Technical Specification Group Services and System Aspects   **TSGS#17(02)0467**
Meeting #17, Biarritz, France, 9-12 September 2002

Source:	**SA5 (Telecom Management)**
Title:	**Rel-5 TS 32.664-100 (Kernel Configuration Management IRP: CMIP Solution Set)**
Document for:	**Information**
Agenda Item:	**7.5.3**

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Presentation of Technical Specification to TSG SA

Presentation to:	**TSG SA Meeting #17**
Document for presentation:	**TS 32.664, Version 0.0.1**
	Kernel Configuration Management IRP: CMIP Solution Set
Presented for:	**Information**

Abstract of document:

This Specification defines the CMIP Solution Set of the Kernel Configuration Management IRP.

Work done against the WID contained in SP-010461 (Work Item ID: OAM-NIM).

Purpose of These Specifications:

This CMIP Solution Set Specification is intended for Release 5 and is part of the Kernel Configuration Management IRP, which consists of the four specifications, a Requirements Specification (32.661), an Information Service Specification (32.662) and two Stage 3 Specifications; a CORBA Solution Set Specification (32.663) and CMIP Solution Set Specification (32.664).

The purpose of this set of specifications is to provide an IRP that contains the configuration management functionality that is basic and minimal. It is the functionality that is common to and required by both Basic CM and Bulk CM. While neither the Basic CM IRP nor Bulk CM IRP requires the other, they each require the Kernel CM IRP.

Status of these Specifications:

The Kernel CM IRP CMIP Solution Set Specification (32.664v100) is now submitted to SA#17 for Information-only. TS 32.664 is quite stable, but still needs some time for review.
SA5 intends to send the CMIP SS (32.663) to SA#18 (12/2002) for Rel-5 approval.

Outstanding Issues:

None.

Contentious Issues:

None.

3GPP

3GPP TS 32.664 V1.0.0 (2002-09)

Technical Specification

**3rd Generation Partnership Project;
Technical Specification Group Services and System Aspects;
Telecommunication management;
Configuration Management (CM);
Kernel CM: CMIP solution set;
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Keywords

Configuration Management

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Contents

Foreword

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

The present document is 32.664 of the 32.66x-series covering the 3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Configuration Management (CM); Kernel CM, as identified below:

32.661: "Requirements";

32.662: "Information service";

32.663: "CORBA Solution set";

32.664: "CMIP Solution set".

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

A third generation telecommunication network is composed of a multitude of different network elements (NE). For a successful operation of the network the operator must be provided with mechnisms allowing him to manage the network. These management activities can be grouped into several areas: configuration management, fault management, performance management, and accounting management and security management.

The present document is part of a set of technical specifications defining the telecommunication management (TM) of 3G systems. The TM principles are described in 3GPP TS 32.101 [1]. The TM architecture is described in 3GPP TS 32.102 [2]. The other specifications define the interface (ITf-N) between the managing system (manager), which is in general the network manager (NM) and the managed system (agent), which is either an element manager (EM) or the managed NE itself. The Itf-N is composed of a number of integration reference points (IRPs) defining the information in the agent that is visible for the manager, the operations that the manager may perform on this information and the notifications that are sent from the agent to the manager. One of these IRPs is the Kernel Configuration Management IRP.

Each IRP is specified by four TS, the requirements part, the information service (IS) part, the CORBA solution set (SS) and the CMIP solution set.

1 Scope

The present document specifies the Common Management Information Protocol (CMIP) Solution Set (SS) for the Kernel Configuration Management IRP: Information Service defined in 3GPP TS 32.662 [7]. 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 Kernel Configuration Management IRPover the CMIP interfaces

- Clause 6 contains the ASN.1 definitions supporting the GDMO definitions provided in clause 5.

This Solution Set specification is related to 3GPP TS 32.662 (V5.0.0).

2 References

The following documents contain provisions that, 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: "3G Telecom Management principles and high level requirements".

[2] 3GPP TS 32.102: "3G Telecom Management Architecture".

[3] 3GPP TS 32.304: " Telecommunication management; Configuration Management (CM); Notification Integration Reference Point: CMIP Solution Set Version 1:1".

