TSGS#27(05)0041

Source: SA5 (Telecom Management)

Title: CR 32412-3 Performance Management (PM) IRP

Document for: Approval

Agenda Item: 7.5.3

Doc-1st-Level	Spec	CR	R	Phase	Subject	Ca	VerCr	Doc-2nd-Level	Workitem
SP-050041	32.412	009	--	Rel-6	Remove the ambiguity that a PM IRP compliant system necessarily contains functionalities defined in Kernel CM IRP	F	6.3.0	S5-056086	OAM-PM
SP-050041	32.413	006	--	Rel-6	Remove the ambiguity that a PM IRP compliant system necessarily contains functionalities defined in Kernel CM IRP – Align wih TS 32.412	F	6.3.0	S5-056087	OAM-PM
SP-050041	32.412	010	--	Rel-6	Apply the Generic System Context – Align with TS 32.150	F	6.3.0	S5-056089	OAM-NIM
SP-050041	32.413	007	--	Rel-6	Apply the Generic System Context, update of reference to IS specification – Align wih TS 32.412	F	6.3.0	S5-056092	OAM-NIM
SP-050041	32.413	005	--	Rel-6	IDL incompliant to the style guide	F	6.3.0	S5-056069	OAM-NIM

CR-Form-v7.1

CHANGE REQUEST

⌘ **32.413** **CR** **005** ⌘**rev** **-** ⌘ Current version: **6.3.0** ⌘

*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 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)*
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, add the missing title of A.1.
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			
Other specs affected:	⌘	**Y**	**N**		⌘
			X	Other core specifications	
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

Change in Annex A

Annex A (normative): IDL specifications

A.1 IDL specification (file name "PMIRPConstDefs.idl")

```
// File: PMIRPConstDefs.idl

#ifndef _PMIRPCONSTDEFS_IDL_
#define _PMIRPCONSTDEFS_IDL_

#include "TimeBase.idl"

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

/* ## Module: PMIRPConstDefs
This module contains commonly used definitions for PM IRP
================================================================
*/
module PMIRPConstDefs
{

   enum ResultType {OK, Failure};

   typedef   string   MOClassNameType;
   typedef   string   MOInstanceType;
   typedef   sequence<MOInstanceType>   MOInstanceListType;
   typedef   string   MeasurementCategoryType;
   typedef   sequence<MeasurementCategoryType>  MeasurementCategoryListType;
   typedef   unsigned long  GranularityPeriodType; //The unit is minute.
   typedef   unsigned long  ReportingPeriodType; //The unit is minute.
   typedef   TimeBase::UtcT UTCTimeType;

   union IRPTimeTypeOpt switch(boolean)
   {
     case TRUE: UTCTimeType value;
   };

   struct Time24
   {
     unsigned short hour; // 0-23
     unsigned short minute; // 0-59
   };

   struct IntervalOfDayType
   {
     Time24 intervalStartTime;
     Time24 intervalStopTime;
   };
   typedef sequence<IntervalOfDayType> DailySchedulingType;

   const short Sunday = 1;
   const short Monday = 2;
   const short Tuesday = 4;
   const short Wednesday = 8;
   const short Thursday = 16;
   const short Friday = 32;
   const short Saturday = 64;

   typedef short DaysOfWeekType;
   // Bit mask of week days,
   // e.g. “Sunday(1) and Wednesday(8)” is encoded as 9.

   struct WeeklySchedulingElement
   {
     DaysOfWeekType days;
     DailySchedulingType intervalsOfDay;
   };
   typedef sequence<WeeklySchedulingElement> WeeklySchedulingType;
```

```
enum scheduleTypeChoice { Daily, Weekly };
union ScheduleType switch (scheduleTypeChoice)
{
  case Daily:  DailySchedulingType dailyScheduling;
  case Weekly: WeeklySchedulingType weeklyScheduling;
};
union ScheduleTypeOpt switch(boolean)
{
  case TRUE: ScheduleType value;
};


typedef   unsigned long   JobIdType;
typedef sequence<JobIdType> JobIdListType;
struct JUnsupportedType
{
  MOInstanceType  moInstance;
  MeasurementCategoryType measurementCategory;
  string reason;
};
typedef  sequence<JUnsupportedType>  JUnsupportedListType;


/**
 * Defines the name of an attribute of a Managed Object
 */
typedef string MOAttributeName;

enum  JobStatusType {Scheduled, Active, Suspended, Stopped};
enum  JobPriorityType {Low, Medium, High};
union JobPriorityTypeOpt switch (boolean)
{
   case TRUE: JobPriorityType value;
};

struct JobInfoType
{
 JobIdType  jobId;
 MOClassNameType  moClass;
 MOInstanceListType  moInstanceList;
 MeasurementCategoryListType  measurementCategoryList;
 GranularityPeriodType  granularityPeriod;
 ReportingPeriodType  reportingPeriod;
 IRPTimeTypeOpt  startTime;
 IRPTimeTypeOpt  stopTime;
 ScheduleTypeOpt  schedule;
 JobStatusType jobStatus;
 JobPriorityTypeOpt jobPriority;
};
typedef sequence<JobInfoType> JobInfoListType;

typedef string MeasurementTypeNameType;
typedef string SubCounterNameType;
typedef short ProbableCauseType; //THRESHOLD_CROSSED = 351;

typedef string SpecificProblemType;
typedef any ThresholdValueType;
enum SeverityType {Warning, Minor, Major, Critical};
union HysteresisType switch(boolean)
{
  case TRUE:  long longValue;
  case FALSE: float floatValue;
};
enum DirectionType { Increasing, Decreasing};
struct ThresholdPackElementType
{
  ThresholdValueType thresholdValue;
  SeverityType severity;
  HysteresisType hysteresis;
};
typedef sequence<ThresholdPackElementType> ThresholdPackType;
struct ThresholdInfoType
{
  MeasurementTypeNameType measurementTypeName;
  SubCounterNameType subCounterName;
  ProbableCauseType probableCause;
  SpecificProblemType specificProblem;
  DirectionType direction;
```

```
    ThresholdPackType thresholdPack;
  };
  typedef sequence<ThresholdInfoType> ThresholdInfoListType;
  typedef GranularityPeriodType MonitorGranularityPeriodType;// time period is based on 5 minutes.
  typedef unsigned long MonitorIdType;
  struct MUnsupportedType
  {
    MOInstanceType  moInstance;
    MeasurementTypeNameType measurementTypeName;
    SubCounterNameType subCounterName;
    string reason;
  };
  typedef  sequence<MUnsupportedType>  MUnsupportedListType;
  enum  MonitorStatusType {MSuspended, MActive};

  typedef sequence<MonitorIdType> MonitorIdListType;
  typedef string EventTypeType; // The value is "Quality of Service Alarm"
  struct MonitorInfoType
  {
   MonitorIdType  monitorId;
   MOClassNameType  moClass;
   MOInstanceListType  moInstanceList;
   MonitorGranularityPeriodType monitorGranularityPeriod;
   ThresholdInfoListType thresholdInfoList;
   MonitorStatusType thresholdMonitorStatus;
   EventTypeType eventType;
  };
  typedef sequence<MonitorInfoType> MonitorInfoListType;


  /**
  * This block identifies attributes which are included as part of the
  * PMIRP. These attribute values should not
  * clash with those defined for the attributes of notification
  * header (see IDL of Notification IRP).
  */
  interface AttributeNameValue
  {
   const string JOB_ID = "JOB_ID";
   const string JOB_STATUS = "JOB_STATUS";
   const string REASON = "REASON";
   const string MONITOR_ID = "MONITOR_ID";
   const string MONITOR_STATUS = "MONITOR_STATUS";

   const string MONITOR_GRANULARITYPERIOD = "MONITOR_GRANULARITYPERIOD";
   const string THRESHOLD_INFO_LIST = "THRESHOLD_INFO_LIST";
  };

};

#endif // _PMIRPCONSTDEFS_IDL_
```

