Source:	**SA5 (Telecom Management)**
Title:	**CR 32612-3-4-5 Bulk Configuration Management (CM) IRP**
Document for:	**Approval**
Agenda Item:	**7.5.3**

Doc-1st-Level	Spec	CR	R	Phase	Subject	Ca	VerCr	Doc-2nd-Level	Workitem
SP-050045	32.612	013	--	Rel-6	Apply Generic System Context	F	6.1.0	S5-056033	OAM-NIM
SP-050045	32.613	014	--	Rel-6	Generic System Context, update of reference to IS specification	F	6.1.0	S5-056077	OAM-NIM
SP-050045	32.614	005	--	Rel-6	Generic System Context, update of reference to IS specification	F	6.0.1	S5-056078	OAM-NIM
SP-050045	32.615	019	--	Rel-6	Generic System Context, update of reference to IS specification	F	6.1.0	S5-056079	OAM-NIM
SP-050045	32.612	014	--	Rel-6	Add missing reference to TS 32.712 Transport Network NRM	F	6.1.0	S5-056035	OAM-NIM
SP-050045	32.612	015	--	Rel-6	Correct Annex B text style to comply with drafting rules	F	6.1.0	S5-056063	OAM-NIM
SP-050045	32.613	013	--	Rel-6	IDL incompliant to the style guide	F	6.1.0	S5-056071	OAM-NIM
SP-050045	32.615	020	--	Rel-6	Add Inventory Management NRM IRP in BulkCM IRP XML FFD	F	6.1.0.	S5-058141	OAM-NIM

3GPP TSG-SA5 (Telecom Management) **S5-056033**
Meeting #41, Lisbon, PORTUGAL, 24-28 January 2005

CHANGE REQUEST

| ⌘ | **32.612** CR **013** | ⌘ **rev** | **-** | ⌘ | Current version: | **6.1.0** | ⌘ |

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network **X** Core Network **X**

Title: ⌘	Apply Generic System Context	
Source: ⌘	SA5 (Ericsson, thomas.tovinger@ericsson.com)	
Work item code: ⌘	OAM-NIM	*Date:* ⌘ 28/1/2005
Category: ⌘	**F**	*Release:* ⌘ Rel-6

Use <u>one</u> of the following categories:
F (correction)
A (corresponds to a correction in an earlier release)
B (addition of feature),
C (functional modification of feature)
D (editorial modification)
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use <u>one</u> of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change: ⌘	Today we have redundant, time-consuming and error prone duplication of the same text for the System Context in all Interface IRPs. There is also a wrong reference to 32.102 in subclause 4.2, since the referenced part has been moved to 32.150.
Summary of change: ⌘	Modify the text of 4.1 with a generic text, referring to the new common definition in 32.150 for the System Context for all Interface IRPs, but keep the diagrams for readability. Update reference in 4.2 from 32.102 to 32.150.
Consequences if not approved: ⌘	Redundant, time-consuming and error prone duplication of the same text for the System Context in all Interface IRPs. Wrong reference.

Clauses affected: ⌘	2, 4.1, 4.2.

	Y	N		
Other specs affected: ⌘		X	Other core specifications ⌘	
		X	Test specifications	
		X	O&M Specifications	

Other comments: ⌘	

Change in Clause 2

---

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*.

…

 [12]   3GPP TS 32.742: "Configuration Management (CM); Signalling Transport Network (STN) interface Network Resource Model (NRM)".

 [13]   3GPP TS 32.150: "Telecommunication management; Integration Reference Point (IRP) Concept and definitions".

End of Change in Clause 2

Change in Clause 4.1

---

4 System Overview

4.1 System Context

The general definition of the System Context for the present IRP is found in 3GPP TS 32.150 [13] subclause 4.7.

In addition, the set of related IRP(s) relevant to the present IRP is shown in the two diagrams below.Figure 4.1 and 4.2 identify system contexts of the IRP defined by the present specification in terms of its implementation called IRPAgent and the user of the IRPAgent, called IRPManager. For a definition of IRPManager and IRPAgent, see 3GPP TS 32.102 [2].

The IRPAgent implements and supports this IRP. The IRPAgent can reside in an Element Manager (EM) or a Network Element (NE) (see also [2] clause 8). In the former case, the interfaces (represented by a thick dotted line) between the EM and the NEs is not the subject of this IRP.

An NE can be managed via System Context A or B. The criterion for choosing System Context A or B, to manage a particular NE, is implementation dependent. An IRPAgent shall support one of the two System Contexts. By observing the interaction across the Itf-N, an IRPManager cannot deduce if the EM and NE are integrated in a single system or if they run in separate systems.

As indicated in Figure 4.1 and Figure 4.2, the subject IRP needs to be complemented with the Notification IRP 3GPP TS 32.302 [3]. (This is to allow the IRP Manager to subscribe and unsubscribe to notifications issued by the IRP Agent).
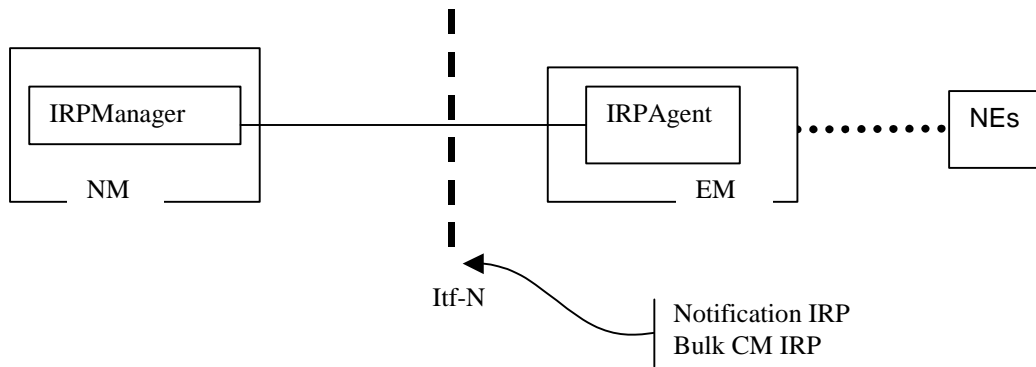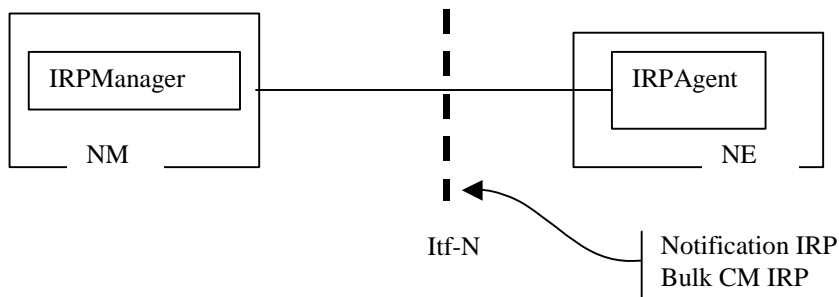
Figure 4.1: System Context A

Figure 4.2: System Context B

End of Change in Clause 4.1

Change in Clause 4.2

4.2 Compliance rules

For general definitions of compliance rules related to qualifiers (Mandatory/Optional/Conditional) for *operations*, *notifications and parameters* (of operations and notifications) please refer to 3GPP TS 32.150 [13]32.102 [2].

End of Change in Clause 4.2 End of document

Annex C (informative):
Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Dec 2004	S_26	SP-040807	012	--	BulkCMIRP should be extended to be applicable to new NRM model, such as Signalling Transport Network (STN) NRM IRP	6.0.0	6.1.0

3GPP TSG-SA5 (Telecom Management)   **S5-056035**
Meeting #41, Lisbon, PORTUGAL, 24-28 January 2005

CR-Form-v7

CHANGE REQUEST

| ⌘ | **32.612** CR **014** | ⌘ **rev** | **-** | ⌘ | Current version: | **6.1.0** | ⌘ |

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐   ME ☐   Radio Access Network **X**   Core Network **X**

Title:	⌘	Add missing reference to TS 32.712 Transport Network NRM
Source:	⌘	**SA5** (Motorola, trevor.pirt@motorola.com)
Work item code:⌘		OAM-NIM ***Date:*** ⌘ 28/1/2005

Category: ⌘ **F**	***Release:*** ⌘ Rel-6
Use one of the following categories:	*Use one of the following releases:*
F *(correction)*	*2 (GSM Phase 2)*
A *(corresponds to a correction in an earlier release)*	*R96 (Release 1996)*
B *(addition of feature),*	*R97 (Release 1997)*
C *(functional modification of feature)*	*R98 (Release 1998)*
D *(editorial modification)*	*R99 (Release 1999)*
Detailed explanations of the above categories can	*Rel-4 (Release 4)*
be found in 3GPP TR 21.900.	*Rel-5 (Release 5)*
	Rel-6 (Release 6)

Reason for change:	⌘	Bulk CM can be applied to Transport Network NRM as well as other NRMs.
Summary of change:⌘		Add reference to 32.712 Transport Network NRM specification. Include Transport Network NRM in Scope of Bulk CM Management Specification.
Consequences if not approved:	⌘	Transport Network NRM will not be within Scope of Bulk CM IRP.