[4] 3GPP TS 32.312: "Telecommunication management; Generic Integration Reference Point (IRP) management; Information service".

[5] 3GPP TS 32.600: "Telecommunication management; Configuration Management (CM); Concept and main requirements".

[6] 3GPP TS 32.602: " Telecommunication management; Configuration Management (CM); Basic Configuration Management Integration Reference Point (IRP) information model".

[7] 3GPP TS 32.662: "Telecommunication management; Configuration Management (CM); Kernel CM: Information service".

[8] ITU-T Recommendation X.710: "Information technology - Open Systems Interconnection - Common Management Information Service".

[9] ITU-T Recommendation X.721: "Information technology - Open Systems Interconnection - Structure of management information: Definition of management information".

[10] 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 [5] apply.

3.2 Abbreviations

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

ASN.1	Abstract Syntax Notation 1
CMIP	Common Management Information Protocol
GDMO	Guidelines for the Definition of Managed Objects
IOC	Information Object Class
IRP	Integration Reference Point
IS	Information Service
ISO	International Standards Organization
ITU-T	International Telecommunication Union, Telecommunication Sector
MOC	Managed Object Class
NE	Network Element
OS	Operations System
SS	Solution Set

4 Basic aspects

4.1 Mapping

The semantics of the Kernel Configuration Management IRP are defined in 3GPP TS 32.662 [7]. The definitions of the management information defined there are independent of any implementation technology and protocol. This clause maps these protocol independent definitions onto their equivalents of the CMIP Solution Set of the Kernel Configuration Management IRP.

4.1.1 Mapping of Information Object Classes

Table 1 maps the IOCs defined in 3GPP TS 32.362 [7] onto the corresponding managed object classes (MOCs) defined in this CMIP Solution Set. The MOCs are qualified either as Mandatory (M) or Optional (O).

Table 1: Mapping of IOC

IS IOC Name	MOC or Attributes of the CMIP solution set	Qualifier
KernelCmIRP	kernelCmIRP	M

4.1.2 Mapping of Operations

Table 2 and table 3 map the operations defined in 3GPP TS 32.362 [7] and 3GPP TS 32.312 [4] onto corresponding GDMO actions. The operations are qualified either as Mandatory (M) or Optional (O).

Table 2: Mapping of operations of the Kernel Configuration Management IRP: IS

Interface	Operation	GDMO Action or CMISE of CMIP SS	Qualifier
KernelCmOperations	getNRMIRPVersion	getNRMIRPVersion	M

Table 3: Mapping of operations inherited from the Generic IRP Management: IS

Interface	Operation	GDMO Action or CMISE of CMIP SS	Qualifier
GenericIRPVersionOperations	getIRPVersion	getKernelConfMgmtIRPVersion	M
GenericIRPProfileOperations	getOperationProfile	getKernelConfMgmtIRPOperationProfile	O
	getNotificationProfile	getKernelConfMgmtIRPNotificationProfile	O

4.1.2.1 Mapping of Operation Parameters

The tables in the following subclauses list the parameters of each operation defined in 3GPP TS 32.362 [7] and their equivalents in the CMIP Solution Set.

4.1.2.1.1 Parameter Mapping of the Operation *getNRMIRPVersion*

The IRPManager is able to retrieve NRM SS versions supported by an IRPAgent by using the GDMO action getNRMIRPVersion. This action shall be implemented by using the CMISE M-ACTION service [8].

The list of supported NRM SS versions are returned in parameter *'versionNumberList'* and *'vSEVersionNumberList'*. If the operation fails is indicated within the parameter *'status'*.

The *'versionNumberList'* contains all the supported NRM SS IRP versions, e.g. the IRP document version number string of the UTRAN or Generic Network Resource IRP Version.

The *'vSEVersionNumberList'* contains the vendor-specific extended capabilities and features (VSE).

If an IRPAgent does not support VSE, the *'vSEVersionNumberList'* parameter shall be empty.

