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Title: New Rel-6 TS 32.343-100 "Telecommunication management; File Transfer (FT) Integration Reference Point (IRP): Common Object Request Broker Architecture (CORBA) Solution Set (SS)" - **For Information**

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Agenda Item: **7.5.3**

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3GPP TSG-SA5 (Telecom Management) **S5-046173**
Meeting #37, Málaga, España, 23 – 27 February 2004

Presentation of Technical Specification to TSG SA

Presentation to:	**TSG SA Meeting #23**
Document for presentation:	**TS 32.343, Version 1.0.0** **File Transfer IRP: CORBA Solution Set**
Presented for:	**Information**

Abstract of document:
This TS defines the CORBA Solution Set for the File Transfer IRP.

Work done against the WID contained in SP-020754 (Work Item ID: OAM-NIM).

Purpose of This Specification:

This CORBA Solution Set document is intended for Release 6 and is part of the File Transfer IRP, which consists of:

Numbe	Title
32.341	Telecommunication management; File Transfer (FT) Integration Reference Point (IRP): Requirements
32.342	Telecommunication management; File Transfer (FT) Integration Reference Point (IRP): Information Service (IS)
32.343	**Telecommunication management; File Transfer (FT) Integration Reference Point (IRP): Common Object Request Broker Architecture (CORBA) Solution Set (SS)**
32.344	Telecommunication management; File Transfer (FT) Integration Reference Point (IRP): Common Management Information Protocol (CMIP) Solution Set (SS)

The purpose of this set of specifications is to provide a File Transfer mechanism enabling the controlled exchange of bulk management data in managed systems for Release 6.

Changes since last presentation to TSG-SA:
New

Outstanding Issues:
None

Contentious Issues:
None

3GPP TS 32.343 V1.0.0 (2004-03)

Technical Specification

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Postal address

3GPP support office address
650 Route des Lucioles - Sophia Antipolis
Valbonne - FRANCE
Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Internet
http://www.3gpp.org

Contents

Foreword

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

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

- x the first digit:
  - 1 presented to TSG for information;
  - 2 presented to TSG for approval;
  - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

Introduction

The present document is part the 32.34x-series covering the 3rd Generation Partnership Project: Technical Specification Group Services and System Aspects; Telecommunication management; File Transfer (FT) Integration Reference Point (IRP), as identified below:

TS 32.341 "Requirements";

TS 32.342 "Information Service (IS)";

TS 32.343 "Common Object Request Broker Architecture (CORBA) Solution Set (SS)";

TS 32.344 "Common Management Information Protocol (CMIP) Solution Set(SS)".

The present document is part of a set of TSs which describe the requirements and information model necessary for the Telecommunication Management (TM) of 3G systems. The TM principles and TM architecture are specified in 3GPP TS 32.101 [1] and 3GPP TS 32.102 [2].

Network Elements (NEs) under management, element managers as well as network managers generate various management information stored in file format. This IRP is addressing how these file are exchanged through Itf-N as well as certain aspects of file management and maintenance. It is anticipated that all management functions (e.g. PM, Call Trace, CM) as well as associated IRP's making reuse of capabilities provided by this File Transfer IRP.

1 Scope

The present document specifies the Common Object Request Broker Architecture (CORBA) Solution Set (SS) for the IRP whose semantics is specified in File Transfer IRP: Information Service [7].

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document.*

[1] 3GPP TS 32.101: "Telecommunication management; Principles and high level requirements".

[2] 3GPP TS 32.102: "Telecommunication management; Architecture".

[3] 3GPP TS 32.341: "Telecommunication management; File Transfer (FT) Integration Reference Point (IRP): Requirements".

[4] 3GPP TS 32.311: "Telecommunication management; Generic Integration Reference Point (IRP) management: Requirements".

[5] 3GPP TS 32.303: "Telecommunication management; Configuration Management (CM); Notification Integration Reference Point (IRP): Common Object Request Broker Architecture (CORBA) Solution Set (SS)".