Clauses affected:	⌘	2, 4.3

		Y	N		
Other specs affected:	⌘		X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	

Other comments:	⌘	

<div style="border: 2px solid black; text-align: center; font-weight: bold;">Change in Clause 2</div>

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*.

…

[12]   3GPP TS 32.742: "Configuration Management (CM); Signalling Transport Network (STN) interface Network Resource Model (NRM)".

[13]   3GPP TS 32.712: " Telecommunication management; Configuration Management (CM); Transport Network (TN) interface Network Resource Model (NRM): Integration Reference Point (IRP)":

<div style="border: 2px solid black; text-align: center; font-weight: bold;">End of Change in Clause 2</div>

<div style="border: 2px solid black; text-align: center; font-weight: bold;">Change in Clause 4.3</div>

4.3 Scope of Bulk CM Management Specification

Within the scope of the present document, it is specified how BulkCMIRPsupports the monitoring and provisioning of NEs over Interface-N. It is not within the scope of the present document to specify how BulkCMIRP and the IRPAgent shall resolve any potentially conflicting CM management activities that could arise from either multiple concurrent active IRPManager management Bulk CM IRP sessions, any other IRP conflicting CM management activities, or any CM management activities outside of the scope of an IRP and interface-N. From a system perspective such potential conflicts need to be guarded against, but how this is done e.g. operational procedures or implementation specific recovery in an IRPManager or IRPAgent, is beyond the scope of the present document.

NRMs for Bulk CM IRP are defined in other Network Resource IRP documents of CM. Within the scope of the present document, the specified capabilities can manage the following Network Resource Models:

32.622:   "Configuration Management (CM); Generic network resources Integration Reference Point (IRP): Network Resource Model (NRM)" [4],

32.632:   "Configuration Management (CM); Core Network Resources Integration Reference Point (IRP): Network Resource Model (NRM)" [10],

32.642:   "Configuration Management (CM); UTRAN network resources Integration Reference Point (IRP): Network Resource Model (NRM)" [5],

32.652:   "Configuration Management (CM); GERAN network resources Integration Reference Point (IRP): Network Resource Model (NRM)" [6],

32.692:   "Configuration Management (CM); Inventory Management (IM) network resource Integration Reference Point (IRP); Network Resource Model (NRM)" [11],

32.712 "Configuration Management (CM); Transport Network (TN) interface Network Resource Model (NRM)" [13].

32.742: "Configuration Management (CM); Signalling Transport Network (STN) interface Network Resource Model (NRM)" [12].

The above NRM documents define all the MOCs and attributes that can be configuration managed by Bulk CM IRP IS.

Editor's note: Applicability of this Bulk CM IRP for other NRM IRPs, including the decoupling of Interface IRPs from NRM IRPs, are for further study.

End of Change in Clause 4.3
End of document

Annex C (informative):
Change history

<table>
<tr><th colspan="8">Change history</th></tr>
<tr><th>Date</th><th>TSG #</th><th>TSG Doc.</th><th>CR</th><th>Rev</th><th>Subject/Comment</th><th>Old</th><th>New</th></tr>
<tr><td>Jun 2001</td><td>S_12</td><td>SP-010283</td><td>--</td><td>--</td><td>Approved at TSG SA #12 and placed under Change Control</td><td>2.0.0</td><td>4.0.0</td></tr>
<tr><td>Sep 2001</td><td>S_13</td><td>SP-010479</td><td>001</td><td>--</td><td>Correction of State Machine Pre and Post Conditions</td><td>4.0.0</td><td>4.1.0</td></tr>
<tr><td>Jun 2002</td><td>S_16</td><td>SP-020296</td><td>002</td><td>--</td><td>Correction of behaviour for IS parameter "saveFallback" of IS operation "activate"</td><td>4.1.0</td><td>4.2.0</td></tr>
<tr><td>Sep 2002</td><td>S_17</td><td>SP-020484</td><td>003</td><td>--</td><td>Correction of pre- and post-conditions for the operations getSessionStatus and getSessionLog</td><td>4.2.0</td><td>4.3.0</td></tr>
<tr><td>Sep 2002</td><td>S_17</td><td>SP-020486</td><td>003</td><td>--</td><td>Add Bulk CM IRP IS Enhancements for Rel-5</td><td>4.3.0</td><td>5.0.0</td></tr>
<tr><td>Dec 2002</td><td>S_18</td><td>SP-020744</td><td>006</td><td>--</td><td>Incomplete getSessionStatus</td><td>5.0.0</td><td>5.1.0</td></tr>
<tr><td>Mar 2003</td><td>--</td><td>--</td><td>--</td><td>--</td><td>Editorial (Clause heading missing: 8 Bulk Configuration Data File)</td><td>5.1.0</td><td>5.1.1</td></tr>
<tr><td>Dec 2003</td><td>S_22</td><td>SP-030630</td><td>008</td><td>--</td><td>Correction of System Context</td><td>5.1.1</td><td>5.2.0</td></tr>
<tr><td>Mar 2004</td><td>S_23</td><td>SP-040119</td><td>010</td><td>--</td><td>Correction of System Context</td><td>5.2.0</td><td>5.3.0</td></tr>
<tr><td>Mar 2004</td><td>S_23</td><td>SP-040105</td><td>--</td><td>--</td><td>Automatic upgrade to Rel-6 (no CR)</td><td>5.3.0</td><td>6.0.0</td></tr>
<tr><td>Dec 2004</td><td>S_26</td><td>SP-040807</td><td>011</td><td>--</td><td>Partition Bulk CM IRP capabilities into packages</td><td>6.0.0</td><td>6.1.0</td></tr>
<tr><td>Dec 2004</td><td>S_26</td><td>SP-040807</td><td>012</td><td>--</td><td>BulkCMIRP should be extended to be applicable to new NRM model, such as Signalling Transport Network (STN) NRM IRP</td><td>6.0.0</td><td>6.1.0</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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3GPP TSG-SA5 (Telecom Management) **S5-056063**
Meeting #41, Lisbon, PORTUGAL, 24-28 January 2005

CR-Form-v7

CHANGE REQUEST

⌘ **32.612** CR **015** ⌘rev **-** ⌘ Current version: **6.1.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network **X** Core Network **X**

Title:	⌘	Correct Annex B text style to comply with drafting rules
Source:	⌘	**SA5** (Motorola, trevor.pirt@motorola.com)
Work item code: ⌘		OAM-NIM ***Date:*** ⌘ 28/1/2005

Category: ⌘ **F** ***Release:*** ⌘ Rel-6

Use one of the following categories:
  F *(correction)*
  A *(corresponds to a correction in an earlier release)*
  B *(addition of feature),*
  C *(functional modification of feature)*
  D *(editorial modification)*
Detailed explanations of the above categories can
be found in 3GPP TR 21.900.

Use one of the following releases:
  2   (GSM Phase 2)
  R96 (Release 1996)
  R97 (Release 1997)
  R98 (Release 1998)
  R99 (Release 1999)
  Rel-4 (Release 4)
  Rel-5 (Release 5)
  Rel-6 (Release 6)

Reason for change:	⌘	Annex B is Informative, but includes normative text style "shall".
Summary of change: ⌘		Annex B, change two instances of normative "shall" text to "should" and clarify remainder of sentence.
Consequences if not approved:	⌘	Informative Annex B does not align with Drafting Rules.

Clauses affected:	⌘	Annex B

	Y	N		
Other specs affected: ⌘		X	Other core specifications	⌘
		X	Test specifications	
		X	O&M Specifications	

Other comments:	⌘	

Change in Clause Annex B

Annex B (informative):
Bulk CM Application and Operation Principles

B.1 Key characteristics

1. Bulk CM operations are not transaction based.

2. The state machine does not allow looping. Can only progress forward through main states.

3. If any errors are found in the configuration data, it ~~shall~~ should not be possible to ~~fix~~ revise the configuration data during a session e.g. to try to resolve any problems found during a session.~~
~~A new session should be started with a new corrected version of the configuration data being ~~downloaded~~applied.

4. Non-transitional interface;

5. Sessions may be run in parallel. There ~~shall~~ should not be any exclusion of specified changes between parallel sessions.