If an IRPAgent does support VSE, the *'vSEVersionNumberList'* shall unambiguously contain identification of one or more documents published by the vendor, and the *'versionNumberList'* shall contain the IRPVersions indicating the 3GPP SS specification on which the VSE is based.

The convention to identify the vendor-specific document is not subject of this specification. It is recommended that (a) the name of the vendor and (b) the identification of the document and (c) its version number are part of this identification. Example: "TS 32.672 V5.0.x Siemens v.1", indicates the identification of a document published by Siemens that specifies a list of VSE that is based on the 3GPP 32.672 (V5.0.x).

The lists returned by *'versionNumberList'* and *'vSEVersionNumberList'* shall not contain duplicates.

Table 4: Parameter mapping of the operation *getNRMIRPVersion*

IS Parameter Name	IN/OUT	CMIP SS Equivalent	Qualifier
versionNumberList	OUT	versionNumberList	M
vSEVersionNumberList	OUT	vSEVersionNumberList	M
status	OUT	status	M

4.1.3 Mapping of Notifications

Table 5 maps the notifications defined in 3GPP TS 32.362 [7] onto corresponding GDMO notification defined in ITU-T Recommendation X.721 [9]. The operations are qualified either as Mandatory (M) or Optional (O).

Table 5: Mapping of notifications of the Kernel Configuration Management IRP: IS

Interface	Operation	GDMO Notification or CMISE of CMIP SS	Qualifier
KernelCmNotifications#1	notifyObjectCreation	objectCreation ITU-T Recommendation X.721 {smi2Notification 6}	O
KernelCmNotifications#2	notifyObjectDeletion	objectDeletion ITU-T Recommendation X.721 {smi2Notification 7}	O
KernelCmNotifications#3	notifyAttributeValueChange	AttributeValueChange ITU-T Recommendation X.721 {smi2Notification 1}	O

4.1.3.1 Mapping of Notification Parameters

The tables 6, 7 and 8 in the following subclauses list the parameters of each notification defined in the Kernel Configuration Management IRP: Information Service [7] and their equivalents in the CMIP Solution Set.

4.1.3.1.1 Parameter mapping of the notification 'notifyObjectCreation'

Table 6: Parameter mapping of the notification 'notifyObjectCreation'

IS Parameter Name	CMIP SS Equivalent	Qualifier
objectClass	managedObjectClass (ITU-T Recommendation X.721)	M
objectInstance	managedObjectInstance (ITU-T Recommendation X.721)	M
notificationId	notificationId (ITU-T Recommendation X.721)	M
eventTime	eventTime (ITU-T Recommendation X.721)	M
systemDN	not used in the CMIP SS	-
notificationType	notificationType (ITU-T Recommendation X.721)	M
correlatedNotifications	correlatedNotifications (ITU-T Recommendation X.721)	O
sourceIndicator	sourceIndicator (ITU-T Recommendation X.721)	O
attributeList	attributeList (ITU-T Recommendation X.721)	O
additionalText	additionalText (ITU-T Recommendation X.721)	O
no equivalence	additionalInformation (ITU-T Recommendation X.721)	O

4.1.3.1.2 Parameters mapping of the notification 'notifyObjectDeletion'

Table 7: Parameter mapping of the notification 'notifyObjectDeletion'

IS Parameter Name	CMIP SS Equivalent	Qualifier
objectClass	managedObjectClass (ITU-T Recommendation X.721)	M
objectInstance	managedObjectInstance (ITU-T Recommendation X.721)	M
notificationId	notificationId (ITU-T Recommendation X.721)	M
eventTime	eventTime (ITU-T Recommendation X.721)	M
systemDN	not used in the CMIP SS	-
notificationType	notificationType (ITU-T Recommendation X.721)	M
correlatedNotifications	correlatedNotifications (ITU-T Recommendation X.721)	O
sourceIndicator	sourceIndicator (ITU-T Recommendation X.721)	O
attributeList	attributeList (ITU-T Recommendation X.721)	O
no equivalence	additionalText (ITU-T Recommendation X.721)	O
no equivalence	additionalInformation (ITU-T Recommendation X.721)	O

