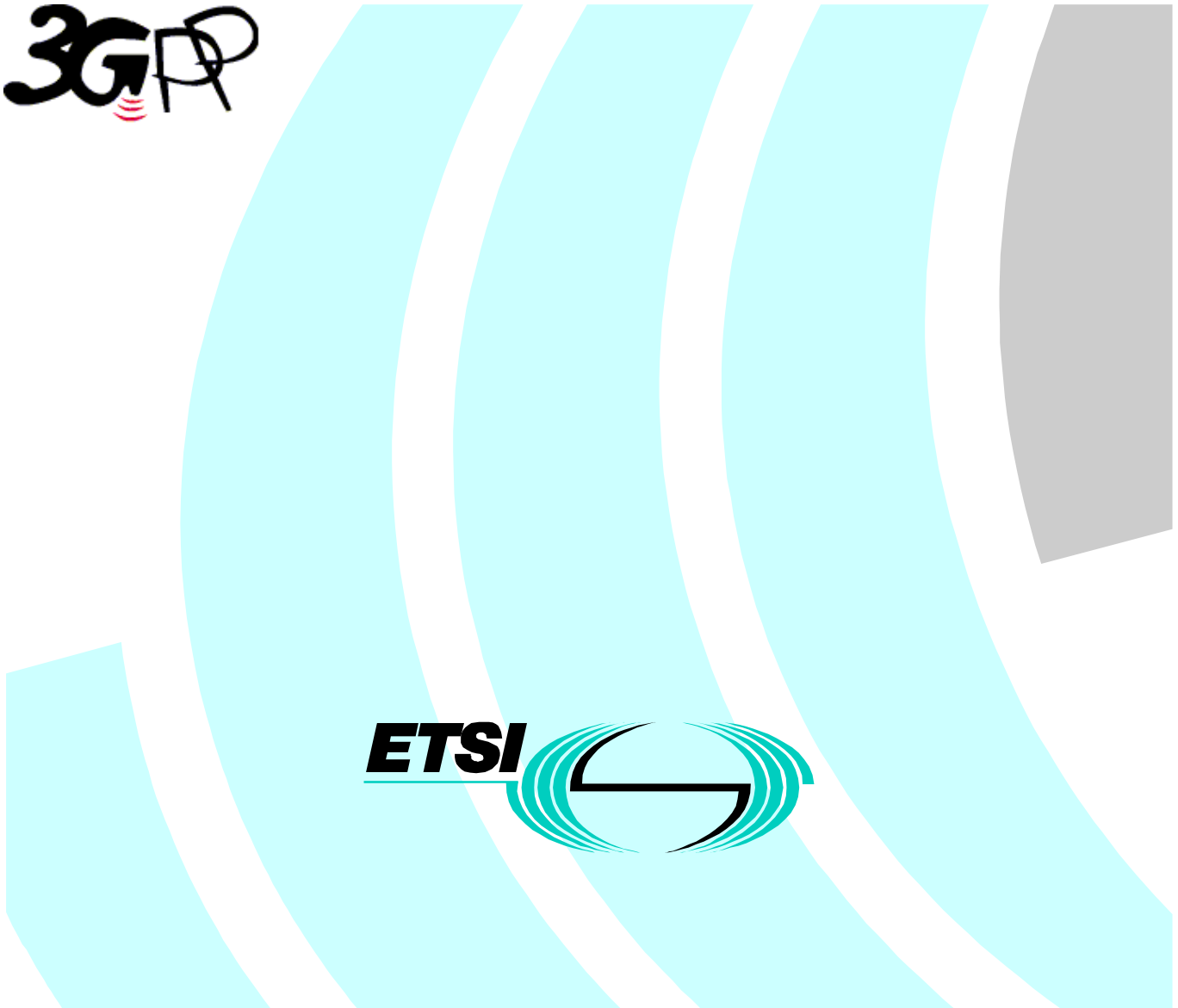
ETSI TS 132 614 V4.0.0 (2001-06)

Technical Specification

Universal Mobile Telecommunications System (UMTS);
Telecommunication management;
Configuration management;
3G configuration management: Bulk configuration
(3GPP TS 32.614 version 4.0.0 Release 4)



Reference
DTS/TSGS-0532614Uv4

Keywords
UMTS

ETSI

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Foreword

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

The present document may refer to technical specifications or reports using their 3GPP identities, UMTS identities or GSM identities. These should be interpreted as being references to the corresponding ETSI deliverables.

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Contents

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

Due to the growing number of specifications to model new services and Resource Models for Configuration Management (CM), as well as the expected growth in size of each of them from 3GPP Release 4 onwards, a new structure of the specifications is already needed in Release 4. This structure is needed for several reasons, but mainly to enable more independent development and release for each part, as well as a simpler document identification and version handling. Another benefit would be that it becomes easier for bodies outside 3GPP, such as the ITU-T, to refer to telecom management specifications from 3GPP. The new structure of the specifications does not lose any information or functionality supported by the Release 1999. The restructuring also includes defining new IRPs for the Network Resource Model (NRM) parts of R99 Basic CM IRP (Generic, Core Network and UTRAN NRM). These IRPs are named “Network Resources IRP”.