[6] 3GPP TS 32.300: "Telecommunication management; Configuration Management (CM); Name convention for Managed Objects".

[7] 3GPP TS 32.342: "Telecommunication management; File Transfer (FT) Integration Reference Point (IRP): Information Service (IS)".

[8] 3GPP TS 32.312: "Telecommunication management; Generic Integration Reference Point (IRP) management: Information Service (IS)".

[9] OMG TC Document telecom/98-11-01: "OMG Notification Service". http://www.omg.org/technology/documents/

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TS 32.101 [1], 3GPP TS 32.102 [2], 3GPP TS 32.341 [3] and the following apply:

IRP document version number string (or "IRPVersion"): See 3GPP TS 32.311 [4].

3.2 Abbreviations

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

CM	Configuration Management
CORBA	Common Object Request Broker Architecture (OMG)
DN	Distinguished Name
FT	File Transfer
IDL	Interface Definition Language (OMG)
IS	Information Service
NE	Network Element
OMG	Object Management Group
PM	Performance Management
SS	Solution Set

4 Architectural features

The overall architectural feature of FileTransferIRP is specified in 3GPP TS 32.341 [3].

This clause specifies features that are specific to the CORBA SS.

5.1 Notifications

Notifications are sent according to the Notification IRP: CORBA SS (see 3GPP TS 32.303 [5]).

The contents of the FileTransferIRP notifications are defined in the present document.

5.2 Syntax for Distinguished Names and Versions

The format of a Distinguished Name is defined in 3GPP TS 32.300 [6].

The version of this IRP is represented as a string (see also clause 3 for versions).

5 Mapping

5.1 Operation and Notification mapping

FileTransferIRP: IS 3GPP TS 32.342 [7] defines semantics of operation and notification visible across the FileTransferIRP. Table 1 indicates mapping of these operations and notifications to their equivalents defined in this SS.

Table 1: Mapping from IS Operations and Notification to SS equivalents

IS Operations/ notification 3GPP TS 32.342 [7]	SS Method	Qualifier
listAvailableFiles	list_available_files	M
getIRPVersion	get_FileTransfer_IRP_versions	M
getOperationProfile (see note)	get_FileTransfer_IRP_operations_profile	O
getNotificationProfile (see note)	get_FileTransfer_IRP_notification_profile	O
notifyFileReady	push_structured_events (see subclause 6.1)	M
notifyFilePreparationError	push_structured_events (see subclause 6.1)	M
NOTE: This operation is of ManagedGenericIRP IOC specified in 3GPP TS 32.312 [8]. The FileTransferIRP IOC of 3GPP TS 32.342 [7] inherits from it.		

5.2 Operation parameter mapping

The FileTransferIRP: IS 3GPP TS 32.342 [7] defines semantics of parameters carried in operations across the FileTransferIRP. The following tables indicate the mapping of these parameters, as per operation, to their equivalents defined in this SS.

Table 2: Mapping from IS `listAvailableFiles` parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
managementDataType	FileTransferIRPConstDefs::ManagementDataTypeType managementDataType	M
beginTime	FileTransferIRPConstDefs::BeginTimeType beginTime	M
endTime	FileTransferIRPConstDefs::EndTimeType endTime	M
fileInfoList	Return value of type FileTransferIRPConstDefs::FileInfoListType fileInfoList	M
Status	FileTransferIRPConstDefs::ResultType Exception: ListAvailableFiles, InvalidTimes	M

Table 12: Mapping from IS `getIRPVersion` parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
versionNumberSet	Return value of type ManagedGenericIRPConstDefs::VersionNumberSet	M
status	Exception: GetFileTransferIRPVersions	M

Table 13: Mapping from IS `getOperationProfile` parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
iRPVersion	ManagedGenericIRPConstDefs::VersionNumber iRPVersion	M
operationNameProfile,operationParameterProfile	Return of type ManagedGenericIRPConstDefs::MethodList	M
status	Exception: GetFileTransferIRPOperationsProfile, ManagedGenericIRPSystem::OperationNotSupported, ManagedGenericIRPSystem::InvalidParameter	M