A.2 IDL specification (file name "PMIRPSystem.idl")

```
//File: PMIRPSystem.idl

#ifndef _PMIRPSYSTEM_IDL_
#define _PMIRPSYSTEM_IDL_

#include "ManagedGenericIRPSystem.idl"
#include "ManagedGenericIRPConstDefs.idl"
#include "PMIRPConstDefs.idl"

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

/* ## Module: PMIRPSystem
This module contains the specification of all operations of PM IRP Agent.
================================================================
*/
module PMIRPSystem
{

   /**
   * The reason specifies whether EM or NE has high workload. The value shall be one
```

```
* of following: emCpuBusy; emHDShortage, emLowMemory, {neCpuBusy, neObjectInstList},
* {neHDShortage neObjectInstList}, {neLowMemory, neObjectInstList}, maxJobReached,
* otherReason.
* In the case the reason is a tuple, the first element is the string such as
* "NE_CPU_BUSY" followed by a comma, then followed by a sequence of DN where
* each DN is separated by its adjacent DN, if any, by a colon.  The DN is formatted
* as described in 32.300.
*/
exception HighWorkLoad { string reason; };
interface HighWorkLoadExceptionReason
{
  const string EmCpuBusy = "EM_CPU_BUSY";
  const string EmHDShortage = "EM_HD_SHORTAGE";
  const string EmLowMemory = "EM_LOW_MEMORY";
  const string NeCpuBusy = "NE_CPU_BUSY";
  const string NeHDShortage = "NE_HD_SHORTAGE";
  const string NeLowMemory = "NE_LOW_MEMORY";
  const string MaxJobReached = "MAX_JOB_REACHED";
  const string OtherReason = "OTHER_REASON";
};


exception UnknownJob { string reason; };
exception JobCannotBeStopped { string reason; };
exception JobAlreadySuspended { string reason; };
exception JobIsNotSuspended { string reason; };
exception UnknownThresholdMonitor { string reason; };
exception ThresholdMonitorAlreadySuspended { string reason; };
exception ThresholdMonitorIsNotSuspended { 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 GetPMIRPVersions { string reason; };
exception GetPMIRPOperationsProfile { string reason; };
exception GetPMIRPNotificationProfile { string reason; };
exception CreateMeasurementJob { string reason; };
exception StopMeasurementJob { string reason; };
exception SuspendMeasurementJob { string reason; };
exception ResumeMeasurementJob { string reason; };
exception ListMeasurementJobs { string reason; };

exception CreateThresholdMonitor { string reason; };
exception DeleteThresholdMonitor { string reason; };
exception ListThresholdMonitors { string reason; };
exception SuspendThresholdMonitor { string reason; };
exception ResumeThresholdMonitor { string reason; };

interface PMIRP
{

   readonly attribute string iRPId;

   /**
   * Return the list of all supported PM IRP versions.
   */
   ManagedGenericIRPConstDefs::VersionNumberSet get_PM_IRP_versions (
   )
   raises (GetPMIRPVersions);


   /**
   * Return the list of all supported operations and their supported
   * parameters for a specific PM IRP version.
   */
   ManagedGenericIRPConstDefs::MethodList get_PM_IRP_operations_profile (
      in ManagedGenericIRPConstDefs::VersionNumber pm_irp_version
   )
   raises (GetPMIRPOperationsProfile,
           ManagedGenericIRPSystem::OperationNotSupported,
           ManagedGenericIRPSystem::InvalidParameter);

   /**
   * Return the list of all supported notifications and their supported
   * parameters for a specific PM IRP version.
   */
```

```
ManagedGenericIRPConstDefs::MethodList get_PM_IRP_notification_profile
(
   in ManagedGenericIRPConstDefs::VersionNumber pm_irp_version
)
raises (GetPMIRPNotificationProfile,
        ManagedGenericIRPSystem::OperationNotSupported,
        ManagedGenericIRPSystem::InvalidParameter);

/**
* Request to create a MeasurementJob through Itf-N.
*/
ManagedGenericIRPConstDefs::Signal create_measurement_job (
  in PMIRPConstDefs::MOClassNameType  moClass,
  in PMIRPConstDefs::MOInstanceListType  moInstanceList,
  in PMIRPConstDefs::MeasurementCategoryListType  measurementCategoryList,
  in PMIRPConstDefs::GranularityPeriodType  granularityPeriod,
  in PMIRPConstDefs::ReportingPeriodType  reportingPeriod,
  in PMIRPConstDefs::IRPTimeTypeOpt  startTime,
  in PMIRPConstDefs::IRPTimeTypeOpt  stopTime,
  in PMIRPConstDefs::ScheduleTypeOpt  schedule,
  in PMIRPConstDefs::JobPriorityTypeOpt  priority,
  out PMIRPConstDefs::JobIdType jobId,
  out PMIRPConstDefs::JUnsupportedListType unsupportedList
)
raises (CreateMeasurementJob,
        ManagedGenericIRPSystem::InvalidParameter,
        ManagedGenericIRPSystem::ParameterNotSupported,
        HighWorkLoad);

/**
* Request to stop a MeasurementJob through Itf-N, after which,
* the MeasurementJob will still be visible via Itf-N. Whether
* the MeasurementJob is thoroughly removed immediately from
* the managed system is vendor specific.
*/
PMIRPConstDefs::ResultType stop_measurement_job (
  in PMIRPConstDefs::JobIdType jobId)
raises (StopMeasurementJob,
        UnknownJob,
        JobCannotBeStopped);

/**
* Request to suspend a MeasurementJob
*/
PMIRPConstDefs::ResultType suspend_measurement_job (
  in PMIRPConstDefs::JobIdType jobId)
raises (SuspendMeasurementJob,
        UnknownJob,
        JobAlreadySuspended,
        ManagedGenericIRPSystem::OperationNotSupported);

/**
* Request to resume a MeasurementJob
*/
PMIRPConstDefs::ResultType resume_measurement_job (
  in PMIRPConstDefs::JobIdType jobId)
raises (ResumeMeasurementJob,
        UnknownJob,
        JobIsNotSuspended,
        HighWorkLoad,
        ManagedGenericIRPSystem::OperationNotSupported);

/**
* Request to list the information of all or of specified
* MeasurementJobs
*/
PMIRPConstDefs::ResultType list_measurement_jobs (
  in PMIRPConstDefs::JobIdListType jobListId,
  out PMIRPConstDefs::JobInfoListType jobInfoList)
raises (ListMeasurementJobs,
        ManagedGenericIRPSystem::InvalidParameter);

/**
* Request to create a ThresholdMonitor to define the threshold
* for some specific measurementTypes or subCounters
*/
ManagedGenericIRPConstDefs::Signal create_threshold_monitor (
  in PMIRPConstDefs::MOClassNameType  moClass,
```

```
        in PMIRPConstDefs::MOInstanceListType  moInstanceList,
        in PMIRPConstDefs::ThresholdInfoListType thresholdInfoList,
        in PMIRPConstDefs::MonitorGranularityPeriodType monitorGranularityPeriod,
        out PMIRPConstDefs::MonitorIdType monitorId,
        out PMIRPConstDefs::MUnsupportedListType unsupportedList)
      raises (CreateThresholdMonitor,
              ManagedGenericIRPSystem::InvalidParameter,
              ManagedGenericIRPSystem::OperationNotSupported);

      /**
      * Request to delete a specified ThresholdMonitor
      */
      PMIRPConstDefs::ResultType delete_threshold_monitor (
        in PMIRPConstDefs::MonitorIdType monitorId)
      raises (DeleteThresholdMonitor,
              UnknownThresholdMonitor,
              ManagedGenericIRPSystem::OperationNotSupported);

      /**
      * Request to list detailed information about all or
      * specified ThresholdMonitors
      */
      PMIRPConstDefs::ResultType list_threshold_monitors (
        in PMIRPConstDefs::MonitorIdListType monitorIdList,
        out PMIRPConstDefs::MonitorInfoListType monitorInfoList)
      raises (ListThresholdMonitors,
              ManagedGenericIRPSystem::InvalidParameter,
              ManagedGenericIRPSystem::OperationNotSupported);

      /**
      * Request to suspend a ThresholdMonitor
      */
      PMIRPConstDefs::ResultType suspend_threshold_monitor (
        in PMIRPConstDefs::MonitorIdType monitorId)
      raises (SuspendThresholdMonitor,
              UnknownThresholdMonitor,
              ThresholdMonitorAlreadySuspended,
              ManagedGenericIRPSystem::OperationNotSupported);

      /**
      * Request to resume a ThresholdMonitor
      */
      PMIRPConstDefs::ResultType resume_threshold_monitor (
        in PMIRPConstDefs::MonitorIdType monitorId)
      raises (ResumeThresholdMonitor,
              UnknownThresholdMonitor,
              ThresholdMonitorIsNotSuspended,
              ManagedGenericIRPSystem::OperationNotSupported);

   };

};

#endif // _PMIRPSYSTEM_IDL_
```