Further, the Notification IRP (in Release 1999: 32.106-1 to -4) and the Name convention for Managed Objects (in Release 1999: 32.106-8) have been moved to a separate number series used for specifications common between several management areas (e.g. CM, FM, PM).

Finally, in addition to the restructuring mentioned above, the need to define some new functionality and IRPs for CM compared to Release 1999, has also been identified. Firstly, a new Bulk CM IRP, and secondly an a GERAN Network Resources IRP, have been created. Thirdly, the Generic, UTRAN and GERAN Network Resources IRPs have been extended with support for GSM-UMTS Inter-system handover (ISH), and the 32.600 (Concept and High-level Requirements) has been modified to cover the high-level Bulk CM and ISH requirements.

Table: Mapping between Release '99 and the new specification numbering scheme

R99 Old no.	Old (R99) specification title	Rel-4 New no.	New (Rel-4) specification title
32.106-1	3G Configuration Management: Concept and Requirements	32.600	**3G Configuration Management**: **Concept and High-level Requirements**
32.106-1	<Notification IRP requirements from 32.106-1 and 32.106-2>	32.301	**Notification IRP**: Requirements
32.106-2	Notification IRP: IS	32.302	Notification IRP: Information Service
32.106-3	Notification IRP: CORBA SS	32.303	Notification IRP: CORBA SS
32.106-4	Notification IRP: CMIP SS	32.304	Notification IRP: CMIP SS
32.106-8	Name convention for Managed Objects	32.300	**Name Convention for Managed Objects**
32.106-1	<Basic CM IRP IS requirements from 32.106-1 and 32.106-5>	32.601	**Basic CM IRP**: Requirements
32.106-5	Basic CM IRP IM (Intro & IS part)	32.602	Basic CM IRP: Information Service
32.106-6	Basic CM IRP CORBA SS (IS related part)	32.603	Basic CM IRP: CORBA SS
32.106-7	Basic CM IRP CMIP SS (IS related part)	32.604	Basic CM IRP: CMIP SS
32.106-8	Name convention for Managed Objects	32.300	**Name Convention for Managed Objects**
-	-	32.611	**Bulk CM IRP**: Requirements
-	-	32.612	Bulk CM IRP: Information Service
-	-	32.613	Bulk CM IRP: CORBA SS
-	-	32.614	Bulk CM IRP: CMIP SS
		32.615	Bulk CM IRP: XML file format definition
32.106-1	<Basic CM IRP Generic NRM requirements from 32.106-1 and 32.106-5>	32.621	**Generic Network Resources IRP**: Requirements
32.106-5	Basic CM IRP IM (Generic NRM part)	32.622	Generic Network Resources IRP: NRM
32.106-6	Basic CM IRP CORBA SS (Generic NRM related part)	32.623	Generic Network Resources IRP: CORBA SS
32.106-7	Basic CM IRP CMIP SS (Generic NRM related part)	32.624	Generic Network Resources IRP: CMIP SS
32.106-1	<Basic CM IRP CN NRM requirements from 32.106-1 and 32.106-5>	32.631	**Core Network Resources IRP**: Requirements
32.106-5	Basic CM IRP IM (CN NRM part)	32.632	Core Network Resources IRP: NRM
32.106-6	Basic CM IRP CORBA SS (CN NRM related part)	32.633	Core Network Resources IRP: CORBA SS
32.106-7	Basic CM IRP CMIP SS (CN NRM related part)	32.634	Core Network Resources IRP: CMIP SS
32.106-1	<Basic CM IRP UTRAN NRM requirements from 32.106-1 and 32.106-5>	32.641	**UTRAN Network Resources IRP**: Requirements
32.106-5	Basic CM IRP IM (UTRAN NRM part)	32.642	UTRAN Network Resources IRP: NRM
32.106-6	Basic CM IRP CORBA SS (UTRAN NRM related part)	32.643	UTRAN Network Resources IRP: CORBA SS
32.106-7	Basic CM IRP CMIP SS (UTRAN NRM related part)	32.644	UTRAN Network Resources IRP: CMIP SS
		32.651	**GERAN Network Resources IRP**: Requirements
		32.652	GERAN Network Resources IRP: NRM
		32.653	GERAN Network Resources IRP: CORBA SS
		32.654	GERAN Network Resources IRP: CMIP SS

1 Scope

The present document specifies the Common Management Information Protocol (CMIP) Solution Set (SS) for the Bulk CM Integration Reference Point (IRP): Information Service defined in 3GPP TS 32.612. 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 Alarm Management over the CMIP interfaces

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

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: "3G Telecom Management principles and high level requirements".

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

[3] 3GPP TS 32.304: "Telecommunication Management; Notification Management; Part 4: Notification Integration Reference Point; CMIP Solution Set".

[4] 3GPP TS 32.612: "Telecommunication Management; Configuration Management: Bulk CM Integration Reference Point; Information Services".