4.1.3.1.3 Parameter mapping of the notification 'notifyAttributeValueChange'

Table 8: Parameter mapping of the notification 'notifyAttributeValueChange'

IS Parameter Name	CMIP SS Equivalent	Qualifier
objectClass	managedObjectClass (ITU-T Recommendation X.721)	M
objectInstance	managedObjectInstance (ITU-T Recommendation X.721)	M
notificationId	notificationId (ITU-T Recommendation X.721)	M
eventTime	eventTime (ITU-T Recommendation X.721)	M
systemDN	not used in the CMIP SS	-
notificationType	notificationType (ITU-T Recommendation X.721)	M
correlatedNotifications	correlatedNotifications (ITU-T Recommendation X.721)	O
sourceIndicator	sourceIndicator (ITU-T Recommendation X.721)	O
attributeValueChangeDefinition	attributeValueChangeDefinition (ITU-T Recommendation X.721)	M
no equivalence	attributeIdentifierList (ITU-T Recommendation X.721)	O
no equivalence	additionalText (ITU-T Recommendation X.721)	O
no equivalence	additionalInformation (ITU-T Recommendation X.721)	O

5 GDMO Definitions

5.1 Managed Object Classes

5.1.1 kernelCmIRP

```
kernelCmIRP MANAGED OBJECT CLASS
    DERIVED FROM
        "Rec. X.721 | ISO/IEC 10165-2 : 1992":top;
    CHARACTERIZED BY
        kernelCmIRPIdPackage,
        kernelCmIRPVersionPackage,
        kernelCmNRMIRPVersionPackage;
    CONDITIONAL PACKAGES
        kernelCmIRPProfilePackage PRESENT IF "an instance supports it";
REGISTERED AS { ts32-664ObjectClass 1};
```

5.2 Packages

5.2.1 kernelCmIRPIdPackage

```
kernelCmIRPIdPackage PACKAGE
    BEHAVIOUR
        kernelCmIRPIdPackageBehaviour;
    ATTRIBUTES
        kernelCmIRPId;
    REGISTERED AS { ts32-664Package 1};

kernelCmIRPIdPackageBehaviour BEHAVIOUR
DEFINED AS
"An instance of the MOC kernelCmIRP is identified by the value of the attribute kernelCmIRPId.";
```

5.2.2 kernelCmIRPVersionPackage

```
kernelCmIRPVersionPackage PACKAGE
    BEHAVIOUR
        kernelCmIRPVersionPackageBehaviour;
    ATTRIBUTES
        supportedKernelCmIRPVersions      GET;
    ACTIONS
        getKernelConfMmgtIRPVersion;
REGISTERED AS { ts32-664Package 2};
```

```
kernelCmIRPVersionPackageBehaviour BEHAVIOUR
DEFINED AS
"This package has been defined to allow the IRPManager to get information about the Kernel
Configuration Management IRP versions supported by the IRPAgent.
The attribute supportedKernelCmIRPVersions indicates all versions of the Kernel Configuration
Management IRP currently supported by the IRPAgent.
The action getKernelConfMgmtIRPVersion is invoked by the IRPManager to get information about the
Kernel Configuration Management IRP versions supported by the IRPAgent.";
```

5.2.3 kernelCmNRMIRPVersionPackage

```
kernelCmNRMIRPVersionPackage PACKAGE
    BEHAVIOUR
        kernelCmNRMIRPVersionPackageBehaviour;
    ATTRIBUTES
        versionNumberList       GET,
vSEVersionNumberList    GET;
ACTIONS
        getNRMIRPVersion;
REGISTERED AS { ts32-664Package 3};
```

```
kernelCmNRMIRPVersionPackageBehaviour BEHAVIOUR
DEFINED AS
"This package has been defined to allow the IRPmanager to get detailed information about the NRM SS
versions supported by the IRPAgent.
The attribute versionNumberList contains a list of supported NRM SS IRP versions.
The attribute vSEVersionNumberList contains a list of vendor-specific extended capabilities and
features (VSE) that are based on 3GPP published specifications. If an IRPAgent supports VSE, the
vSEVersionNumberList shall contain identification of one or more documents published by the vendor
and additionally the versionNumberList shall contain the IRPVersions indicating the 3GPP
specifications on which the VSE is based. Otherwise, if an IRPAgent does not support VSE, the
vSEVersionNumberList shall contain no information. The lists versionNumberList and
vSEVersionNumberList shall not contain duplicates.
The action kernelCmNRMIRPVersion is invoked by the IRPManager to get detailed information about the
NRM SS versions supported by the IRPAgent.";
```