Table 14: Mapping from IS `getNotificationProfile` parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
iRPVersion	ManagedGenericIRPConstDefs::VersionNumber iRPVersion	M
notificationNameProfile,notificationParameterProfile	Return value of type ManagedGenericIRPConstDefs::MethodList	M
status	Exception: GetFileTransferIRPNotificationProfile, ManagedGenericIRPSystem::OperationNotSupported, ManagedGenericIRPSystem::InvalidParameter	M

5.3 Notification parameter mapping

The FileTransferIRP: IS 3GPP TS 32.342 [7] defines semantics of parameters carried in notifications. The following table indicates the mapping of these parameters to their OMG CORBA Structured Event (defined in OMG Notification Service [9]) equivalents. The composition of OMG Structured Event, as defined in the OMG Notification Service [9], is:

```
Header
      Fixed Header
           domain_name
           type_name
           event_name
      Variable Header
Body
      filterable_body_fields
      remaining_body
```

The following tables list all OMG Structured Event attributes in the second column. The first column identifies the FileTransferIRP: IS 3GPP TS 32.342 [7] defined notification parameters.

Table 5.3.1: Mapping for `notifyFileReady`

IS Parameters	OMG CORBA Structured Event attribute	Qualifier	Comment
There is no corresponding IS attribute.	domain_name	M	It carries the IRP document version number string. See subclause 3.1. It indicates the syntax and semantics of the Structured Event as defined by the present document.
notificationType	Type_name	M	This is the ET_FILE_READY of module of FileTransferIRPConstDefs.
There is no corresponding IS attribute	event_name	M	It carries no information.
There is no corresponding IS attribute.	Variable Header		
objectClass, objectInstance	One NV pair of filterable_ body_fields	M	NV stands for name-value pair. Order arrangement of NV pairs is not significant. The name of NV-pair is always encoded in string. Name of this NV pair is the MANAGED_OBJECT_INSTANCE of interface AttributeNameValue of module NotificationIRPConstDefs. Value of NV pair is a string. See corresponding table in Notification IRP: CORBA SS (3GPP TS 32.303 [5]).
notificationId	One NV pair of filterable_ body_fields	M	Name of NV pair is the NOTIFICATION_ID of interface AttributeNameValue of module NotificationIRPConstDefs. Value of NV pair is a long. See corresponding table in Notification IRP: CORBA SS (3GPP TS 32.303 [5]).
eventTime	One NV pair of filterable_ body_fields	M	Name of NV pair is the EVENT_TIME of interface AttributeNameValue of module NotificationIRPConstDefs. Value of NV pair is IRPTime. See corresponding table in Notification IRP: CORBA SS (3GPP TS 32.303 [5]).
systemDN	One NV pair of filterable_ body_fields	M	Name of NV pair is the SYSTEM_DN of interface AttributeNameValue of module NotificationIRPConstDefs. Value of NV pair is a string. See corresponding table in Notification IRP: CORBA SS (3GPP TS 32.303 [5]).
fileInfoList	One NV pair of filterable_ body_fields	M	Name of NV pair is the FILE_INFO_LIST of module FileTransferIRPConstDefs::AttributeNameValue. Value of NV pair is FileInfoListType of module FileTransferIRPConstDefs.
additionalText	One NV pair of filterable_ body_fields	O	Name of NV pair is the ADDITIONAL_TEXT of module FileTransferIRPConstDefs::AttributeNameValue. Value of NV pair is a string.
There is no corresponding IS attribute.	remaining_body		