[5] ITU-T Recommendation X.710 (1991): "Common Management Information Service Definition for CCITT Applications".

[6] ITU-T Recommendation X.721 (02/92): "Information Technology - Open Systems Interconnection – Structure of Management Information: Definition of Management Information".

[7] ITU-T Recommendation X.730 (01/92): "Information Technology - Open Systems Interconnection – Systems Management: Object Management Function".

[8] ITU-T Recommendation X.733 (02/92): "Information Technology - Open Systems Interconnection - Alarm Reporting Function".

[9] ITU-T Recommendation M.3100 (07/95): "Maintenance Telecommunications Management Network – Generic Network Information Model".

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TS 32.600 and 3GPP TS 32.602 apply.

3.2 Abbreviations

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

CMIP	Common Management Information Protocol
DN	Distinguished Name
GDMO	Guidelines for the Definition of Managed Objects
IDL	Interface Definition Language
IEC	International Electro-technical Commission
ISO	International Standards Organization
ITU-T	International Telecommunication Union, Telecommunication Sector
MIB	Management Information Base
MIM	Management Information Model
MIT	Management Information Tree (or Naming Tree)
MOC	Managed Object Class
MOI	Managed Object Instance
NE	Network Element
NR	Network Resource
NRM	Network Resource Model
TMN	Telecommunications Management Network

4 Basic aspects

4.2 Explanation

An technology independent IRP Information Service is specified in the 3GPP TS 32.612 for the configuration management of 3G networks by using bulk data transfer, i.e. Bulk CM IRP IS. This technical specification provides a CMIP solution set of the Bulk CM IRP.

Within a CMIP TMN a network manager may use the operations and notifications defined in this TS to upload files containing managed information about the current configuration status of a concerned 3G network from the related element manager or to download files containing management commands to change the configuration of a concerned 3G network to the corresponding element manager. The concepts and the procedures of uploading and downloading are specified in the 3GPP TS 32.612. The syntax and the semantic of files to upload or to download are defined in the 3GPP TS 32.602-5.

4.3 Mapping

The sub-clauses below provide mapping tables between the technology independent operations and notifications defined in 3GPP TS 32.612 and the CMIP actions and notifications specified in this document.

4.3.1 Mapping of Operations

The table below shows the mapping relation between the technology independent operations defined in 3GPP TS 32.612 and the CMIP actions specified in this document.

technology independent operations defined in 3GPP TS 32.612	CMIP actions specified in this document	Qualifiers of the CMIP actions specified in this document
startSession	startSession	M
endSession	endSession	M
upload	upload	M

download	download	M
activate	activate	M
fallback	fallback	M
abortSessionOperation	abortSessionOperation	M
getSessionIds	getSessionIds	M
getSessionStatus	getSessionStatus	M
getSessionLog	getSessionLog	M
getBulkCMIRPVersion	getBulkCMIRPVersion	M

Table 1 Mapping of operations

4.3.2 Mapping of Operation Parameters

The following sub-clauses map the parameters of each technology independent operations defined in the 3GPP TS 32.612 to the parameters of the corresponding CMIP actions specified in this document.

4.3.2.1 Mapping of Parameters of the Operation startSession

parameters of the technology independent operation 'startSession' defined in the 3GPP TS 32.612	parameters of the CMIP action 'startSession' specified in this docment	Qualifier of the parameters of the CMIP action 'startSession' specified in this docment
sessionId	sessionId	Action information, M
status	status	Action response, M

Table 2 Mapping of parameters of the operation startSession

4.3.2.2 Mapping of Parameters of the Operation endSession

parameters of the technology independent operation 'endSession' defined in the 3GPP TS 32.612	parameters of the CMIP action 'endSession' specified in this docment	Qualifier of the parameters of the CMIP action 'endSession' specified in this docment
sessionId	sessionId	Action information, M
status	status	Action response, M

Table 3 Mapping of parameters of the operation endSession

4.3.2.3 Mapping of Parameters of the Operation upload

parameters of the technology independent operation 'upload' defined in the 3GPP TS 32.612	parameters of the CMIP action 'upload' specified in this docment	Qualifier of the parameters of the CMIP action 'upload' specified in this docment
sessionId	sessionId	Action information, M
uploadDataFile	uploadDataFile	Action information, M
baseObjectInstance	baseObjectInstance	Action information, M
scope	scope	Action information, M
filter	filter	Action information, M

status	status	Action response, M

Table 4 Mapping of parameters of the operation upload

4.3.2.4 Mapping of Parameters of the Operation download

parameters of the technology independent operation 'download' defined in the 3GPP TS 32.612	parameters of the CMIP action 'download' specified in this docment	Qualifier of the parameters of the CMIP action 'download' specified in this docment
sessionId	sessionId	Action information, M
downloadDataFile	downloadDataFile	Action information, M
status	status	Action response, M