End of Change in Clause Annex B
End of document

Annex C (informative):
Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Mar 2004	S_23	SP-040105	--	--	Automatic upgrade to Rel-6 (no CR)	5.3.0	6.0.0
Dec 2004	S_26	SP-040807	011	--	Partition Bulk CM IRP capabilities into packages	6.0.0	6.1.0
Dec 2004	S_26	SP-040807	012	--	BulkCMIRP should be extended to be applicable to new NRM model, such as Signalling Transport Network (STN) NRM IRP	6.0.0	6.1.0

CR-Form-v7.1

CHANGE REQUEST

| ⌘ | **32.613** CR **013** | ⌘**rev** | **-** | ⌘ | Current version: | **6.1.0** | ⌘ |

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network **X** Core Network **X**

Title: ⌘	IDL incompliant to the style guide	
Source: ⌘	**SA5** (huangsq@zte.com.cn)	
Work item code: ⌘	OAM-NIM	***Date:*** ⌘ 28/01/2005
Category: ⌘ **F**		***Release:*** ⌘ Rel-6

Use <u>one</u> of the following categories:
F (correction)
A (corresponds to a correction in an earlier release)
B (addition of feature),
C (functional modification of feature)
D (editorial modification)
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use <u>one</u> of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)
Rel-7 (Release 7)

Reason for change: ⌘	The IDL does not reflect the format recommended by the style guide (TS 32.150).
Summary of change: ⌘	Add double slash between " #endif " and the macro, align the format of BulkCmIRPConstDefs.idl with other idls, correct the Annex C to Annex B
Consequences if not approved: ⌘	The IDL won't conform to the styleguide, and will compile erros when using java compilers (e.g., idlj.exe).

Clauses affected: ⌘	Annex A and Annex C

	Y	N		
Other specs ⌘		X	Other core specifications ⌘	
affected:		X	Test specifications	
		X	O&M Specifications	

Other comments: ⌘	

Annex A (normative):
IDL Specifications

A.1   IDL specification (file name BulkCmIRPConstDefs.idl)

```
// File: BulkCmIRPConstDefs.idl


#ifndef _BULKCMIRPCONSTDEFS_IDL_
#define _BULKCMIRPCONSTDEFS_IDL_

// This statement must appear after all include statements
#pragma prefix "3gppsa5.org"

/* ## Module: BulkCmIRPConstDefs
This module contains type definitions for the Bulk CM IRP
================================================================
*/
module BulkCmIRPConstDefs
{

   /*
   This block identifies the notification types defined by
   this Bulk CM IRP version.
   This string is used in the second field of the Structured
   Event.
   */
   interface NotificationType
   {
      const string NOTIFY_SESSION_STATE_CHANGED = "x1";
      const string NOTIFY_GET_SESSION_LOG_ENDED = "x2";
   };

   /*
   This block assigns value for the name of the NV of the Structured Event.
   */
   interface AttributeNameValue
   {
      const string SESSION_ID = "k";
      const string SOURCE_INDICATOR = "m";
      const string ERROR_INFORMATION = "n";
   };

   /*
   This block defines all possible values for sessionState.
   One of these strings appear in the event_name of the
   Structured Event of notifySessionStateChanged notification.
   */
   interface SessionStateChangeNotification
   {
      const string UPLOAD_FAILED = "x1";
      const string UPLOAD_COMPLETED = "x2";
      const string DOWNLOAD_FAILED = "x3";
      const string DOWNLOAD_COMPLETED = "x4";
      const string ACTIVATION_FAILED = "x5";
```

```
        const string ACTIVATION_PARTLY_REALISED = "x6";
        const string ACTIVATION_COMPLETED = "x7";
        const string FALLBACK_FAILED = "x8";
        const string FALLBACK_PARTLY_REALISED = "x9";
        const string FALLBACK_COMPLETED = "x10";
        const string VALIDATION_FAILED = "x11";
        const string VALIDATION_COMPLETED = "x12";
        const string PREACTIVATION_FAILED = "x13";
        const string PREACTIVATION_PARTLY_REALISED = "x14";
        const string PREACTIVATION_COMPLETED = "x15";
};


/*
This block defines all possible values for sessionLogStatus
One of these strings appear in the event_name of the Structured
Event of notifyGetSessionLogEnded notification.
*/
interface LogStateNotification
{
    const string GET_SESSION_LOG_COMPLETED_SUCCESSFULLY = "x1";
    const string GET_SESSION_LOG_COMPLETED_UNSUCESSFULLY = "x2";
};


/*
For each started configuration session a unique identifier is generated
by the IRPManager. An sessionId can not be used for an upload if it is
already in use of a download configuration and vice versa.
*/
typedef string SessionId;


/*
This string field is used in order to provide additional error information
if an operation has failed.
*/
typedef string ErrorInformation;


/*
Defines the different subphases of a configuration session
e.g. thus it is easy to implement a detection of an upload
or a download/activate session.
*/
enum SubPhase {IdlePhase, DownloadPhase, UploadPhase, ActivationPhase,
               FallbackPhase, PreactivationPhase, ValidationPhase};


/*
Defines the different substates of a configuration session. This includes
the transition state as well.
*/
enum SubState {Completed, Failed, PartlyRealised, InProgress};


/*
Defines state of a configuration session with the phase and the substate
of the configuration.
*/
struct SessionState
{
    SubPhase sub_phase;
    SubState sub_state;
};


/*
Contains the list of all current sessionIds
*/
```

```
typedef sequence <SessionId> SessionIdList;

/*
Specifies a complete destination path (including filename).
*/
typedef string FileDestination;

/*
The format of Distinguished Name is specified in
the Naming Conventions for Managed Objects; TS 32.300.
e.g. "SubNetwork=10001,ManagedElement=400001" identifies a
ManagedElement instance of the object model.
*/
typedef string DistinguishedName;

/*
Used within the upload method to give filter critera
*/
typedef string FilterType;

/*
Defines the kind of scope to use in a search together with
SearchControl.level, in a SearchControl value.
SearchControl.level is always >= 0. If a level is bigger than the
depth of the tree there will be no exceptions thrown.
*/
enum ScopeType {BaseOnly, BaseNthLevel, BaseSubtree, BaseAll};

/*
Controls the searching for MOs during upload, and contains:
the type of scope ("type" field),
the level of scope ("level" field),
the filter ("filter" field),
The type and level fields are mandatory.
The filter field is mandatory (The filter will have to be
set to an empty string if it has no other value).
*/
struct SearchControl
{
    ScopeType type;
    unsigned long level;
    FilterType filter;
};

/*
This indicates how the activation is executed, either with least service
impact or least elapsed time.
*/   enum ActivationMode {LeastServiceImpact, LeastElapsedTime};

/*
This indicates the level of verification of bulk configuration data done,
either full or limited checking.
*/   enum VerificationMode {FullChecking, LimitedChecking};

/* ActivationModeTypeOpt is a type carrying an optional parameter.
   If the boolean is TRUE, the value is present.
   Otherwise, the value is absent.
*/
union ActivationModeTypeOpt switch(boolean)
{
    case TRUE: ActivationMode activation_mode;
};
```

```
    /* VerificationModeTypeOpt is a type carrying an optional parameter.
       If the boolean is TRUE, the value is present.
       Otherwise, the value is absent.
    */
    union VerificationModeTypeOpt switch(boolean)
    {
        case TRUE: VerificationMode verification_mode;
    };

  };

#endif // _BULKCMIRPCONSTDEFS_IDL_
```

