitions

5.1 Packages

5.1.1 operationalStateAttributePackage

```
operationalStateAttributePackage PACKAGE
...BEHAVIOUR
    operationalStateAttributePackageBehaviour;
ATTRIBUTES
    "Rec. X.721 | ISO/IEC 10165-2 : 1992":operationalState GET;
REGISTERED AS {ts32-674Package 1};
```

```
operationalStateAttributePackageBehaviour BEHAVIOUR
DEFINED AS
    "This package has been defined to provide the operationalState attribute as described in
    ITU-T Rec. X.721 of a managed object.";
```

5.1.2 usageStateAttributePackage

```
usageStateAttributePackage PACKAGE
BEHAVIOUR
    usageStateAttributePackageBehaviour;
ATTRIBUTES
    "Rec. X.721 | ISO/IEC 10165-2 : 1992":usageState GET;
REGISTERED AS {ts32-674Package 2};
```

```
usageStateAttributePackageBehaviour BEHAVIOUR
DEFINED AS
    "This package has been defined to provide the usageState attribute as described in
    ITU-T Rec. X.721 of a managed object.";
```

5.1.3 administrativeStateAttributePackage

```
administrativeStateAttributePackage PACKAGE
BEHAVIOUR
    administrativeStateAttributePackageBehaviour;
ATTRIBUTES
    "Rec. X.721 | ISO/IEC 10165-2 : 1992":administrativeState GET-REPLACE;
REGISTERED AS {ts32-674Package 3};
```

```
administrativeStateAttributePackageBehaviour BEHAVIOUR
DEFINED AS
    "This package has been defined to provide the administrativeState attribute as described in
    ITU-T Rec. X.721 of a managed object.";
```

5.1.4 alarmStatusAttributePackage

```
alarmStatusAttributePackage PACKAGE
BEHAVIOUR
    alarmStatusAttributePackageBehaviour;
ATTRIBUTES
    "Rec. M.3100 | 1995":alarmStatus GET;
REGISTERED AS {ts32-674Package 4};
```

```
alarmStatusAttributePackageBehaviour BEHAVIOUR
DEFINED AS
    "This package has been defined to provide the alarmStatus attribute as described in
    ITU-T Rec. M.3100 of a managed object.";
```

5.1.5 proceduralStatusAttributePackage

```
proceduralStatusAttributePackage PACKAGE
BEHAVIOUR
    proceduralStatusAttributePackageBehaviour;
ATTRIBUTES
```

"Rec. X.721 | ISO/IEC 10165-2 : 1992": proceduralStatus GET;
REGISTERED AS {ts32-674Package 5};

proceduralStatusAttributePackageBehaviour **BEHAVIOUR**
DEFINED AS

"This package has been defined to provide the proceduralStatus attribute as described in ITU-T Rec. X.721 of a managed object.";

5.1.6 availabilityStatusAttributePackage

availabilityStatusAttributePackage **PACKAGE**
BEHAVIOUR

availabilityStatusAttributePackage Behaviour;

ATTRIBUTES

"Rec. X.721 | ISO/IEC 10165-2 : 1992": availabilityStatus GET;

REGISTERED AS {ts32-674Package 6};

availabilityStatusAttributePackageBehaviour **BEHAVIOUR**
DEFINED AS

"This package has been defined to provide the availabilityStatus attribute as described in ITU-T Rec. X.721 of a managed object.";

5.1.7 controlStatusAttributePackage

controlStatusAttributePackage **PACKAGE**
BEHAVIOUR

controlStatusAttributePackageBehaviour;

ATTRIBUTES

"Rec. X.721 | ISO/IEC 10165-2 : 1992": availabilityStatus GET;

REGISTERED AS {ts32-674Package 7};

controlStatusAttributePackageBehaviour **BEHAVIOUR**
DEFINED AS

"This package has been defined to provide the controlStatus attribute as described in ITU-T Rec. X.721 of a managed object.";

5.1.8 standbyStatusAttributePackage

standbyStatusAttributePackage **PACKAGE**
BEHAVIOUR

standbyStatusAttributePackageBehaviour;

ATTRIBUTES

"Rec. X.721 | ISO/IEC 10165-2 : 1992": standbyStatus GET;

REGISTERED AS {ts32-674Package 8};

standbyStatusAttributePackageBehaviour **BEHAVIOUR**
DEFINED AS

"This package has been defined to provide the standbyStatus attribute as described in ITU-T Rec. X.721 of a managed object.";

5.1.9 unknownStatusAttributePackage

unknownStatusAttributePackage **PACKAGE**
BEHAVIOUR

unknownStatusAttributePackageBehaviour;

ATTRIBUTES

"Rec. X.721 | ISO/IEC 10165-2 : 1992": unknownStatus GET;

REGISTERED AS {ts32-674Package 9};

unknownStatusAttributePackageBehaviour **BEHAVIOUR**
DEFINED AS

"This package has been defined to provide the unknownStatus attribute as described in ITU-T Rec. X.721 of a managed object.";

6 ASN.1 Definitions

```
TS32-674TypeModule {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0) umts-Operation-
Maintenance(3) ts-32-674(674) informationModel(0) asn1Module(2) version1(1)}
```

```
DEFINITIONS IMPLICIT TAGS ::=
BEGIN
```

```
--EXPORTS everything
--IMPORTS nothing
```

```
-- 3GPP TS 32.674 related Object Identifiers
```

```
baseNodeUMTS          OBJECT IDENTIFIER ::= {itu-t(0) identified-organization(4) etsi(0)
                               mobileDomain(0) umts-Operation-Maintenance(3) }

ts32-674Prefix        OBJECT IDENTIFIER ::= {baseNodeUMTS ts-32-674(674) }
ts32-674InfoModel     OBJECT IDENTIFIER ::= {ts32-674Prefix informationModel(0) }

ts32-674ObjectClass   OBJECT IDENTIFIER ::= {ts32-674InfoModel managedObjectClass(3) }
ts32-674Package       OBJECT IDENTIFIER ::= {ts32-674InfoModel package(4) }
ts32-674Parameter     OBJECT IDENTIFIER ::= {ts32-674InfoModel parameter(5) }
ts32-674Attribute     OBJECT IDENTIFIER ::= {ts32-674InfoModel attribute(7) }
ts32-674Action        OBJECT IDENTIFIER ::= {ts32-674InfoModel action(9) }
ts32-674Notification  OBJECT IDENTIFIER ::= {ts32-674InfoModel notification(10) }
```

```
END -- of module TS32-674TypeModule
```

Annex A (informative): Change history

| Change history | | | | | | | |
|----------------|-------|-----------|-----|-----|---|-------|-------|
| Date | TSG # | TSG Doc. | CR | Rev | Subject/Comment | Old | New |
| Jul 2002 | -- | -- | -- | -- | SA5 has sent to SA email list for Information | 1.0.0 | |
| Sep 2002 | S_17 | SP-020471 | -- | -- | Submitted to TSG SA #17 for Approval | 2.0.0 | 5.0.0 |
| Sep 2003 | S_21 | SP-030421 | 001 | -- | Addition of the missing OID for ts32-674Package | 5.0.0 | 5.1.0 |
| Mar 2004 | S_23 | SP-040105 | -- | -- | Automatic upgrade to Rel-6 (no CR) | 5.1.0 | 6.0.0 |
| Dec 2004 | S_26 | SP-040813 | 003 | -- | Correct GDMO code | 6.0.0 | 6.1.0 |
| | | | | | | | |
| | | | | | | | |