Table 5 Mapping of parameters of the operation download#

4.3.2.5 Mapping of Parameters of the Operation activate

parameters of the technology independent operation 'activate' defined in the 3GPP TS 32.612	parameters of the CMIP action 'activate' specified in this docment	Qualifier of the parameters of the CMIP action 'activate' specified in this docment
sessionId	sessionId	Action information, M
saveFallback	saveFallback	Action information, M
status	status	Action response, M

Table 6 Mapping of parameters of the operation activate

4.3.2.6 Mapping of Parameters of the Operation fallback

parameters of the technology independent operation 'fallback' defined in the 3GPP TS 32.612	parameters of the CMIP action 'fallback' specified in this docment	Qualifier of the parameters of the CMIP action 'fallback' specified in this docment
sessionId	sessionId	Action information, M
status	status	Action response, M

Table 7 Mapping of parameters of the operation fallback

4.3.2.7 Mapping of Parameters of the Operation abortSessionOperation

parameters of the technology independent operation 'abortSessionOperation' defined in the 3GPP TS 32.612	parameters of the CMIP action 'abortSessionOperation' specified in this docment	Qualifier of the parameters of the CMIP action 'abortSessionOperation' specified in this docment
sessionId	sessionId	Action information, M
status	status	Action response, M

Table 8 Mapping of parameters of the operation abortSessionOperation

4.3.2.8 Mapping of Parameters of the Operation getSessionIds

parameters of the technology independent operation 'getSessionIds' defined in the 3GPP TS 32.612	parameters of the CMIP action 'getSessionIds' specified in this docment	Qualifier of the parameters of the CMIP action 'getSessionIds' specified in this docment
sessionIdList	sessionIdList	Action response, M
status	status	Action response, M

Table 9 Mapping of parameters of the operation getSessionIds

4.3.2.9 Mapping of Parameters of the Operation getSessionStatus

parameters of the technology independent operation 'getSessionStatus' defined in the 3GPP TS 32.612	parameters of the CMIP action 'getSessionStatuss' specified in this docment	Qualifier of the parameters of the CMIP action 'getSessionStatus' specified in this docment
sessionIdList	sessionIdList	Action information, M
sessionState	sessionState	Action response, M
status	status	Action response, M

Table 10 Mapping of parameters of the operation getSessionStatus

4.3.2.10 Mapping of Parameters of the Operation getSessionLog

parameters of the technology independent operation 'getSessionLog' defined in the 3GPP TS 32.612	parameters of the CMIP action 'getSessionLog' specified in this docment	Qualifier of the parameters of the CMIP action 'getSessionLog' specified in this docment
sessionIdList	sessionIdList	Action information, M
logFileReference	logFileReference	Action information, M
contentType	contentType	Action information, M
status	status	Action response, M

Table 11 Mapping of parameters of the operation getSessionLog

4.3.2.11 Mapping of Parameters of the Operation getBulkCmIRPVersion

parameters of the technology independent operation 'getBulkCmIRPVersion' defined in the 3GPP TS 32.612	parameters of the CMIP action 'getBulkCmIRPVersion' specified in this docment	Qualifier of the parameters of the CMIP action 'getBulkCmIRPVersion' specified in this docment
sessionIdList	sessionIdList	Action information, M
status	status	Action response, M

Table 12 Mapping of parameters of the operation getBulkCmIRPVersion

4.3.3 Mapping of Notifications

The table below shows the mapping relation between the technology independent notifications defined in 3GPP TS 32.612 and the CMIP notifications specified in this document.

technology independent notifications defined in 3GPP TS 32.612	CMIP notifications specified in this document	Qualifiers of the CMIP notifications specified in this document
notifySessionStateChanged	sessionStateChanged	M
notifyGetSessionLogEnded	getSessionLogEnded	M

Table 13 Mapping of Notifications

4.3.4 Mapping of Notification Parameters/Attributes

The following sub-clauses map the parameters/attributes of each technology independent notifications defined in the 3GPP TS 32.612 to the parameters/attributes of the corresponding CMIP notifications specified in this document.

4.2.4.1 Mapping of Parameters/Attributes of the Notification sessionStateChanged

technology independent Parameters/Attributes of the notification 'notifySessionStateChanged' defined in 3GPP TS 32.612	Parameters/Attributes of the CMIP notification 'sessionStateChanged' specified in this document	Qualifiers of the Parameters/Attributes of the CMIP notification 'sessionStateChanged' specified in this document
managedObjectClass	managedObjectClass	O
managedObjectInstance	managedObjectInstance	O
noficiationId	notificationId	O
eventTime	eventTime	M
systemDN	Not used in this CMIP SS	
eventType	eventType	M
sessionId	sessionId	M
sourceIndicator	sourceIndicator	O
sessionState	sessionState	M

Table 14 Mapping of parameters/attributes of the notification sessionStateChanged