A.2 IDL specification (file Name BulkCMIRPSystem.idl)

```
// File: BulkCMIRPSystem.idl

#ifndef _BULKCMIRPSYSTEM_IDL_
#define _BULKCMIRPSYSTEM_IDL_

#include "BulkCmIRPConstDefs.idl"
#include "ManagedGenericIRPConstDefs.idl"
#include "ManagedGenericIRPSystem.idl"

// This statement must appear after all include statements
#pragma prefix "3gppsa5.org"

/* ## Module: BulkCmIRPSystem
This module implements capabilities of Bulk CM IRP.
=================================================================
*/
module BulkCmIRPSystem
{
    /*
    The request cannot be processed due to a situation of concurrency.
    E.g. two concurrent activation requests involving the same ManagedElement
    instance. The semantics carried in reason is outside the scope of this IRP.
    */
    exception ConcurrencyException { string reason; };

    /*
    The provided filter is malformed or invalid. The semantics carried in reason
    is outside the scope of this IRP.
    */
    exception IllegalFilterFormatException { string reason; };

    /*
    The provided Distinguished Name is malformed or invalid. The semantics
    carried in reason is outside the scope of this IRP.
    */
    exception IllegalDNFormatException { string reason; };

    /*
    The provided scope type is illegal. The semantics carried in reason is
    outside the scope of this IRP.
    */
    exception IllegalScopeTypeException { string reason; };

    /*
    The provided scope level is illegal. The semantics carried in reason is
    outside the scope of this IRP.
    */
    exception IllegalScopeLevelException { string reason; };

    /*
    The request cannot be processed because no fallback data is available, i.e.
    fallback capability was previously not asked for.
    */
    exception NoFallbackException {};

    /*
    The provided sessionId value is already used for another configuration
    session. The semantics carried in reason is outside the scope of this IRP.
```

```
*/
exception SessionIdInUseException { string reason; };


/*
The provided URL is malformed or invalid. The semantics carried in reason is
outside the scope of this IRP.
*/
exception IllegalURLFormatException{ string reason; };


/*
The provided sessionId value does not identify any existing configuration
session.
*/
exception UnknownSessionIdException {};


/*
The request cannot be processed because it is not valid in the current state
of the configuration session.
*/
exception NotValidInCurrentStateException
{
    BulkCmIRPConstDefs::SessionState current_state;
};


/*
The request cannot be processed because the maximum number of simultaneously
running configuration sessions has been reached. The semantics carried in
reason is outside the scope of this IRP.
*/
exception MaxSessionReachedException { string reason; };


/*
The provided ActivationMode type is illegal. The semantics carried in reason
is outside the scope of this IRP.
*/
exception IllegalActivationModeException { string reason; };


/*
The provided VerificationMode type is illegal. The semantics carried in
reason is outside the scope of this IRP.
*/
exception IllegalVerificationModeException { string reason; };


/*
System otherwise fails to complete the operation.  System can provide reason
to qualify the exception.  The semantics carried in reason
is outside the scope of this IRP.
*/
exception GetBulkCmIRPVersionsException { string reason; };
exception UploadException { string reason; };
exception DownloadException { string reason; };
exception ActivateException { string reason; };
exception ValidateException { string reason; };
exception PreactivateException { string reason; };
exception GetBulkCMIRPOperationProfileException { string reason; };
exception GetBulkCMIRPNotificationProfileException { string reason; };
exception GetSessionLogException { string reason; };
exception StartSessionException { string reason; };
exception GetSessionStatusException { string reason; };
exception FallbackException { string reason; };
exception EndSessionException { string reason; };
exception AbortSessionOperationException { string reason; };
exception GetSessionIdsException { string reason; };
```

```
/*
Defines the System interface of a EM. It defines all methods which are
necessary to control a configuration session from a IRPManager.
*/
interface BulkCmIRP
{
    /*
    Return the list of all supported Bulk CM IRP versions.
    */
    ManagedGenericIRPConstDefs::VersionNumberSet get_bulk_CM_IRP_versions (
    )
    raises (GetBulkCmIRPVersionsException);

    /*
    Return the list of all supported operations and their supported
    parameters for a specific BulkCM IRP version.
    */
    ManagedGenericIRPConstDefs::MethodList get_bulk_CM_IRP_operation_profile (
        in ManagedGenericIRPConstDefs::VersionNumber bulk_CM_IRP_version
    )
    raises (GetBulkCMIRPOperationProfileException,
            ManagedGenericIRPSystem::OperationNotSupported,
            ManagedGenericIRPSystem::InvalidParameter);

    /*
    Return the list of all supported notifications and their supported
    parameters for a specific BulkCM IRP version.
    */
    ManagedGenericIRPConstDefs::MethodList
        get_bulk_CM_IRP_notification_profile
    (
        in ManagedGenericIRPConstDefs::VersionNumber bulk_CM_IRP_version
    )
    raises (GetBulkCMIRPNotificationProfileException,
            ManagedGenericIRPSystem::OperationNotSupported,
            ManagedGenericIRPSystem::InvalidParameter);

    /*
    Uploads a configuration from the subnetwork. The result is put in a
    configuration data file in an area specified by the IRPManager.
    The MIB of the subnetwork is iterated by means of containment search,
    using a SearchControl to control the search and the returned results.
    All MOs in the scope constitutes a set that the filter works on.
    In case of a concurrent running session the function will
    return an exception. If the value of the given baseObject or FilterType
    does not exist then this asynchronous error condition will be notified.
    */
    void upload (
        in BulkCmIRPConstDefs::SessionId session_id,
        in BulkCmIRPConstDefs::FileDestination sink,
        in BulkCmIRPConstDefs::DistinguishedName base_object,
        in BulkCmIRPConstDefs::SearchControl search_control
    )
    raises (UploadException, UnknownSessionIdException,
            MaxSessionReachedException, NotValidInCurrentStateException,
            ConcurrencyException,
            IllegalDNFormatException, IllegalFilterFormatException,
            IllegalScopeTypeException, IllegalScopeLevelException,
            IllegalURLFormatException,
            ManagedGenericIRPSystem::InvalidParameter);

    /*
```

```
Indicates the EM that it can download a configuration data file from
a given configuration data file storage area. The EM will check the
consistence of the configuration data and the software compatibilty.
*/
void download (
   in BulkCmIRPConstDefs::SessionId session_id,
   in BulkCmIRPConstDefs::FileDestination source
)
raises (DownloadException, UnknownSessionIdException,
        MaxSessionReachedException, NotValidInCurrentStateException,
        IllegalURLFormatException,
        ManagedGenericIRPSystem::InvalidParameter);


/*
Activates a previously downloaded and sucessfully parsed configuration
inside a session.  This means that the configuration will be introduced
in the live sub-network. In case of a concurrent running session
the function will return an exception.
*/
void activate (
   in BulkCmIRPConstDefs::SessionId session_id,
   in BulkCmIRPConstDefs::ActivationModeTypeOpt activation_mode,
   in boolean fallback
)
raises (ActivateException, UnknownSessionIdException,
        NotValidInCurrentStateException, ConcurrencyException,
        IllegalActivationModeException,
        ManagedGenericIRPSystem::ParameterNotSupported,
        ManagedGenericIRPSystem::InvalidParameter);


/*
Uploads a log from the subnetwork which is usally used for error
analysis. The log is put in a logfile in the filesystem which can
be accessed by the EM. If there are no log entries an empty log file
is uploaded.
*/
void get_session_log (
   in BulkCmIRPConstDefs::FileDestination sink,
   in BulkCmIRPConstDefs::SessionId session_id,
   in boolean only_error_info
)
raises (GetSessionLogException, UnknownSessionIdException,
        IllegalURLFormatException,
        ManagedGenericIRPSystem::InvalidParameter);


/*
Creates an instance of the configuration session state machine. The
IDLE_PHASE & COMPLETED is notified
*/
void start_session (
   in BulkCmIRPConstDefs::SessionId session_id
)
raises (StartSessionException, SessionIdInUseException,
        MaxSessionReachedException,
        ManagedGenericIRPSystem::InvalidParameter);


/*
Returns the state of a configuration session.
*/
BulkCmIRPConstDefs::SessionState get_session_status (
   in BulkCmIRPConstDefs::SessionId session_id,
   out BulkCmIRPConstDefs::ErrorInformation error_information
)
```

```
    raises (GetSessionStatusException, UnknownSessionIdException,
            ManagedGenericIRPSystem::InvalidParameter);

    /*
    Actives a fallback area. Each time a configuration is activated a
    fallback area can be created, s. activate parameter.
    This area is backup of the complete configuration which can be
    restored by this method. The process is as follows:
    1. When the method activate(...,..., TRUE) is used,
       a copy of the valid area is taken before the activation
       of the new planned data has started. Only one fallback area can
       exists at a time for a specific scope of the subnetwork.
    2. When a fallback area is avilable and triggered by this method, the
       previous valid area is replaced with the data stored in
       the fall back area.
    If the EM detects that the former configuration has never been
    changed it returns an exception because it does not trigger an
    activation of the former data.
    */
    void fallback (
        in BulkCmIRPConstDefs::SessionId session_id
    )
    raises (FallbackException, UnknownSessionIdException, NoFallbackException,
            NotValidInCurrentStateException, ConcurrencyException,
            ManagedGenericIRPSystem::InvalidParameter);

    /*
    The IRPManager invokes this operation to delete all its temporary
    entities and the related sessionId which belong to the scope of
    a configuration session. This includes the related error and log
    informationen too.
    */
    void end_session (
        in BulkCmIRPConstDefs::SessionId session_id
    )
    raises (EndSessionException, UnknownSessionIdException,
            NotValidInCurrentStateException,
            ManagedGenericIRPSystem::InvalidParameter);

    /*
    The IRPManager invokes this operation to abort an active operation
    during a configuration session. It is only effecting
    a configuration session in state IN_PROGRESS. In this case the
    current session task is interrupted, e.g. the activating in progress,
    using best effort strategy, and a state change is notified
    */
    void abort_session_operation (
        in BulkCmIRPConstDefs::SessionId session_id
    )
    raises (AbortSessionOperationException, UnknownSessionIdException,
            NotValidInCurrentStateException,
            ManagedGenericIRPSystem::InvalidParameter);

    /*
    Returns a list all sessionIds of current running configuration sessions.
    */
    BulkCmIRPConstDefs::SessionIdList get_session_ids (
    )
    raises (GetSessionIdsException);

    /*
    Validates previously downloaded bulk configuration data inside a session.
    Detects errors in the data prior to requesting preactivation or
```

```
    activation.
    */
    void validate (
        in BulkCmIRPConstDefs::SessionId session_id,
        in BulkCmIRPConstDefs::ActivationModeTypeOpt activation_mode
    )
    raises (ValidateException, UnknownSessionIdException,
                NotValidInCurrentStateException, ConcurrencyException,
                IllegalActivationModeException,
                ManagedGenericIRPSystem::ParameterNotSupported,
                ManagedGenericIRPSystem::InvalidParameter,
                ManagedGenericIRPSystem::OperationNotSupported);

    /*
    Preactivates previously downloaded bulk configuration data inside a
    session. This operation validates configuration data changes in the
    context of the current data and pre-processes the configuration data
    changes.
    */
    void preactivate (
        in BulkCmIRPConstDefs::SessionId session_id,
        in BulkCmIRPConstDefs::VerificationModeTypeOpt verification_mode,
        in BulkCmIRPConstDefs::ActivationModeTypeOpt activation_mode,
        in boolean fallback
    )
    raises (PreactivateException, UnknownSessionIdException,
            NotValidInCurrentStateException, ConcurrencyException,
            IllegalActivationModeException, IllegalVerificationModeException,
            ManagedGenericIRPSystem::ParameterNotSupported,
            ManagedGenericIRPSystem::InvalidParameter,
            ManagedGenericIRPSystem::OperationNotSupported);

    };
};


module SimpleUploadBulkCMIRPSystem
{
    exception GetSimpleUploadBulkCmIRPVersionsException { string reason; };
    exception GetSimpleUploadBulkCMIRPOperationProfileException
        { string reason; };
    exception GetSimpleUploadBulkCMIRPNotificationProfileException
        { string reason; };

    interface SimpleUploadBulkCMIRP
    {
        /*
        Return the list of all supported Bulk CM IRP versions.
        */
        ManagedGenericIRPConstDefs::VersionNumberSet
            get_simple_upload_bulk_CM_IRP_versions (
        )
        raises (GetSimpleUploadBulkCmIRPVersionsException);

        /*
        Return the list of all supported operations and their supported
        parameters for a specific BulkCM IRP version.
        */
        ManagedGenericIRPConstDefs::MethodList
            get_simple_upload_bulk_CM_IRP_operation_profile (
            in ManagedGenericIRPConstDefs::VersionNumber bulk_CM_IRP_version
        )
```

```
        raises (GetSimpleUploadBulkCMIRPOperationProfileException,
                ManagedGenericIRPSystem::OperationNotSupported,
                ManagedGenericIRPSystem::InvalidParameter);

        /*
        Return the list of all supported notifications and their supported
        parameters for a specific BulkCM IRP version.
        */
        ManagedGenericIRPConstDefs::MethodList
            get_simple_upload_bulk_CM_IRP_notification_profile
        (
            in ManagedGenericIRPConstDefs::VersionNumber bulk_CM_IRP_version
        )
        raises (GetSimpleUploadBulkCMIRPNotificationProfileException,
                ManagedGenericIRPSystem::OperationNotSupported,
                ManagedGenericIRPSystem::InvalidParameter);


        /*
        Uploads a configuration from the subnetwork. The result is put in a
        configuration data file in an area specified by the IRPManager.
        The MIB of the subnetwork is iterated by means of containment search,
        using a SearchControl to control the search and the returned results.
        All MOs in the scope constitutes a set that the filter works on.
        In case of a concurrent running session the function will
        return an exception. If the value of the given baseObject or FilterType
        does not exist then this asynchronous error condition will be notified.
        */
        void upload (
            in BulkCmIRPConstDefs::SessionId session_id,
            in BulkCmIRPConstDefs::FileDestination sink,
            in BulkCmIRPConstDefs::DistinguishedName base_object,
            in BulkCmIRPConstDefs::SearchControl search_control
        )
        raises (
            BulkCmIRPSystem::UploadException,
            BulkCmIRPSystem::UnknownSessionIdException,
            BulkCmIRPSystem::MaxSessionReachedException,
            BulkCmIRPSystem::NotValidInCurrentStateException,
            BulkCmIRPSystem::ConcurrencyException,
            BulkCmIRPSystem::IllegalDNFormatException,
            BulkCmIRPSystem::IllegalFilterFormatException,
            BulkCmIRPSystem::IllegalScopeTypeException,
            BulkCmIRPSystem::IllegalScopeLevelException,
            BulkCmIRPSystem::IllegalURLFormatException,
            ManagedGenericIRPSystem::InvalidParameter);
    };

};  // end of module SimpleUploadBulkCMIRPSystem



module ControlledUploadBulkCMIRPSystem
{
    exception GetControlledUploadBulkCmIRPVersionsException { string reason; };
    exception GetControlledUploadBulkCMIRPOperationProfileException
        { string reason; };
    exception GetControlledUploadBulkCMIRPNotificationProfileException
        { string reason; };

    interface ControlledUploadBulkCMIRP
    {
        /*
```

```
    Return the list of all supported Bulk CM IRP versions.
    */
    ManagedGenericIRPConstDefs::VersionNumberSet
        get_controlled_upload_bulk_CM_IRP_versions (
    )
    raises (GetControlledUploadBulkCmIRPVersionsException);


    /*
    Return the list of all supported operations and their supported
    parameters for a specific BulkCM IRP version.
    */
    ManagedGenericIRPConstDefs::MethodList
        get_controlled_upload_bulk_CM_IRP_operation_profile (
            in ManagedGenericIRPConstDefs::VersionNumber bulk_CM_IRP_version
    )
    raises (GetControlledUploadBulkCMIRPOperationProfileException,
        ManagedGenericIRPSystem::OperationNotSupported,
        ManagedGenericIRPSystem::InvalidParameter);


    /*
    Return the list of all supported notifications and their supported
    parameters for a specific BulkCM IRP version.
    */
    ManagedGenericIRPConstDefs::MethodList
        get_controlled_upload_bulk_CM_IRP_notification_profile (
            in ManagedGenericIRPConstDefs::VersionNumber bulk_CM_IRP_version
    )
    raises (GetControlledUploadBulkCMIRPNotificationProfileException,
        ManagedGenericIRPSystem::OperationNotSupported,
        ManagedGenericIRPSystem::InvalidParameter);



    /*
    Uploads a configuration from the subnetwork. The result is put in a
    configuration data file in an area specified by the IRPManager.
    The MIB of the subnetwork is iterated by means of containment search,
    using a SearchControl to control the search and the returned results.
    All MOs in the scope constitutes a set that the filter works on.
    In case of a concurrent running session the function will
    return an exception. If the value of the given baseObject or FilterType
    does not exist then this asynchronous error condition will be notified.
    */
    void upload (
        in BulkCmIRPConstDefs::SessionId session_id,
        in BulkCmIRPConstDefs::FileDestination sink,
        in BulkCmIRPConstDefs::DistinguishedName base_object,
        in BulkCmIRPConstDefs::SearchControl search_control
    )
    raises (
        BulkCmIRPSystem::UploadException,
        BulkCmIRPSystem::UnknownSessionIdException,
        BulkCmIRPSystem::MaxSessionReachedException,
        BulkCmIRPSystem::NotValidInCurrentStateException,
        BulkCmIRPSystem::ConcurrencyException,
        BulkCmIRPSystem::IllegalDNFormatException,
        BulkCmIRPSystem::IllegalFilterFormatException,
        BulkCmIRPSystem::IllegalScopeTypeException,
        BulkCmIRPSystem::IllegalScopeLevelException,
        BulkCmIRPSystem::IllegalURLFormatException,
        ManagedGenericIRPSystem::InvalidParameter);


/*
```

```
Uploads a log from the subnetwork which is usally used for error
analysis. The log is put in a logfile in the filesystem which can
be accessed by the EM. If there are no log entries an empty log file
is uploaded.
*/
void get_session_log (
    in BulkCmIRPConstDefs::FileDestination sink,
    in BulkCmIRPConstDefs::SessionId session_id,
    in boolean only_error_info
)
raises (
    BulkCmIRPSystem::GetSessionLogException,
    BulkCmIRPSystem::UnknownSessionIdException,
    BulkCmIRPSystem::IllegalURLFormatException,
    ManagedGenericIRPSystem::InvalidParameter);


/*
Creates an instance of the configuration session state machine. The
IDLE_PHASE & COMPLETED is notified
*/
void start_session (
    in BulkCmIRPConstDefs::SessionId session_id
)
raises (
    BulkCmIRPSystem::StartSessionException,
    BulkCmIRPSystem::SessionIdInUseException,
    BulkCmIRPSystem::MaxSessionReachedException,
    ManagedGenericIRPSystem::InvalidParameter);


/*
Returns the state of a configuration session.
*/
BulkCmIRPConstDefs::SessionState get_session_status (
    in BulkCmIRPConstDefs::SessionId session_id,
    out BulkCmIRPConstDefs::ErrorInformation error_information
)
raises (
    BulkCmIRPSystem::GetSessionStatusException,
    BulkCmIRPSystem::UnknownSessionIdException,
    ManagedGenericIRPSystem::InvalidParameter);


/*
The IRPManager invokes this operation to delete all its temporary
entities and the related sessionId which belong to the scope of
a configuration session. This includes the related error and log
informationen too.
*/
void end_session (
    in BulkCmIRPConstDefs::SessionId session_id
)
raises (
    BulkCmIRPSystem::EndSessionException,
    BulkCmIRPSystem::UnknownSessionIdException,
    BulkCmIRPSystem::NotValidInCurrentStateException,
    ManagedGenericIRPSystem::InvalidParameter);



/*
The IRPManager invokes this operation to abort an active operation
during a configuration session. It is only effecting
a configuration session in state IN_PROGRESS. In this case the
current session task is interrupted, e.g. the activating in progress,
using best effort strategy, and a state change is notified
```

```
        */
        void abort_session_operation (
           in BulkCmIRPConstDefs::SessionId session_id
        )
        raises (
            BulkCmIRPSystem::AbortSessionOperationException,
            BulkCmIRPSystem::UnknownSessionIdException,
            BulkCmIRPSystem::NotValidInCurrentStateException,
            ManagedGenericIRPSystem::InvalidParameter);


        /*
        Returns a list all sessionIds of current running configuration sessions.
        */
        BulkCmIRPConstDefs::SessionIdList get_session_ids (
        )
        raises (
            BulkCmIRPSystem::GetSessionIdsException);

    };

  };  // end of module ControlledUploadBulkCMIRPSystem

#endif  // _BULKCMIRPSYSTEM_IDL_
```