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

```
// File: PMIRPNotifications.idl

#ifndef _PMIRPNOTIFICATIONS_IDL_
#define _PMIRPNOTIFICATIONS_IDL_

#include "PMIRPConstDefs.idl"
#include "NotificationIRPConstDefs.idl"
#include "NotificationIRPNotifications.idl"

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

/* ## Module: PMIRPNotifDefs
This module contains the specification of all notifications of PM IRP Agent.
================================================================
*/
module PMIRPNotifications
{
```

```
    /**
    * Constant definitions for the notifyMeasurementJobStatusChanged notification
    */
    interface notifyMeasurementJobStatusChanged: NotificationIRPNotifications::Notify
    {
      const string EVENT_TYPE = "notifyMeasurementJobStatusChanged";
      /**
      * This constant defines the name of the jobId property.
      * The data type for the value of this property
      * is PMIRPConstDefs::JobIdType.
      */
      const string JOB_ID = PMIRPConstDefs::AttributeNameValue::JOB_ID;

      /**
      * This constant defines the name of the jobStatus property.
      * The data type for the value of this property
      * is PMIRPConstDefs::JobStatusType.
      */
      const string JOB_STATUS = PMIRPConstDefs::AttributeNameValue::JOB_STATUS;

      /**
      * This constant defines the name of the reason property.
      * The data type for the value of this property is string.
      */
      const string REASON = PMIRPConstDefs::AttributeNameValue::REASON;
    };

    /**
    * Constant definitions for the notifyThresholdMonitorStatusChanged notification
    */
    interface notifyThresholdMonitorStatusChanged: NotificationIRPNotifications::Notify
    {
      const string EVENT_TYPE = "notifyThresholdMonitorStatusChanged";

      /**
      * This constant defines the name of the monitorId property.
      * The data type for the value of this property
      * is PMIRPConstDefs::MonitorIdType.
      */
      const string MONITOR_ID = PMIRPConstDefs::AttributeNameValue::MONITOR_ID;

      /**
      * This constant defines the name of the monitorStatus property.
      * The data type for the value of this property
      * is PMIRPConstDefs::MonitorStatusType.
      */
      const string MONITOR_STATUS = PMIRPConstDefs::AttributeNameValue::MONITOR_STATUS;

      /**
      * This constant defines the name of the reason property.
      * The data type for the value of this property is string.
      */
      const string REASON = PMIRPConstDefs::AttributeNameValue::REASON;
    };

  };

  #endif // _PMIRPNOTIFICATIONS_IDL_
```