4.2.4.2 Mapping of Parameters/Attributes of the Notification getSessionLogEnded

technology independent Parameters/Attributes of the notification 'notifySessionStateChanged' defined in 3GPP TS 32.612	Parameters/Attributes of the CMIP notification 'sessionStateChanged' specified in this document	Qualifiers of the Parameters/Attributes of the CMIP notification 'sessionStateChanged' specified in this document
managedObjectClass	managedObjectClass	O
managedObjectInstance	managedObjectInstance	O
noficiationId	notificationId	O
eventTime	eventTime	M
systemDN	Not used in this CMIP SS	
eventType	eventType	M
sessionId	sessionId	M

sourceIndicator	sourceIndicator	O
sessionLogStatus	sessionLogStatus	M

Table 15 Mapping of Parameters/Attributes of the Notification getSessionLogEnded

5 GDMO definitions

5.1 Actions

5.1.1 startSession (M)

startSession **ACTION**
BEHAVIOUR
startSessionBehaviour;
MODE
CONFIRMED;
WITH INFORMATION SYNTAX
TS32-602TypeModule.Common;
WITH REPLY SYNTAX
TS32-602TypeModule.CommonReply;
REGISTERED AS {ts32-602Action 1};

startSessionBehaviour **BEHAVIOUR**

DEFINED AS

”A Manager invokes this operation to start a session state machine as defined in 3GPP TS 32.612 and initialise temporary entities to be related with bulk data configuration sessionId in an Agent.

The 'Action information' contains the following data:

- *sessionId*

  This mandatory parameter identifies the new session and process to be associated with a bulk data operation e.g. upload or download.

The ‘Action response’ is composed of the following data:

- *status*

  It contains the results of this action. Possible values: noError (0), error (the value indicates the reason of the error).”;

5.1.2 endSession (M)

endSession **ACTION**
BEHAVIOUR
endSessionBehaviour;
MODE
CONFIRMED;
WITH INFORMATION SYNTAX
TS32-602TypeModule.Common;
WITH REPLY SYNTAX
TS32-602TypeModule.CommonReply;
REGISTERED AS {ts32-602Action 2};

endSessionBehaviour **BEHAVIOUR**

DEFINED AS

“A Manager invokes this operation to end a session state machine as defined in 3GPP TS32.612 and delete all temporary entities and their related bulk data configuration for a specified sessionId in an Agent. The deletion

will be rejected if the configuration state is in a working state: e.g. uploading (including getting a log), downloading or activating.

The 'Action information' contains the following data:

- *sessionId*

  This mandatory parameter identifies this specific session and process associated with an earlier bulk data operation e.g. upload or download.

The ‘Action response’ is composed of the following data:

- *status*

  It contains the results of this action. Possible values: noError (0), error (the value indicates the reason of the error).”;

5.1.3 upload (M)

upload **ACTION**
BEHAVIOUR
uploadBehaviour;
MODE
CONFIRMED;
WITH INFORMATION SYNTAX
TS32-602TypeModule.Upload;
WITH REPLY SYNTAX
TS32-602TypeModule.CommonReply;
REGISTERED AS {ts32-602Action 3};

uploadBehaviour **BEHAVIOUR**

DEFINED AS

“A Manager invokes this operation to request an Agent to create a file containing bulk configuration data (as defined in 3GPP TS 32.602-5 and in Claus 8 of the 3GPP TS 32.612) and transfer the file to the indicated globally unique data file reference.

The 'Action information' contains the following data:

- *sessionId*

  This mandatory parameter identifies this specific session and process associated with the requested bulk data upload.

- *uploadDataFileReference*

  This mandatory parameter specifies a globally unique file reference to where the specified scope of bulk data is to be uploaded and stored.

- *baseObjectInstance*

  This mandatory parameter specifies a MO where the search starts. This is a full Distinguished Name.

- *scope*

  This mandatory parameter defines how many levels of the containment hierarchy to search (i.e. apply the filter defined below). The search starts from the MO given by the baseObjectInstance parameter. The levels of search that may be performed are:

  1. the base object alone (default);
  2. the n-th level subordinates of the base object;
  3. the base object and all of its subordinates down to and including the n-th level;

4. the base object and all of its subordinates.

- *filter*

  This mandatory parameter defines a filter test to be applied to the scoped Managed Object(s). If the filter is empty, all of the managed objects included by the scope are selected.

The 'Action response' is composed of the following data:

- *status*

  It contains the results of this action. Possible values: noError (0), error (the value indicates the reason of the error).";

5.1.4 download (M)

download **ACTION**
BEHAVIOUR
downloadBehaviour;
MODE
CONFIRMED;
WITH INFORMATION SYNTAX
TS32-602TypeModule.Download;
WITH REPLY SYNTAX
TS32-602TypeModule.CommonReply;
REGISTERED AS {ts32-602Action 4};

downloadBehaviour **BEHAVIOUR**

DEFINED AS

"A Manager invokes this operation to request an Agent to activate previously downloaded bulk configuration data (as defined in 3GPP TS 32.602-5 and in Claus 8 of the 3GPP TS 32.612). Activate means that operations specified in a previously downloaded configuration file, for example create, delete and modify of managed objects are carried out on the live network i.e. mobile subscribers are affected by the downloaded configuration.

The 'Action information' contains the following data:

- *sessionId*

  This mandatory parameter identifies this specific session and process associated with the requested bulk data download.