5.2.4 kernelCmIRPProfilePackage

```
kernelCmIRPProfilePackage PACKAGE
    BEHAVIOUR
        kernelCmIRPProfilePackageBehaviour;
    ACTIONS
        getKernelConfMgmtIRPOperationProfile,
        getKernelConfMgmtIRPNotificationProfile;
REGISTERED AS { ts32-664Package 4};
```

```
kernelCmIRPVersionPackageBehaviour BEHAVIOUR
DEFINED AS
"This package has been defined to allow the IRPManager to get detailed information about the profile
of the Kernel Configuration Management IRP.
The action getKernelConfMgmtIRPOperationProfile is invoked by the IRPManager to get detailed
information about the operations supported by the Kernel Configuration Management IRP.
The action getKernelConfMgmtIRPNotificationProfile is invoked by the IRPManager to get detailed
information about the notifications supported by the Kernel Configuration Management IRP.";
```

5.3 Actions

5.3.1 getKernelConfMgmtIRPVersion (M)

```
getKernelConfMgmtIRPVersion ACTION
    BEHAVIOUR
        getKernelConfMgmtIRPVersionBehaviour;
    MODE
        CONFIRMED;
    WITH REPLY SYNTAX
        TS32-664TypeModule.GetKernelConfMgmtIRPVersionReply;
REGISTERED AS { ts32-664Action 1};
```

```
getKernelConfMgmtIRPVersionBehaviour BEHAVIOUR
DEFINED AS
```

"The IRPManager invokes this action to get information about the Kernel Configuration Management IRP versions supported by the Agent. The 'Action information' field contains no data. The 'Action reply' is composed of the following data:

- *versionNumbersList*
- *status*

The parameter *versionNumbersList* defines a list of Kernel Configuration Management IRP versions supported by the Agent. A list containing no element, i.e. a NULL list, means that the concerned Agent doesn't support any version of the Kernel Configuration Management IRP. The parameter *status* contains the results of the IRPManager action. Possible values: noError (0), error (the value indicates the reason of the error).";

5.3.2   getKernelConfMgmtIRPNotificationProfile (O)

```
getKernelConfMgmtIRPNotificationProfile ACTION
    BEHAVIOUR
        getKernelConfMgmtIRPNotificationProfileBehaviour;
    MODE
        CONFIRMED;
    WITH INFORMATION SYNTAX
        TS32-664TypeModule.IRPVersionNumber;
    WITH REPLY SYNTAX
        TS32-664TypeModule.GetKernelConfMgmtNotificationProfileReply;
REGISTERED AS { ts32-664Action 2};
```

getKernelConfMgmtIRPNotificationProfileBehaviour **BEHAVIOUR**
DEFINED AS
"A IRPManager invokes this action to enquiry about the notification profile (supported notifications and supported parameters) for this specific Kernel Configuration Management IRP version.
The 'Action information' contains the following data:

- *irpVersionNumber*

This mandatory parameter identifies the Kernel Configuration Managemnt IRP version.
The 'Action reply' is composed of the following data:

- *notificationNameProfile*
- *notificationParameterProfile*
- *status*

The parameter *notificationNameProfile* contains a list of notification names, i.e. a NULL list means that the Kernel Configuration Management IRP doesn't support any notification. The parameter *notificationParameterProfile* contains a set of elements, each element corresponds to a notification name and is composed by a set of parameter names. The parameter *status* contains the results of this action. Possible values: noError (0), error (the value indicates the reason of the error).";