End of change in Annex A

Annex B (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Dec 2004	SA_26	SP-040784	004	--	Add missing exception & filter to PM IRP CORBA SS, Align with IDL Style Guide in 32.150	6.2.0	6.3.0

3GPP TSG-SA5 (Telecom Management) ***Tdoc S5-056086***
Meeting #41, Lisbon, PORTUGAL, 24 - 28 January 2005

CR-Form-v7.1

CHANGE REQUEST

⌘ **32.412** **CR** **009** ⌘ **rev** **-** ⌘ Current version: **6.3.0** ⌘

*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 ☒ Core Network ☒

Title:	⌘	Remove the ambiguity that a PM IRP compliant system necessarily contains functionalities defined in Kernel CM IRP
Source:	⌘	**SA5** (Ericsson ; edwin.tse@ericsson.com, ulf.hubinette@ericsson.com)
Work item code:	⌘	OAM-PM
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:	⌘	Avoid the ambiguity that a PM IRP compliant system necessarily contains functionalities defined in Kernel CM IRP. Filter qualifiers are missing.
Summary of change:	⌘	Introduce definitions of notifyThresholdMonitorObjectCreation and notifyThresholdMonitorObjectDeletion. Correct various references. Add missing filter qualifier. Clarify semantics of objectClass and objectInstance in various notifications. IS template rules according to TS 32.151 applied (Courier font used for parameter names etc.)
Consequences if not approved:	⌘	User of PM IRP compliant system may have the wrong expectation that the PM IRP system contains Kernel CM IRP functionalities. Not clear how to implement the notifications without the filter constraints.