- *downloadDataFileReference*

  This mandatory parameter identifies specifies a globally unique file reference from where the data to be fetched and download from.

The 'Action response' is composed of the following data:

- *status*

  It contains the results of this action. Possible values: noError (0), error (the value indicates the reason of the error).";

5.1.5 activate (M)

activate **ACTION**
BEHAVIOUR
activateBehaviour;
MODE
CONFIRMED;
WITH INFORMATION SYNTAX
TS32-602TypeModule.Activate;

WITH REPLY SYNTAX
TS32-602TypeModule.CommonReply;
REGISTERED AS {ts32-602Action 5};

activateBehaviour **BEHAVIOUR**

DEFINED AS

"A Manager invokes this operation to request an Agent to activate previously downloaded bulk configuration data (as defined in 3GPP TS 32.602-5 and in Claus 8 of the 3GPP TS 32.612). Activate means that operations specified in a previously downloaded configuration file, for example create, delete and modify of managed objects are carried out on the live network i.e. mobile subscribers are affected by the downloaded configuration.

The 'Action information' contains the following data:

- *sessionId*

  This mandatory parameter identifies this specific session and process associated with an earlier bulk data download that is required to be activated.

- *saveFallback*

  This mandatory parameter indicates whether or not it is required to initialise and enable fallback option prior to the activation.

The 'Action response' is composed of the following data:

- *status*

  It contains the results of this action. Possible values: noError (0), error (the value indicates the reason of the error).";

5.1.6 fallback (M)

fallback **ACTION**
BEHAVIOUR
fallbackBehaviour;
MODE
CONFIRMED;
WITH INFORMATION SYNTAX
TS32-602TypeModule.common;
WITH REPLY SYNTAX
TS32-602TypeModule.commonReply;
REGISTERED AS {ts32-602Action 6};

fallbackBehaviour **BEHAVIOUR**

DEFINED AS

"A Manager invokes this operation to request an Agent to activate a fallback area if a previously ordered activation has failed.

The 'Action information' contains the following data:

- *sessionId*

  This mandatory parameter identifies this specific session and process associated with an earlier bulk data operation e.g. upload or download for which the current log is required.

The 'Action response' is composed of the following data:

- *status*

It contains the results of this action. Possible values: noError (0), error (the value indicates the reason of the error).";

5.1.7 abortSessionOperation (M)

abortSessionOperation **ACTION**
BEHAVIOUR
abortSessionOperationBehaviour;
MODE
CONFIRMED;
WITH INFORMATION SYNTAX
TS32-602TypeModule.Common;
WITH REPLY SYNTAX
TS32-602TypeModule.CommonReply;
REGISTERED AS {ts32-602Action 7};

abortSessionOperationBehaviour **BEHAVIOUR**

DEFINED AS

"A Manager invokes this operation to request an Agent to abort a currently activate asynchronus operation. The abort will cause the session state machine to exit the current state and enter a new state, see Claus 7 of 3GPP TS 32.612.

The 'Action information' contains the following data:

- *sessionId*

  This mandatory parameter identifies this specific session and process associated with an earlier bulk data operation e.g. upload or download for which the abort is required.

The 'Action response' is composed of the following data:

- *status*

  It contains the results of this action. Possible values: noError (0), error (the value indicates the reason of the error).";

5.1.8 getSessionIds (M)

getSessionId **ACTION**
BEHAVIOUR
getSessionIdBehaviour;
MODE
CONFIRMED;
WITH REPLY SYNTAX
TS32-602TypeModule.GetSessionIdsReply;
REGISTERED AS {ts32-602Action 8};

getSessionIdBehaviour **BEHAVIOUR**

DEFINED AS

"A Manager invokes this operation to request an Agent to return a list of all its currently open sessionIds.

The 'Action response' is composed of the following data:

- *sessionIdList*

  This mandatory parameter is a list of all the sessionID an Agent currently has open i.e. started with startSession and not ended with endSession operations.

- *status*

It contains the results of this action. Possible values: noError (0), error (the value indicates the reason of the error).";

5.1.9 getSessionStatus (M)

getSessionStatus **ACTION**
BEHAVIOUR
getSessionStatusBehaviour;
MODE
CONFIRMED;
WITH INFORMATION SYNTAX
TS32-602TypeModule.Common;
WITH REPLY SYNTAX
TS32-602TypeModule.GetSessionStatusReply;
REGISTERED AS {ts32-602Action 9};

getSessionStatusBehaviour **BEHAVIOUR**

DEFINED AS

"A Manager invokes this operation to request an Agent to send the current state of the bulk data configuration file operation. The IRPAgent returns the current state. See Claus 7 of 3GPP TS 32.612.

The 'Action information' contains the following data:

- *sessionId*

  This mandatory parameter identifies this specific session and process associated with an earlier bulk data operation e.g. upload or download for which the current status is required.

The 'Action response' is composed of the following data:

- *sessionState*

  This mandatory parameter indicates current state of the configuration file operation. See Claus 7 of 3GPP TS 32.612.