A.3 IDL specification (file name "BulkCMIRPNotifications.idl")

```
// File: BulkCMNotifications.idl

#ifndef _BULKCMIRPNOTIFICATIONS_IDL_
#define _BULKCMIRPNOTIFICATIONS_IDL_

#include <NotificationIRPNotifications.idl>
#include <BulkCmIRPConstDefs.idl>

// This statement must appear after all include statements
#pragma prefix "3gppsa5.org"

module BulkCMIRPNotifications
{

    interface NotifySessionStateChange: NotificationIRPNotifications::Notify
    {
        // This is the type_name (2nd field) of the fixed header.
        const string EVENT_TYPE =
            BulkCmIRPConstDefs::NotificationType::NOTIFY_SESSION_STATE_CHANGED;

        // -----------------------------
        // One of the strings here is the event_name (3rd field) of the
        // fixed header.
        // The first 2 are relevant for IS-defined packages Simple
        // Upload and Controlled Upload.
        // All are relevant for IS-defined package
        // Controlled Upload & Provisioning.

        const string UPLOAD_FAILED = BulkCmIRPConstDefs::
            SessionStateChangeNotification::UPLOAD_FAILED;
        const string UPLOAD_COMPLETED = BulkCmIRPConstDefs::
            SessionStateChangeNotification::UPLOAD_COMPLETED;
        const string DOWNLOAD_FAILED = BulkCmIRPConstDefs::
            SessionStateChangeNotification::DOWNLOAD_FAILED;
        const string DOWNLOAD_COMPLETED = BulkCmIRPConstDefs::
            SessionStateChangeNotification::DOWNLOAD_COMPLETED;
        const string ACTIVATION_FAILED = BulkCmIRPConstDefs::
            SessionStateChangeNotification::ACTIVATION_FAILED;
        const string ACTIVATION_PARTLY_REALISED = BulkCmIRPConstDefs::
            SessionStateChangeNotification::ACTIVATION_PARTLY_REALISED;
        const string ACTIVATION_COMPLETED = BulkCmIRPConstDefs::
            SessionStateChangeNotification::ACTIVATION_COMPLETED;
        const string FALLBACK_FAILED = BulkCmIRPConstDefs::
            SessionStateChangeNotification::FALLBACK_FAILED;
        const string FALLBACK_PARTLY_REALISED = BulkCmIRPConstDefs::
            SessionStateChangeNotification::FALLBACK_PARTLY_REALISED;
        const string FALLBACK_COMPLETED = BulkCmIRPConstDefs::
            SessionStateChangeNotification::FALLBACK_COMPLETED;
        const string VALIDATION_FAILED = BulkCmIRPConstDefs::
            SessionStateChangeNotification::VALIDATION_FAILED;
        const string VALIDATION_COMPLETED = BulkCmIRPConstDefs::
            SessionStateChangeNotification::VALIDATION_COMPLETED;
        const string PREACTIVATION_FAILED = BulkCmIRPConstDefs::
            SessionStateChangeNotification::PREACTIVATION_FAILED;
        const string PREACTIVATION_PARTLY_REALISED = BulkCmIRPConstDefs::
            SessionStateChangeNotification::PREACTIVATION_PARTLY_REALISED;
        const string PREACTIVATION_COMPLETED = BulkCmIRPConstDefs::
            SessionStateChangeNotification::PREACTIVATION_COMPLETED;
```

```
        // -----------------------------

        const string SESSION_ID =
            BulkCmIRPConstDefs::AttributeNameValue::SESSION_ID;

        const string SOURCE_INDICATOR =
            BulkCmIRPConstDefs::AttributeNameValue::SOURCE_INDICATOR;
          };

    interface NotifyGetSessionLogEnded: NotificationIRPNotifications::Notify
    {
        // This is the type_name (2nd field) of the fixed header.
        const string EVENT_TYPE =
            BulkCmIRPConstDefs::NotificationType::NOTIFY_GET_SESSION_LOG_ENDED;

        // -----------------
        // One of the 2 strings here is the event_name (3rd field) of the
        // fixed header.
        const string GET_SESSION_LOG_COMPLETED_SUCCESSFULLY =
            BulkCmIRPConstDefs::LogStateNotification::
                GET_SESSION_LOG_COMPLETED_SUCCESSFULLY;
        const string GET_SESSION_LOG_COMPLETED_UNSUCESSFULLY =
            BulkCmIRPConstDefs::LogStateNotification::
                GET_SESSION_LOG_COMPLETED_UNSUCESSFULLY;
        // ----------------------

        const string SESSION_ID =
            BulkCmIRPConstDefs::AttributeNameValue::SESSION_ID;

        const string SOURCE_INDICATOR =
            BulkCmIRPConstDefs::AttributeNameValue::SOURCE_INDICATOR;
    };

};

#endif // _BULKCMIRPNOTIFICATIONS_IDL_
```