Clauses affected:	⌘	2, 6, 7.1, 7.6, new 7.7			
Other specs affected:	⌘	**Y**	**N**		⌘
			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 32.302: "Telecommunication management; Configuration Management (CM); Notification Integration Reference Point (IRP): Information Service (IS)".

[13] ~~3GPP TS 32.662: "Telecommunication management; Configuration Management (CM); Kernel CM: Information Service (IS)".~~Void.

[14] 3GPP TS 32.403: "Telecommunication management; Performance Management (PM); Performance measurements - UMTS and combined UMTS/GSM".

End of change in Clause 2

Change in Clause 6.1

6.1 Information entities imported and local labels

Label reference	Local label
3GPP TS 32.622 [6], information object class, Top	Top
3GPP TS 32.622 [6], information object class, IRPAgent	IRPAgent
3GPP TS 32.312 [5], information object class, ManagedGenericIRP	ManagedGenericIRP
3GPP TS 32.602 [9], information object class, ManagedEntity	ManagedEntity
3GPP TS 32.302 [12], information object class, NotificationIRP	NotificationIRP
~~3GPP TS 32.662 [13], information object class, KernelCMIRP~~	~~KernelCMIRP~~
3GPP TS 32.111-2 [4], information object class, AlarmIRP	AlarmIRP
3GPP TS 32.342 [10], information object class, FileTransferIRP	FileTransferIRP

End of change in Clause 6.1

Change in Clause 6.3.8

6.3.8 Monitor

6.3.8.1 Definition

It represents a capability to determine the (a) threshold-crossing or (b) threshold-reaching and the threshold-clearing. This class is abstract in that it cannot be instantiated. The `ThresholdMonitor` inherits this class.

It is the IRPAgent's choice to support (a) or (b) (but not both). The support is on an IRPAgent system wide basis and is not on a per threshold basis. The IRPAgent's behaviour regarding which approach (i.e., (a) or (b) above) to use, shall be the same for emitting alarms and for clearing alarms.

The instances of a class derived from this abstract class shall emit notifyThresholdMonitorObjectCreation when they are first created; and shall emit a notifyThresholdMonitorObjectDeletion when deleted.

The instances of a class derived from this abstract class shall also emit notifyNewAlarm, notifyChangedAlarm and notifyClearedAlarm according to the rules specified in Annex B: Threshold Alarm Triggering Events.
The `objectClass` and `objectInstance` parameter of these notifications carry the class and DN of the `ManagedEntity` whose `measurementType` is being monitored and whose threshold condition has been triggered.

6.3.8.2 Attributes

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
monitorId~~monitorId~~	+	M	M	-
monitorGranularityPeriod~~monitorGranularityPeriod~~	+	M	M	-
eventType~~eventType~~	+	M	M	-
probableCause~~probableCause~~	+	M	M	-
specificProblem~~specificProblem~~	+	M	M	-
direction~~direction~~	+	M	M	-