- *status*

  It contains the results of this action. Possible values: noError (0), error (the value indicates the reason of the error).";

5.1.10 getSessionLog (M)

getSessionLog **ACTION**
BEHAVIOUR
getSessionLogBehaviour;
MODE
CONFIRMED;
WITH INFORMATION SYNTAX
TS32-602TypeModule.GetSessionLog;
WITH REPLY SYNTAX
TS32-602TypeModule.CommonReply;
REGISTERED AS {ts32-602Action 10};

getSessionLogBehaviour **BEHAVIOUR**

DEFINED AS

"A Manager invokes this operation to request an Agent to provide a log of the results from activities associated with bulk data configuration file sessionId operations.

The 'Action information' contains the following data:

- *sessionId*

  This mandatory parameter identifies this specific session and process associated with an earlier bulk data operation e.g. upload or download for which the current log is required.

- *logFileReference*

  This mandatory parameter specifies the address and file name where the result is to be placed in the Manager.

- *contentType*

  This mandatory parameter identifies if retrieved file should include (1) complete log including errors, (2) only errors.

The 'Action response' is composed of the following data:

- *status*

  It contains the results of this action. Possible values: noError (0), error (the value indicates the reason of the error).";

5.1.11 getBulkCmIRPVersion (M)

getBulkCmIRPVersion **ACTION**
BEHAVIOUR
getBulkCmIRPVersionBehaviour;
MODE
CONFIRMED;
WITH REPLY SYNTAX
TS32-602TypeModule.GetBulkCmIRPVersionReply;
REGISTERED AS {ts32-602Action 11};

getBulkCmIRPVersionBehaviour **BEHAVIOUR**

DEFINED AS

"A Manager invokes this operation when it wishes to find out the Bulk CM IRP SS versions supported by an Agent. The Agent shall respond with a list of supported Bulk CM IRP SS versions.

- *sessionIdList*

  This mandatory parameter is a list of all the sessionID an Agent currently has open i.e. started with startSession and not ended with endSession operations.

- *status*

  It contains the results of this action. Possible values: noError (0), error (the value indicates the reason of the error).";

5.2 Notifications

5.2.1 sessionStateChanged (M)

sessionStateChanged **NOTIFICATION**
BEHAVIOUR
sessionStateChangedBehaviour;
WITH INFORMATION SYNTAX
TS32-602TypeModule.SessionStateChangedInfo
AND ATTRIBUTE IDS
notificationId notificationId,
sessionId sessionId,
sourceIndicator sourceIndicator,

```
        sessionState        sessionState;
    REGISTERED AS {ts32-602Notification 1};
```

sessionStateChangedBehaviour **BEHAVIOUR**
DEFINED AS

"An Agent notifies a Manager that a state change has occurred on a bulk data configuration file sessionID operation subscribed to by the IRPManager.

The 'Event Information' field contains the following data:

- *notificationIdentifier*

  This ITU-T X.721 standardised parameter, together with MOI (Managed Object Instance), unambiguously identifies this notification.

- *sessionId*

  This mandatory parameter identifies this specific session and process associated with an earlier bulk data operation e.g. upload or download for which the current status is required.

- *sourceIndicator*

  This optional when present, indicates the source of the operation that led to the generation of this notification. It can have one of the following values:
  1 resource operation: The notification was generated in response to an internal operation of the resource;
  2 management operation: The notification was generated in response to a management operation applied across the managed object boundary external to the managed object;
  3 unknown: It is not possible to determine the source of the operation. parameter identifies this specific session and process associated with an earlier bulk data operation e.g. upload or download for which the current status is required.

- *sessionState*

  This mandatory parameter indicates state transition that caused the Notification. See Subclaus 7.2 of 3GPP TS 32.612.";

5.2.2 getSessionLogEnded (M)

```
getSessionLogEnded NOTIFICATION
    BEHAVIOUR
        getSessionLogEndedBehaviour;
    WITH INFORMATION SYNTAX
        TS32-602TypeModule.GetSessionLogEndedInfo
        AND ATTRIBUTE IDS
            notificationId      notificationId,
            sessionId           sessionId,
            sourceIndicator     sourceIndicator,
            sessionLogStatus    sessionLogStatus;
REGISTERED AS {ts32-602Notification 2};
```

sessionStateChangedBehaviour **BEHAVIOUR**
DEFINED AS

" An Agent notifies a Manager that a requested GetSessionLog for a bulk data configuration file sessionId operation subscribed to by the Manager has ended successfully or unsuccessfully.

The 'Event Information' field contains the following data:

- *notificationIdentifier*

  This ITU-T X.721 standardised parameter, together with MOI (Managed Object Instance), unambiguously identifies this notification.

- *sessionId*

  This mandatory parameter identifies this specific session and process associated with an earlier bulk data operation e.g. upload or download for which the current status is required.

- *sourceIndicator*

  This optional when present, indicates the source of the operation that led to the generation of this notification. It can have one of the following values:
  1 resource operation: The notification was generated in response to an internal operation of the resource;
  2 management operation: The notification was generated in response to a management operation applied across the managed object boundary external to the managed object;
  3 unknown: It is not possible to determine the source of the operation. parameter identifies this specific session and process associated with an earlier bulk data operation e.g. upload or download for which the current status is required.