End of change in Annex A

Annex ~~C~~ B (informative):
Change history

<table>
<tr><td colspan="9" align="center">Change history</td></tr>
<tr><td>Date</td><td>TSG #</td><td>TSG Doc.</td><td>CR</td><td>Rev</td><td align="center">Subject/Comment</td><td>Old</td><td>New</td></tr>
<tr><td>Dec 2004</td><td>S_26</td><td>SP-040807</td><td>011</td><td>--</td><td>Partition Bulk CM IRP capabilities into separate IDL modules – Align to IS in 32.612</td><td>6.0.0</td><td>6.1.0</td></tr>
<tr><td>Dec 2004</td><td>S_26</td><td>SP-040807</td><td>012</td><td>--</td><td>Add Signalling Transport Network (STN) NRM IRP in BulkCM IRP CORBA SS</td><td>6.0.0</td><td>6.1.0</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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</table>

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Meeting #41, Lisbon, PORTUGAL, 24-28 January 2005

										CR-Form-v7

<div style="text-align:center">

CHANGE REQUEST

</div>

⌘	**32.613 CR 014**	⌘**rev**	**-**	⌘	Current version:	**6.1.0**	⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ [ ] ME [ ] Radio Access Network [X] Core Network [X]

Title: ⌘	Generic System Context, update of reference to IS specification	
Source: ⌘	**SA5** (Ericsson, thomas.tovinger@ericsson.com)	
Work item code:⌘	OAM-NIM	***Date:*** ⌘ 28/1/2005
Category: ⌘	**F**	***Release:*** ⌘ Rel-6

Use one of the following categories:
  F *(correction)*
  A *(corresponds to a correction in an earlier release)*
  B *(addition of feature),*
  C *(functional modification of feature)*
  D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
  2   *(GSM Phase 2)*
  R96 *(Release 1996)*
  R97 *(Release 1997)*
  R98 *(Release 1998)*
  R99 *(Release 1999)*
  Rel-4 *(Release 4)*
  Rel-5 *(Release 5)*
  Rel-6 *(Release 6)*

Reason for change: ⌘	The Information Service (IS) for this IRP is being updated due to an approved CR (to introduce the Generic System Context).
Summary of change:⌘	Update the reference in Scope to the new latest IS version.
Consequences if not approved: ⌘	Wrong reference in Scope to the IS version.

Clauses affected: ⌘	Scope

	Y	N		
Other specs affected: ⌘		X	Other core specifications ⌘	
		X	Test specifications	
		X	O&M Specifications	

Other comments: ⌘	This CR should only be approved if the corresponding CR on the IS to introduce the Generic System Context is approved (see the related CR collection document for an overview of all involved CR Tdoc numbers).

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3GPP

</div>

Change in Clause Scope

1 Scope

The purpose of this *Bulk CM IRP: CORBA Solution Set* is to define the mapping of the IRP Information Service 3GPP TS 32.612 [3] to the protocol specific details necessary for implementation of this IRP in a CORBA/IDL environment.

This Solution Set specification is related to 3GPP TS 32.612 V6.2~~1~~.X.