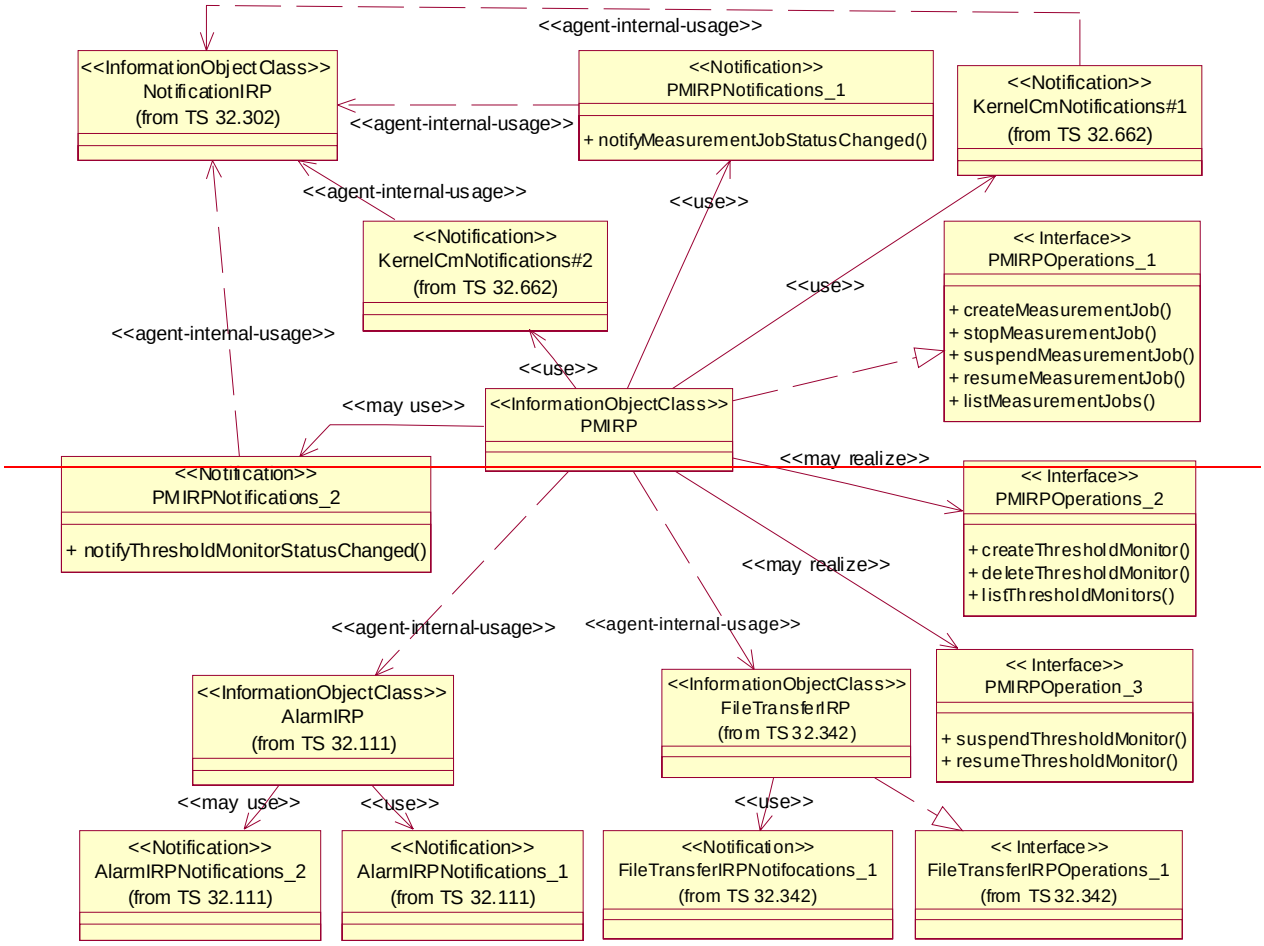
~~6.3.8.3 Notification~~

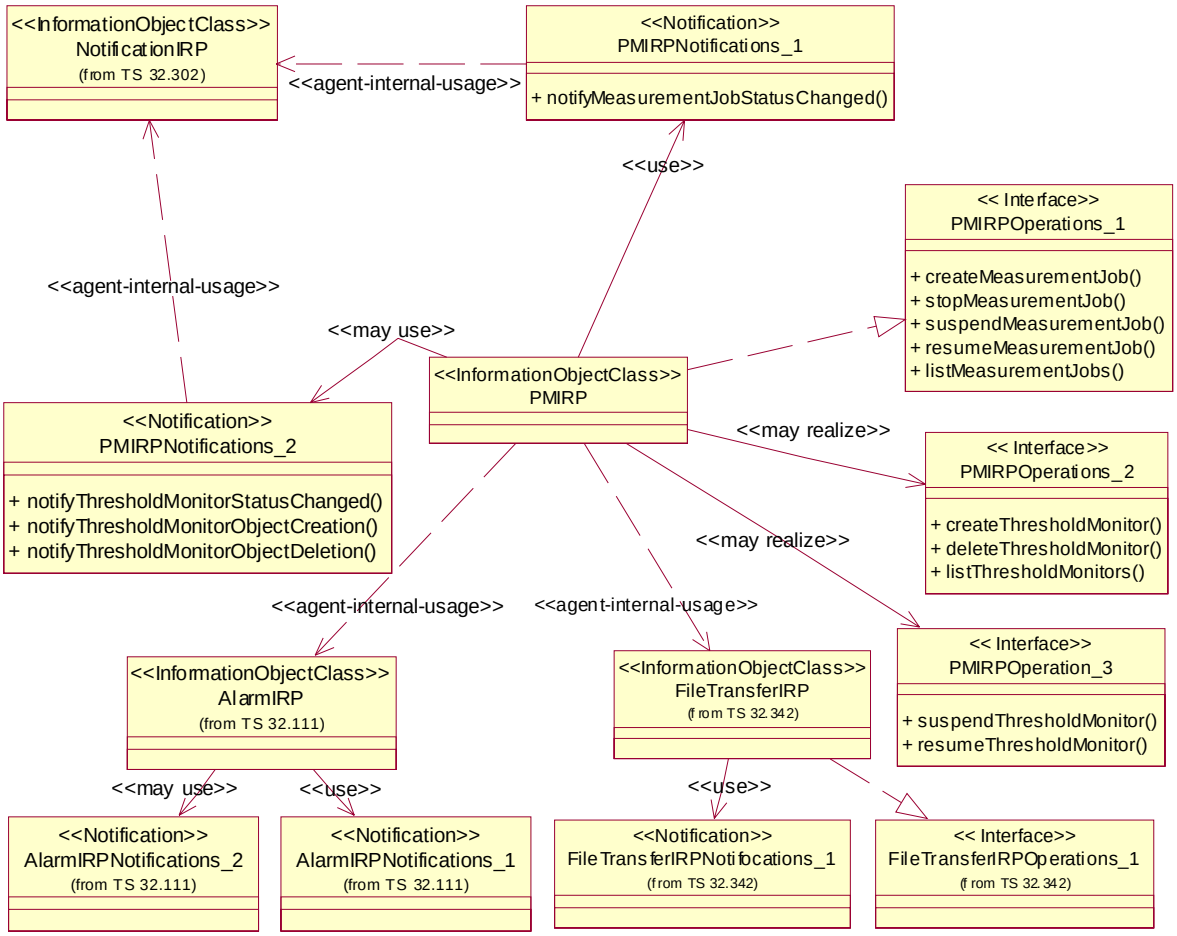
~~Notification name~~	~~Note~~
~~notifyObjectCreation~~	~~See clause 7.1 (class diagram).~~
~~notifyObjectDeletion~~	~~See clause 7.1 (class diagram).~~