Table 5.3.2: Mapping for `notifyFilePreparationError`

IS Parameters	OMG CORBA Structured Event attribute	Qualifier	Comment
There is no corresponding IS attribute.	domain_name	M	It carries the IRP document version number string. See subclause 3.1. It indicates the syntax and semantics of the Structured Event as defined by the present document.
notificationType	Type_name	M	This is the ET_FILE_PREPARATION_ERROR of module of FileTransferIRPConstDefs.
There is no corresponding IS attribute	event_name	M	It carries no information.
There is no corresponding IS attribute.	Variable Header		
objectClass, objectInstance	One NV pair of filterable_ body_fields	M	NV stands for name-value pair. Order arrangement of NV pairs is not significant. The name of NV-pair is always encoded in string. Name of this NV pair is the MANAGED_OBJECT_INSTANCE of interface AttributeNameValue of module NotificationIRPConstDefs. Value of NV pair is a string. See corresponding table in Notification IRP: CORBA SS (3GPP TS 32.303 [5]).
notificationId	One NV pair of filterable_ body_fields	M	Name of NV pair is the NOTIFICATION_ID of interface AttributeNameValue of module NotificationIRPConstDefs. Value of NV pair is a long. See corresponding table in Notification IRP: CORBA SS (3GPP TS 32.303 [5]).
eventTime	One NV pair of filterable_ body_fields	M	Name of NV pair is the EVENT_TIME of interface AttributeNameValue of module NotificationIRPConstDefs. Value of NV pair is IRPTime. See corresponding table in Notification IRP: CORBA SS (3GPP TS 32.303 [5]).
systemDN	One NV pair of filterable_ body_fields	M	Name of NV pair is the SYSTEM_DN of interface AttributeNameValue of module NotificationIRPConstDefs. Value of NV pair is a string. See corresponding table in Notification IRP: CORBA SS (3GPP TS 32.303 [5]).
fileInfoList	One NV pair of filterable_ body_fields	M	Name of NV pair is the FILE_INFO_LIST of module FileTransferIRPConstDefs::AttributeNameValue. Value of NV pair is FileInfoListType of module FileTransferIRPConstDefs.
additionalText	One NV pair of filterable_ body_fields	O	Name of NV pair is the ADDITIONAL_TEXT of module FileTransferIRPConstDefs::AttributeNameValue. Value of NV pair is a string.
There is no corresponding IS attribute.	remaining_body		

6 FileTransferIRP Notification Interface

OMG CORBA Notification push operation is used to realise the notification of `FileTransferIRP Notifications`. All the notifications in this interface are implemented using this `push_structured_event` method.

6.1 Method `push` (M)

```
module CosNotifyComm {
…
Interface SequencePushConsumer : NotifyPublish {
void push_structured_events(
in CosNotification::EventBatch notifications)
        raises( CosEventComm::Disconnected);
…
}; // SequencePushConsumer
…
}; // CosNotifyComm
```

NOTE 1: The `push_structured_events` method takes an input parameter of type `EventBatch` as defined in the OMG `CosNotification` module (OMG Notification Service [9]). This data type is the same as a sequence of Structured Events. Upon invocation, this parameter will contain a sequence of Structured Events being delivered to IRPManager by IRPAgent to which it is connected.

NOTE 2: The maximum number of events that will be transmitted within a single invocation of this operation is controlled by IRPAgent wide configuration parameter.

NOTE 3: The amount of time the supplier (IRPAgent) of a sequence of Structured Events will accumulate individual events into the sequence before invoking this operation is controlled by IRPAgent wide configuration parameter as well.

NOTE 4: IRPAgent may push `EventBatch` with only one Structured Event.