- sessionLogStatus

  This mandatory parameter indicates event that caused the Notification i.e. Get log completed, Get Log Failed.";

6 ASN.1 definitions

```
TS32-602TypeModule { ccitt (0) identified-organization (4) etsi (0)
        mobileDomain (0) umts-Operation-Maintenance (3) ts-32-602 (602)
          informationModel (0) asn1Module (2) version1 (1)}

    DEFINITIONS IMPLICIT TAGS ::=
    BEGIN

    --EXPORTS everything
    IMPORTS
    NotificationIdentifier, SourceIndicator
    FROM Attribute-ASN1Module {joint-iso-ccitt ms(9) smi(3) part2(2) asn1Module(2) 1}
    CMISFilter, ObjectInstance, Scope
    FROM CMIP-1 {joint-iso-ccitt ms(9) cmip(1) modules(0) protocol(3)};

baseNode3gpp                    OBJECT IDENTIFIER ::= {baseNode (1)} --to be defined
ts32-602                OBJECT IDENTIFIER ::= { baseNode3gpp ts32-602 (10)}
ts32-602Action              OBJECT IDENTIFIER ::= {ts32-602 action (9)}
ts32-602Notification            OBJECT IDENTIFIER ::= {ts32-602 notification (10)}

    -- Start of 3GPP SA5 own definitions

    ErrorCauses ::= ENUMERATED
        {
        noError (0),                    -- operation / notification successfully performed
        wrongSessionId (1),             -- the value of the parameter SessionId is not known for the Agent
        unspecifiedErrorReason (255)    -- operation failed, specific error unknown
        }

    ActivationMode ::= ENUMERATED
        {
        commandByCommand (0),           -- activation shall be done command by command
        bulk (1)                        -- activation shall be done en masse, bulk
        }

    SaveFallback ::= ENUMERATED
        {
        enable (0),                     -- enable the fallback option
        disable (1)                     -- disable the fallback option
        }

    SessionState ::= ENUMERATED
        {
        idle(0),
        uploadInProgress (1),
        uploadCompleted (2),
        uploadFailed (3),
        downloadInProgress (4),
        downloadCompleted (5),
        downloadFailed (6),
        activationInProgress (7),
        activationCompleted (8),
        activationFailed (9),
        activationPartlyRealised (10),
        fallbakInProgress (11),
        fallbackCompleted (12),
        fallbackFailed (13),
```

```
    fallbackPartlyRealised (14)
    }

ContentType ::= ENUMERATED
    {
    completeLog (0),            -- complete log including errors
    errorLog (1)                -- only error log
}

FileReference ::= GraphicString

Common ::= SEQUENCE
    {
    sessionId       GraphicString
    }

CommonReply ::= SEQUENCE
    {
    status          ErrorCauses
    }

Download ::= SEQUENCE
    {
    sessionId                   GraphicString,
    downloadDataFileReference   FileReference
    }


Upload ::= SEQUENCE
    {
    sessionId                   GraphicString,
    uploadDataFileReference     FileReference,
    baseObjectInstance          ObjectInstance,  -- ITU-T X.711
    scope                       Scope,     -- ITU-T X.711
    filter                      CMISFilter    -- ITU-T X.711
    }

Activate ::= SEQUENCE
    {
    sessionId       GraphicString,

    saveFallback    SaveFallback,
    status          ErrorCauses
    }

GetSessionIdsReply ::= SEQUENCE
    {
    sessionIdList   SEQUENCE {sessionId GraphicString},
    status          ErrorCauses
    }

GetSessionStatusReply ::= SEQUENCE
    {
    sessionState    SessionState,
    status          ErrorCauses
    }

GetSessionLog ::= SEQUENCE
    {
    sessionId       GraphicString,
    logFileReference FileReference,
    contentType     ContentType,
```

```
    status              ErrorCauses
    }

GetBulkCmIRPVersionReply ::= SEQUENCE
    {
    versionList         SEQUENCE {version GraphicString},
    status              ErrorCauses
    }

    SessionStateChangedInfo ::= SEQUENCE
    {
    notificationId      NotificationIdentifier OPTIONAL,   --ITU-T X.721
    sessionId           GraphicString,
    sourceIndicator     SourceIndicator,   -- ITU-T X.721
    sessionState        SessionState
    }

    GetSessionLogEndedInfo ::= SEQUENCE
    {
    notificationId      NotificationIdentifier OPTIONAL,   --ITU-T X.721
    sessionId           GraphicString,
    sourceIndicator     SourceIndicator,   -- ITU-T X.721
    sessionState        SessionState
    }


END -- of module TS32-602TypeModule
```

Annex A (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Jun 2001	S_12	SP-010283	--	--	Approved at TSG SA #12 and placed under Change Control	2.0.0	4.0.0

History

Document history		
V4.0.0	June 2001	Publication