End of change in Clause 6.3.8

Change in Clause 7.1

7.1 Class diagram





NOTE 1: PMIRPNotifications_2~~The notifyThresholdMonitorStatusChanged notification~~ is mandatory if PMIRPOperations_2 is supported

NOTE 2: The suspendMeasurementJob and resumeMeasurementJob operations are optional.

Figure 7.1: Class Diagram

End of change in Clause 7.1

Change in clause 7.6 and add new clause 7.7

7.6 PMIRPNotification_1 Interface (M)

7.6.1 ~~notifyMeasurementJobStatusChanged~~ notifyMeasurementJobStatusChanged (M)

7.6.1.1 Definition

The PMIRP Agent notifies all subscribed IRPManagers about the status changes of a MeasurementJob. The status changes in that case include Suspended=>Scheduled, Active=>Suspended, Scheduled=>Suspended, Suspended=>Active, Scheduled=>Active, Active=>Stopped, Suspended=>Stopped, Scheduled=>Stopped.

7.6.1.2 Input parameters

Parameter Name	Qualifier	Matching Information	Comment
objectClass~~objectClass~~	M, Y	PMIRP.objectClass	Notification header - see [12]. ~~This parameter and objectInstance together carry the same semantics of IRPAgent.systemDN. Notification header - see 3GPP TS 32.302 [12].~~
objectInstance~~objectInstance~~	M, Y	PMIRP.objectInstance	Notification header - see [12]. ~~This parameter and objectClass together carry the same semantics of IRPAgent.systemDN. Notification header - see 3GPP TS 32.302 [12].~~
notificationId~~notificationId~~	M, N	--	Notification header - see 3GPP TS 32.302 [12].
eventTime~~eventTime~~	M, Y	--	Notification header - see 3GPP TS 32.302 [12].
notificationType~~notificationType~~	M, Y	"notifyMeasurementJobStatusChanged".	Notification header - see 3GPP TS 32.302 [12].
systemDN~~systemDN~~	C, Y	IRPAgent.systemDN.	It carries the DN of the IRPAgent that emits this notification. Notification header - see 3GPP TS 32.302 [12]
jobId~~jobId~~	M, Y	MeasurementJob.jobId	
jobStatus~~jobStatus~~	M, N	MeasurementJob.jobStatus	The new status of the MeasurementJob.
reason~~reason~~	O, N	String	It carries one or several of the assertion names of the From-state of Triggering Event.

7.6.1.3 Triggering Event

7.6.1.3.1 From-state

failToReadMeasurementTypesForExtendedProlongPeriod OR internalProblem OR stopMeasurementJob OR stopTimeReached OR resumeMeasurementJob OR suspendMeasurementJob OR startTimeReached OR suspendMeasurementJobBySystem

Assertion Name	Definition
failToReadMeasurementTypesForExtendedProlongPeriod~~failToReadMeasurementTypesForExtendedProlongPeriod~~	Because the PMIRP Agent have failed to read the monitored measurementType (s) from managed resources for one or more times, the PMIRP Agent decides that it will not try to read in the future and place the MeasurementJob in "Stopped" state.
internalProblem~~internalProblem~~	Because of an unspecified internal problem, PMIRP Agent decides that it no longer can maintain the MeasurementJob in any jobStatus but "Stopped".
stopMeasurementJob~~stopMeasurementJob~~	The stopMeasurementJob returns success.
stopTimeReached~~stopTimeReached~~	The stop time for MeasurementJob has been reached.
resumeMeasurementJob~~resumeMeasurementJob~~	The resumeMeasurementJob returns success.
suspendMeasurementJob~~suspendMeasurementJob~~	The suspendMeasurementJob returns success.
startTimeReached~~startTimeReached~~	The start time for MeasurementJob has been reached.
suspendMeasurementJobBySystem~~suspendMeasurementJobBySystem~~	The MeasurementJob has been suspended by the system in case of overload

7.6.1.3.2 To-state

measurementJobStatusChanged~~measurementJobStatusChanged~~

Assertion Name	Definition
measurementJobStatusChanged~~measurementJobStatusChanged~~	The MeasurementJob.jobStatus changed to a new value.