Annex A (normative): IDL specifications

A.1 IDL specification (file name "FileTransferIRP ConstDefs.idl")

```
#ifndef FileTransferIRPConstDefs_idl
#define FileTransferIRPConstDefs_idl

#include "TimeBase.idl"

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

/* ## Module: FileTransferIRPConstDefs
This module contains commonly used definitions for FileTransferIRP.
================================================================
*/
module FileTransferIRPConstDefs
{
  enum ResultType {OK, Failure};

  typedef TimeBase::UtcT UTCTimeType;
  typedef UTCTimeType BeginTimeType;
  typedef UTCTimeType EndTimeType;

  enum LocationChoice {Directory, URL};

  //The FileLocationType may be a directory path or a URL
  union FileLocationType switch (LocationChoice)
  {
    case Directory:  string fileLocationD;
    /* e.g. \\202.112.101.1\D:\user\performanceFiles\<fileName> */
    caae URL: string fileLocationU
    /* e.g. ftp://nms.telecom_org.com/datastore/<fileName> */
  };

  typedef unsigned long FileSizeType; //the unit is byte
  typedef string FileCompressionType;
  typedef string FileFormatType;

  struct FileInfoType
  {
    FileLocationType fileLocation;
    FileSizeType fileSize;
    UTCTimeType fileReadyTime;
    UTCTimeType fileExpirationTime;
    FileCompressionType fileCompression;
    FileFormatType fileFormat;
  };

  typedef sequence<FileInfoType> FileInfoListType;


  enum ManagementDataTypeType {PM, BULKCM, TEST, CALLTRACE, LOG, ALARMHISTORYINFO, CHARGING};

  /*
  Define the parameters specified in the notifyFileReady
  and notifyFilePreparationError notification.
  */
  interface AttributeNameValue
  {
     const string FILE_INFO_LIST = "FILE_INFO_LIST";
     const string ADDITIONAL_TEXT = "ADDITIONAL_TEXT";
  };
```

```
  const string ET_FILE_READY = "notifyFileReady";
  const string ET_FILE_PREPARATION_ERROR = "notifyFilePreparationError";

};

#endif
```

A.2 IDL specification (file name " FileTransferIRP System.idl")

```
#ifndef FileTransferIRPSystem_idl
#define FileTransferIRPSystem_idl

#include "ManagedGenericIRPConstDefs.idl"
#include "ManagedGenericIRPSystem.idl"
#include "FileTransferIRPConstDefs.idl"

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

/* ## Module: FileTransferIRPSystem
This module implements capabilities of FileTransferIRP.
================================================================
*/
module FileTransferIRPSystem
{

  exception InvalidTimes { string reason; };

  /*
   System 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 ListAvailableFiles { string reason; };
  exception GetFileTransferIRPVersions { string reason; };
  exception GetFileTransferIRPOperationsProfile { string reason; };
  exception GetFileTransferIRPNotificationProfile { string reason; };

  /*
  */
   interface FileTransferIRP
   {
     /*
     * IRPManager invoke this operation to get the files information
     */
     FileTransferIRPConstDefs::ResultType    list_available_files(
       in FileTransferIRPConstDefs::ManagementDataTypeType managementDataType,
       in FileTransferIRPConstDefs::BeginTimeType beginTime,
       in FileTransferIRPConstDefs::EndTimeType endTime,
       out FileTransferIRPConstDefs::FileInfoListType fileInfoList
     )
     raises (ListAvailableFiles,InvalidTimes);

      /**
      * Return the list of all supported FileTransferIRP versions.
      */
      ManagedGenericIRPConstDefs::VersionNumberSet get_FileTransfer_IRP_versions (
      )
      raises (GetFileTransferIRPVersions);


      /**
      * Return the list of all supported operations and their supported
      * parameters for a specific FileTransferIRP version.
      */
      ManagedGenericIRPConstDefs::MethodList get_FileTransfer_IRP_operations_profile (
         in ManagedGenericIRPConstDefs::VersionNumber iRPVersion
      )
      raises (GetFileTransferIRPOperationsProfile,
```

```
               ManagedGenericIRPSystem::OperationNotSupported,
               ManagedGenericIRPSystem::InvalidParameter);

      /**
      * Return the list of all supported notifications and their supported
      * parameters for a specific FileTransferIRP version.
      */
      ManagedGenericIRPConstDefs::MethodList get_FileTransfer_IRP_notification_profile
      (
         in ManagedGenericIRPConstDefs::VersionNumber iRPVersion
      )
      raises (GetFileTransferIRPNotificationProfile,
               ManagedGenericIRPSystem::OperationNotSupported,
               ManagedGenericIRPSystem::InvalidParameter);
   };

};

#endif
```

Annex B (informative): Change history

Change history							
Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Old	New
Mar 2004	S_23	SP-040127	--	--	Submitted to TSG SA#23 for Information	1.0.0	