5.3.3   getKernelConfMgmtIRPOperationProfile (O)

```
getKernelConfMgmtIRPOperationProfile ACTION
    BEHAVIOUR
        getKernelConfMgmtIRPOperationProfileBehaviour;
    MODE
        CONFIRMED;
    WITH INFORMATION SYNTAX
        TS32-664TypeModule.IRPVersionNumber;
    WITH REPLY SYNTAX
        TS32-664TypeModule.GetKernelConfMgmtOperationProfileReply;
REGISTERED AS { ts32-664Action 3};
```

getKernelConfMgmtIRPOperationProfileBehaviour **BEHAVIOUR**
DEFINED AS
"A IRPManager invokes this action to enquiry about the operation profile (supported operations and supported parameters) for this specific Kernel Configuration Managemnt IRP version.
The 'Action information' contains the following data:

- *irpVersionNumber*

This mandatory parameter identifies the Kernel Configuration Management IRP version.
The 'Action reply' is composed of the following data:

- *operationNameProfile*
- *operationParameterProfile*
- *status*

The parameter *operationNameProfile* contains a list of operation names. The parameter *operationParameterProfile* contains a set of elements, each element corresponds to an operation name and is composed by a set of parameter names. The parameter *status* contains the results of this action. Possible values: noError (0), error (the value indicates the reason of the error).";

5.3.4   getNRMIRPVersion (O)

```
getNRMIRPVersion ACTION
```

```
    BEHAVIOUR
        getNRMIRPVersionBehaviour;
    MODE
        CONFIRMED;
    WITH REPLY SYNTAX
        TS32-664TypeModule.GetNRMIRPVersionReply;
REGISTERED AS { ts32-664Action 4};
```

```
getNRMIRPVersionBehaviour BEHAVIOUR
DEFINED AS
"The IRPManager invokes this action to get information about the NRM SS versions supported by the
IRPAgent. The 'Action information' field contains no data. The 'Action reply' is composed of the
following data:
```
- *versionNumbersList*
- *vSEVersionNumberList*
- *status*
```
The parameter versionNumbersList defines a list of NRM SS versions supported by an IRPAgent. If the
IRPAgent supports the vendor-specific extended capabilities and features (VSE), the parameter
vSEVersionNumberList contains idendification of one or more documents published by the vendor.
Otherwise if the IRPAgent does not support VSE, the parameter shall not contain any information. The
parameter status contains the results of the IRPManager action. Possible values: Operation succeded
(0), operation failed (1).";
```

5.4 Attributes

5.4.1 kernelCmIRPId

```
kernelCmIRPId ATTRIBUTE
    WITH ATTRIBUTE SYNTAX
        TS32-664TypeModule.GeneralObjectId;
    MATCHES FOR
        EQUALITY;
    BEHAVIOUR
        kernelCmIRPIdBehaviour;
REGISTERED AS { ts32-664Attribute 1};
```

```
kernelCmIRPIdBehaviour BEHAVIOUR
DEFINED AS
"This attribute names an instance of the MOC kernelCmIRP.";
```

5.4.2 supportedKernelCmIRPVersions

```
supportedKernelCmIRPVersions ATTRIBUTE
    WITH ATTRIBUTE SYNTAX
        TS32-664TypeModule.SupportedKernelCmIRPVersions;
    MATCHES FOR
        EQUALITY;
    BEHAVIOUR
        supportedKernelCmIRPVersionsBehaviour;
REGISTERED AS { ts32-664Attribute 2};
```

```
supportedKernelCmIRPVersionsBehaviour BEHAVIOUR
DEFINED AS
"This attribute provides the information concerning the Kernel Configuration Management IRP versions
currently supported by the Agent.";
```

5.4.3 versionNumberList

```
versionNumberList ATTRIBUTE
    WITH ATTRIBUTE SYNTAX
        TS32-664TypeModule.VersionNumberList;
    MATCHES FOR
        EQUALITY;
    BEHAVIOUR
        versionNumberListBehaviour;
REGISTERED AS { ts32-664Attribute 3};
```

```
versionNumberListBehaviour BEHAVIOUR
DEFINED AS
"This attribute provides the information concerning the NRM SS versions currently supported by an
IRPAgent.";
```