End of Change in Clause Scope

Annex C (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
Dec 2001	S_14	SP-010644	001	--	Correction of a notification name and Addition of missing table for fallback operation	4.0.0	4.1.0
Dec 2001	S_14	SP-010644	002	--	Corrections to the exceptions in the Bulk CM IRP CORBA Solution Set	4.0.0	4.1.0
Jun 2002	S_16	SP-020297	003	--	Add missing CORBA exceptions and descriptions of CORBA exception usage	4.1.0	4.2.0
Jun 2002	S_16	SP-020296	004	--	Correction of behaviour for IS parameter "saveFallback" of IS operation "activate"	4.1.0	4.2.0
Sep 2002	S_17	SP-020485	005	--	Correction of Mapping fallbackEnabled Qualifier	4.2.0	4.3.0
Sep 2002	S_17	SP-020486	006	--	Add Bulk CM IRP CORBA Solution Set Enhancements Rel-5	4.3.0	5.0.0
Mar 2003	S_19	SP-030140	008	--	Add subphases "PreactivationPhase" and "ValidationPhase" in 'BulkCmIRPConstDefs' IDL definition	5.0.0	5.1.0
Mar 2003	S_19	SP-030140	009	--	Add missing Rel-4 CORBA IDL exceptions	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-040807	010	--	Correct mapping of IS-defined non-filterable parameters to SS-defined non-filterable fields - Align with IS in 32.612	6.0.0	6.1.0
Dec 2004	S_26	SP-040807	011	--	Partition Bulk CM IRP capabilities into separate IDL modules – Align to IS in 32.612	6.0.0	6.1.0
Dec 2004	S_26	SP-040807	012	--	Add Signalling Transport Network (STN) NRM IRP in BulkCM IRP CORBA SS	6.0.0	6.1.0

3GPP TSG-SA5 (Telecom Management) **S5-056078**
Meeting #41, Lisbon, PORTUGAL, 24-28 January 2005

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CHANGE REQUEST

⌘	**32.614** CR **005**	⌘**rev**	**-**	⌘ Current version:	**6.0.1**	⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ [ ] ME [ ] Radio Access Network **X** Core Network **X**

Title: ⌘	Generic System Context, update of reference to IS specification	
Source: ⌘	**SA5** (Ericsson, thomas.tovinger@ericsson.com)	
Work item code:⌘	OAM-NIM	***Date:*** ⌘ 28/1/2005
Category: ⌘ **F**		***Release:*** ⌘ Rel-6

Use one of the following categories:
   F *(correction)*
   A *(corresponds to a correction in an earlier release)*
   B *(addition of feature),*
   C *(functional modification of feature)*
   D *(editorial modification)*
Detailed explanations of the above categories can
be found in 3GPP TR 21.900.

Use one of the following releases:
   2   *(GSM Phase 2)*
   R96 *(Release 1996)*
   R97 *(Release 1997)*
   R98 *(Release 1998)*
   R99 *(Release 1999)*
   Rel-4 *(Release 4)*
   Rel-5 *(Release 5)*
   Rel-6 *(Release 6)*

Reason for change: ⌘	The Information Service (IS) for this IRP is being updated due to an approved CR (to introduce the Generic System Context).
Summary of change:⌘	Update the reference in Scope to the new latest IS version.
Consequences if not approved: ⌘	Wrong reference in Scope to the IS version.

Clauses affected: ⌘	Scope

	Y	N		
Other specs ⌘		X	Other core specifications	⌘
affected:		X	Test specifications	
		X	O&M Specifications	

Other comments: ⌘	This CR should only be approved if the corresponding CR on the IS to introduce the Generic System Context is approved (see the related CR collection document for an overview of all involved CR Tdoc numbers).

Change in Clause Scope

---

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 TS 32.612 [4]. 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.

This Solution Set specification is related to 3GPP TS 32.612 V6.2̶0̶.X.

End of Change in Clause Scope

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
Sep 2001	S_13	SP-010478	001	--	Correction due to TS renumbering	4.0.0	4.1.0
Jun 2002	S_16	SP-020296	002	--	Correction of behaviour for IS parameter "saveFallback" of IS operation "activate"	4.1.0	4.2.0
Dec 2002	S_18	SP-020746	003	--	Correction of ASN.1/GDMO sources	4.2.0	4.3.0
Dec 2002	S_18	SP-020746	004	--	Alignment with the Rel-5 version of the Information Service in 32.612	4.3.0	5.0.0
Mar 2004	S_23	SP-040105	--	--	Automatic upgrade to Rel-6 (no CR)	5.0.0	6.0.0
Dec 2004	--	--	--	--	Word XP "Open and Repair" & added the TS-family to Introduction. Reference updates. Editorial cosmetics	6.0.0	6.0.1

3GPP TSG-SA5 (Telecom Management) **S5-056079**
Meeting #41, Lisbon, PORTUGAL, 24-28 January 2005

CHANGE REQUEST

| ⌘ | **32.615** CR **019** | ⌘**rev** | **-** | ⌘ | Current version: | **6.1.0** | ⌘ |

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network **X** Core Network **X**

Title:	⌘	Generic System Context, update of reference to IS specification

Source:	⌘	**SA5** (Ericsson, thomas.tovinger@ericsson.com)

Work item code:⌘	OAM-NIM		*Date:* ⌘	28/1/2005

Category:	⌘	**F**		*Release:* ⌘	Rel-6

Use one of the following categories:
   F *(correction)*
   A *(corresponds to a correction in an earlier release)*
   B *(addition of feature),*
   C *(functional modification of feature)*
   D *(editorial modification)*
Detailed explanations of the above categories can
be found in 3GPP TR 21.900.

Use one of the following releases:
   2 *(GSM Phase 2)*
   R96 *(Release 1996)*
   R97 *(Release 1997)*
   R98 *(Release 1998)*
   R99 *(Release 1999)*
   Rel-4 *(Release 4)*
   Rel-5 *(Release 5)*
   Rel-6 *(Release 6)*

Reason for change:	⌘	The Information Service (IS) for this IRP is being updated due to an approved CR (to introduce the Generic System Context).

Summary of change:⌘	Update the reference in Scope to the new latest IS version.

Consequences if not approved:	⌘	Wrong reference in Scope to the IS version.

Clauses affected:	⌘	Scope

		Y	N		
Other specs affected:	⌘		X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	

Other comments:	⌘	This CR should only be approved if the corresponding CR on the IS to introduce the Generic System Context is approved (see the related CR collection document for an overview of all involved CR Tdoc numbers).

<div style="border:1px solid black; text-align:center">

Change in Clause Scope

</div>

1 Scope

The present document provides the main part of the XML file format definition for the Bulk Configuration Management IRP IS in 3GPP TS 32.612 [1].

The other parts of this XML file format definition are NRM-specific parts.

Those NRM-specific parts are provided by 3GPP TS 32.625 [11], 3GPP TS 32.635 [12], 3GPP TS 32.645 [13], 3GPP TS 32.655 [14] and 3GPP TS 32.745 [15].

Bulk CM XML file formats are based on XML [2], XML Schema [3] [4] [5] and XML Namespace [6] standards.

This File Format Definition specification is related to 3GPP TS 32.612 V6.2~~1~~.X.

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End of Change in Clause Scope

</div>

Annex F (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
Dec 2001	S_14	SP-010645	001	--	Addition of MCC and MNC attributes to GSM cell related MOCs in Bulk CM XML file format	4.0.0	4.1.0
Mar 2002	S_15	SP-020032	002	--	Alignment of XML file definitions with W3C, and modifications to allow use of commercially available XML processing tools	4.1.0	4.2.0
Jun 2002	S_16	SP-020298	003	--	New structure of specifications for the definition of Bulk CM IRP XML file formats	4.2.0	5.0.0
Sep 2002	--	--	--	--	Cosmetics by Rapporteur/MCC	5.0.0	5.0.1
Jun 2003	S_20	SP-030284	006	--	Correction of Bulk CM session log file XML element "log" declaration	5.0.1	5.1.0
Jun 2003	S_20	SP-030287	007	--	Correction of Bulk CM configuration data file XML schema namespace URIs	5.0.1	5.1.0
Jun 2003	S_20	SP-030288	008	--	Generic NRM XML schema dependencies removal	5.0.1	5.1.0
Sep 2003	S_21	SP-030414	009	--	Add missing Activities to Session Log XML	5.1.0	5.2.0
Sep 2003	S_21	SP-030418	010	--	Inclusion of External BSS Function in GERAN XML Schema - Alignment with 32.652/655	5.1.0	5.2.0
Oct 2003	--	--	--	--	Attached to this TS the normative XML schema electronic files corresponding to Sept 2003 TS 32.615	5.2.0	5.2.1
Dec 2003	S_22	SP-030646	012	--	Correction of the number of possible URAs from 1 to 8	5.2.1	5.3.0
Mar 2004	S_23	SP-040131	013	--	Add the capability to contain instances of VsDataContainer to some MOs - Align with the IS 32.612	5.3.0	5.4.0
Jun 2004	S_24	SP-040259	014	--	Removal of XML schema URI dependencies	5.4.0	5.5.0
Jun 2004	S_24	SP-040258	016	--	Correction of the annex related to XML schema electronic files publication	5.4.0	5.5.0
Jun 2004	S_24	SP-040254	017	--	The specification does not support all UMTS frequency bands	5.4.0	5.5.0
Sep 2004	S_25	SP-040541	--	--	Automatic upgrade to Rel- 6 (no CR) as per request in SP-040541 SA5_presentation_SA_25.ppt (slide 17)	5.5.0	6.0.0
Dec 2004	S_26	SP-040807	018	--	Add Signalling Transport Network (STN) NRM IRP in BulkCM IRP XML FF	6.0.0	6.1.0

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CHANGE REQUEST

| ⌘ | **32.615** CR **020** | ⌘**rev** | **-** | ⌘ | Current version: | **6.1.0.** | ⌘ |

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐   ME ☐ Radio Access Network **X** Core Network **X**

Title: ⌘	Add Inventory Management NRM IRP in BulkCM IRP XML FFD	
Source: ⌘	**SA5** (Nortel – Suzèle Lariven – lariven@nortelnetworks.com)	
Work item code:⌘	OAM-NIM	***Date:*** ⌘ 28/01/2005
Category: ⌘	F	***Release:*** ⌘ Rel-6

Use one of the following categories:
   F *(correction)*
   A *(corresponds to a correction in an earlier release)*
   B *(addition of feature),*
   C *(functional modification of feature)*
   D *(editorial modification)*
Detailed explanations of the above categories can
be found in 3GPP TR 21.900.

Use one of the following releases:
   Ph2 (GSM Phase 2)
   R96 (Release 1996)
   R97 (Release 1997)
   R98 (Release 1998)
   R99 (Release 1999)
   Rel-4 (Release 4)
   Rel-5 (Release 5)
   Rel-6 (Release 6)
   Rel-7 (Release 7)

Reason for change: ⌘	Since Inventory Management NRM IRP is introduced in R6, the scope of NRM IRP which reuse BulkCMIRP needs to be extended
Summary of change:⌘	BulkCMIRP should be extended to be applicable to new NRM model, such as Inventory Management NRM IRP
Consequences if not approved: ⌘	Inconsistency between BulkCM IRP IS describing BulkCM capability to manage Inventory Management IRP NRM and BulkCM XML File format definition.

Clauses affected: ⌘	1, 2, 4.3A.1, Annex A, Annex E

	Y	N		
Other specs ⌘		X	Other core specifications	⌘
affected:		X	Test specifications	
		X	O&M Specifications	

Other comments: ⌘	

Change in Clause 1

1 Scope

The present document provides the main part of the XML file format definition for the Bulk Configuration Management IRP IS in 3GPP TS 32.612 [1].

The other parts of this XML file format definition are NRM-specific parts.

Those NRM-specific parts are provided by 3GPP TS 32.625 [11], 3GPP TS 32.635 [12], 3GPP TS 32.645 [13], 3GPP TS 32.655 [14], and 3GPP TS 32.745 [15], and 3GPP TS 32.695 [16].

Bulk CM XML file formats are based on XML [2], XML Schema [3] [4] [5] and XML Namespace [6] standards.

This File Format Definition specification is related to 3GPP TS 32.612 V6.12.X.

End of Change in Clause 1

Change in Clause 2

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*.

…

[15]   3GPP TS 32.745: "Telecommunication management; Configuration Management (CM); Signalling Transport Network (STN) Interface Network Resource Model (NRM) Integration Reference Point (IRP): Bulk CM eXtensible Markup Language (XML) file format definition".

[16]   3GPP TS 32.695: "Telecommunication management; Inventory Management (IM) Network Resource Model (NRM); Integration Reference Point (IRP): eXtensible Markup Language (XML) file format definition".

End of Change in Clause 2

Change in Clause 4.3A.1

4.3A.1   NRM-specific XML schemas

NRM-specific XML schemas are defined in the NRM-specific parts (see clause 1) of the XML file format definition for the Bulk Configuration Management IRP IS [1].

NRM-specific XML schemas with definition of corresponding XML namespace prefixes (see subclause 4.1) are listed by the following table:

Table 2: NRM-specific XML schemas, corresponding 3GPP TSs and XML namespace prefixes

NRM	XML schema	3GPP TS no.	XML namespace prefix
Generic Network Resources	`genericNrm.xsd`	32.625 [11]	`xn`
Core Network Resources	`coreNrm.xsd`	32.635 [12]	`cn`
UTRAN Network Resources	`utranNrm.xsd`	32.645 [13]	`un`
GERAN Network Resources	`geranNrm.xsd`	32.655 [14]	`gn`
STN Network Resources	`stnNrm.xsd`	32.745 [15]	`stn`
IM Network Resources	`inventoryNrm.xsd`	32.695 [16]	`in`

Each NRM-specific XML schema explicitly declares NRM-specific XML element types for the related NRM.

Additionally, XML schema `genericNrm.xsd` (see [11]) also provides global XML declarations and definitions for the support of:

- NRM-specific XML element type declaration;

- vendor-specific XML element type declaration (see subclause 4.5).

End of Change in Clause 4.3A.1

Change in Clause Annex A

Annex A (normative): Configuration data file base XML schema (file name "`configData.xsd`")

The following XML schema `configData.xsd` is the base schema for configuration data XML files:

```
<?xml version="1.0" encoding="UTF-8"?>

<!--
  3GPP TS 32.615 Bulk CM IRP
  Configuration data file base XML schema
  configData.xsd
-->

<schema
  targetNamespace=
"http://www.3gpp.org/ftp/specs/archive/32_series/32.615#configData"

  elementFormDefault="qualified"

  xmlns="http://www.w3.org/2001/XMLSchema"

  xmlns:xn=
"http://www.3gpp.org/ftp/specs/archive/32_series/32.625#genericNrm"
```

```
  xmlns:cn=
"http://www.3gpp.org/ftp/specs/archive/32_series/32.635#coreNrm"

  xmlns:un=
"http://www.3gpp.org/ftp/specs/archive/32_series/32.645#utranNrm"

  xmlns:gn=
"http://www.3gpp.org/ftp/specs/archive/32_series/32.655#geranNrm"

  xmlns:stn=
"http://www.3gpp.org/ftp/specs/archive/32_series/32.745#stnNrm"

  xmlns:in=
"http://www.3gpp.org/ftp/specs/archive/32_series/32.695#inventoryNrm"
>

  <import
    namespace=
"http://www.3gpp.org/ftp/specs/archive/32_series/32.625#genericNrm"
  />
  <import
    namespace=
"http://www.3gpp.org/ftp/specs/archive/32_series/32.635#coreNrm"
  />
  <import
    namespace=
"http://www.3gpp.org/ftp/specs/archive/32_series/32.645#utranNrm"
  />
  <import
    namespace=
"http://www.3gpp.org/ftp/specs/archive/32_series/32.655#geranNrm"
  />
  <import
    namespace=
"http://www.3gpp.org/ftp/specs/archive/32_series/32.745#stnNrm"
  />
  <import
    namespace=
"http://www.3gpp.org/ftp/specs/archive/32_series/32.695#inventoryNrm"
  />

  <!-- Configuration data file root XML element -->

  <element name="bulkCmConfigDataFile">
    <complexType>
      <sequence>
        <element name="fileHeader">
          <complexType>
            <attribute name="fileFormatVersion" type="string" use="required"/>
            <attribute name="senderName" type="string" use="optional"/>
            <attribute name="vendorName" type="string" use="optional"/>
          </complexType>
        </element>
        <element name="configData" maxOccurs="unbounded">
          <complexType>
            <choice>
              <element ref="xn:SubNetwork"/>
              <element ref="xn:MeContext"/>
              <element ref="xn:ManagedElement"/>
            </choice>
            <attribute name="dnPrefix" type="string" use="optional"/>
          </complexType>
        </element>
```

```
        <element name="fileFooter">
          <complexType>
            <attribute name="dateTime" type="dateTime" use="required"/>
          </complexType>
        </element>
      </sequence>
    </complexType>
  </element>

</schema>
```

End of Change in Clause Annex A

Change in Clause Annex E

Annex E (informative): XML schema electronic files

The electronic files corresponding to the normative XML schemas defined in the present document are available in native form in the following archive:

http://www.3gpp.org/ftp/specs/archive/32_series/32.615/schema/32615-610620-XMLSchema.zip

End of Change in Clause Annex E

End of Document

Annex F (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Dec 2003	S_22	SP-030646	012	--	Correction of the number of possible URAs from 1 to 8	5.2.1	5.3.0
Mar 2004	S_23	SP-040131	013	--	Add the capability to contain instances of VsDataContainer to some MOs - Align with the IS 32.612	5.3.0	5.4.0
Jun 2004	S_24	SP-040259	014	--	Removal of XML schema URI dependencies	5.4.0	5.5.0
Jun 2004	S_24	SP-040258	016	--	Correction of the annex related to XML schema electronic files publication	5.4.0	5.5.0
Jun 2004	S_24	SP-040254	017	--	The specification does not support all UMTS frequency bands	5.4.0	5.5.0
Sep 2004	S_25	SP-040541	--	--	Automatic upgrade to Rel- 6 (no CR) as per request in SP-040541 SA5_presentation_SA_25.ppt (slide 17)	5.5.0	6.0.0
Dec 2004	S_26	SP-040807	018	--	Add Signalling Transport Network (STN) NRM IRP in BulkCM IRP XML FF	6.0.0	6.1.0