5.4.4   vSEVersionNumberList

```
vSEVersionNumberList ATTRIBUTE
    WITH ATTRIBUTE SYNTAX
        TS32-664TypeModule. VSEVersionNumberList;
    MATCHES FOR
        EQUALITY;
    BEHAVIOUR
        vSEVersionNumberListBehaviour;
REGISTERED AS { ts32-664Attribute 4};


vSEVersionNumberListBehaviour BEHAVIOUR
DEFINED AS
"This attribute provides the information regarding identification of one or more documents published
by the vendor and currently supported by an IRPAgent.";
```

5.5   Parameters

6   ASN.1 Definitions

```
TS32-664TypeModule {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0) umts-Operation-
Maintenance(3) ts32-664(664) informationModel(0) asn1Module(2) version1(1)}


DEFINITIONS IMPLICIT TAGS ::=
BEGIN
--EXPORTS everything
IMPORTS


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


ts32-664Prefix                OBJECT IDENTIFIER ::= {baseNodeUMTS ts32-664        (664)}
ts32-664InfoModel        OBJECT IDENTIFIER ::= {ts32-664Prefix informationModel    ( 0)}
ts32-664ObjectClass    OBJECT IDENTIFIER ::= {ts32-664InfoModel managedObjectClass ( 3)}
ts32-664Package        OBJECT IDENTIFIER ::= {ts32-664InfoModel package        ( 4)}
ts32-664Parameter        OBJECT IDENTIFIER ::= {ts32-664InfoModel parameter        ( 5)}
ts32-664Attribute        OBJECT IDENTIFIER ::= {ts32-664InfoModel attribute        ( 7)}
ts32-664Action        OBJECT IDENTIFIER ::= {ts32-664InfoModel action        ( 9)}
ts32-664Notification    OBJECT IDENTIFIER ::= {ts32-664InfoModel notification    ( 10)}


ErrorCauses ::= ENUMERATED
{
noError (0),                        -- operation / notification successfully performed
unspecifiedErrorReason (255)    -- operation failed, specific error unknown
}


GetKernelConfMgmtIRPVersionReply ::= SEQUENCE
{
versionNumberList                SupportedKernelKernelConfMgmtIRPVersions,
status                            ErrorCauses
}


GetKernelConfMgmtIRPNotificationProfileReply ::= SEQUENCE
{
notificationNameProfile        NotificationList,
notificationParameterProfile    ParameterListOfList,
status                            ErrorCauses
}


GetKernelConfMgmtIRPOperationProfileReply ::= SEQUENCE
{
operationNameProfile            OperationList,
operationParameterProfile        ParameterListOfList,
status                            ErrorCauses
}


GetNRMIRPVersionReply ::= SEQUENCE
{
versionNumberList                SupportedNRMSSVersions,
```

```
vSEVersionNumberList                    SupportedVSEVersions,
status                                  ErrorCauses
}
```

GeneralObjectId ::= INTEGER

SupportedKernelConfMgmtIRPVersions ::= SET OF IRPVersionNumber

SupportedNRMSSVersions ::= SET OF IRPVersionNumber

SupportedVSEVersions ::= SET OF IRPVersionNumber

IRPVersionNumber ::= GraphicString

NotificationList ::= SET OF NotificationName

NotificationName ::= GraphicString

OperationList ::= SET OF OperationName

OperationName ::= GraphicString

ParameterListOfList ::= SET OF ParameterList

ParameterList ::= SET OF ParameterName

ParameterName ::= GraphicString

END – of module TS32-664TypeModule

Annex A (informative):
Change history

<table>
<tr><td colspan="8" align="center">Change history</td></tr>
<tr><td>Date</td><td>TSG #</td><td>TSG Doc.</td><td>CR</td><td>Rev</td><td>Subject/Comment</td><td>Old</td><td>New</td></tr>
<tr><td>Sep 2002</td><td>S_17</td><td>SP-020467</td><td>--</td><td>--</td><td>Submitted to TSG SA #17 for Information</td><td>1.0.0</td><td></td></tr>
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