7.6.2 VoidnotifyThresholdMonitorStatusChanged (O)

7.6.2.1 Definition

The PMIRP Agent notifies all subscribed IRPManagers about the status changes of a ThresholdMonitor. The status changes in that case include Suspended=>Active, Active=>Suspended.

NOTE: The notifyThresholdMonitorStatusChanged notification is mandatory if PMIRPOperations_2 is supported.

7.6.2.2 Input Parameters

Parameter Name	Qualifier	Matching Information	Comment
objectClass	M	PMIRP.objectClass	This parameter and objectInstance together carry the same semantics of IRPAgent.systemDN. Notification header - see 3GPP TS 32.302 [12]
objectInstance	M	PMIRP.objectInstance	This parameter and objectClass together carry the same semantics of IRPAgent.systemDN. Notification header - see 3GPP TS 32.302 [12]
notificationId	M	--	Notification header - see 3GPP TS 32.302 [12]
eventTime	M	--	Notification header - see 3GPP TS 32.302 [12]
notificationType	M	"notifyThresholdMonitorStatusChanged".	Notification header - see 3GPP TS 32.302 [12]
systemDN	C	IRPAgent.systemDN.	It carries the DN of the IRPAgent that emits this notification. Notification header - see 3GPP TS 32.302 [12]
monitorId	M	ThresholdMonitor.monitorId	
monitorStatus	M	ThresholdMonitor.thresholdMonitorStatus	The new status of the ThresholdMonitor.
reason	O	String	It carries one or several of the assertion names of the From-state of Triggering Event.

7.6.2.3 Triggering Event

7.6.2.3.1 From-state

resumeThresholdMonitor OR suspendThresholdMonitor

Assertion Name	Definition
resumeThresholdMonitor	The resumeThresholdMonitor returns success.
suspendThresholdMonitor	The suspendThresholdMonitor returns success.

7.6.2.3.2 To-state

thresholdMonitorStatusChanged

Assertion Name	Definition
thresholdMonitorStatusChanged	The ThresholdMonitor.thresholdMonitorStatus changed to a new value.

7.7 PMIRPNotification_2 Interface (O)

7.7.1 notifyThresholdMonitorObjectCreation (M)

7.7.1.1 Definition

IRPAgent notifies the subscribed IRPManager that a new Monitor instance has been created and that the notification satisfies the filter constraint expressed in IRPManager's `subscribe` operation (see TS 32.302 [12]).

7.7.1.2 Input Parameters

Parameter Name	Qualifier	Matching Information	Comment
objectClass	M, Y	PMIRP.objectClass	Notification header - see [12].
objectInstance	M, Y	PMIRP.objectInstance	Notification header - see [12].
notificationId	M. N	This carries the semantics of notification identifier.	Notification header - see [12].
eventTime	M, Y	ManagedEntity.creationTime	Notification header - see [12].
systemDN	C, Y	IRPAgent.systemDN where the IRPAgent is related to the PMIRP.	Notification header - see [12].
notificationType	M, Y	Mapped to notificationType in [12] – see annex A	Notification header - see [12].
monitorId	M, N	Monitor.monitorId	See monitorId definition in clause 6.5.1.
monitorGranularityPeriod	M, N	Monitor.monitorGranularityPeriod	See monitorGranularityPeriod definition in clause 6.5.1.
eventType	M, N	Monitor.eventType	See eventType definition in clause 6.5.1.
probableCause	M, N	Monitor.probableCause	See probableCause definition in clause 6.5.1.
specificProblem	M, N	Monitor.specificProblem	See specificProblem definition in clause 6.5.1.
direction	M, N	Monitor.direction	See direction definition in clause 6.5.1.
thresholdMonitorStatus	M, N	ThresholdMonitor.thresholdMonitorStatus	See thresholdMonitorStatus definition in clause 6.5.1.

7.7.1.3 Triggering Event

7.7.1.3.1 From-state

`stateBeforeObjectCreation.`

Assertion Name	Definition
stateBeforeObjectCreation	The number of instances of the IOC ManagedEntity is equal to N.

7.7.1.3.2 To-state

`stateAfterObjectCreation.`

Assertion Name	Definition
stateAfterObjectCreation	The number of instances of the IOC ManagedEntity is equal to N + 1.

7.7.2 notifyThresholdMonitorObjectDeletion (M)

7.7.2.1 Definition

IRPAgent notifies the subscribed IRPManager of a deleted Monitor instance. The IRPAgent invokes this notification because the subject notification satisfies the filter constraint expressed in the IRPManager `subscribe` operation (see TS 32.302 [12]).

7.7.2.2 Input Parameters

Parameter Name	Qualifier	Matching Information	Comment
`objectClass`	M, Y	PMIRP.objectClass	Notification header - see [12].
`objectInstance`	M, Y	PMIRP.objectInstance	Notification header - see [12].
`notificationId`	M, N	This carries the semantics of notification identifier.	Notification header - see [12].
`eventTime`	M, Y	ManagedEntity.deletionTime	Notification header - see [12].
`systemDN`	C, Y	IRPAgent.systemDN where the IRPAgent is related to the PMIRP.	Notification header - see [12].
`notificationType`	M, Y	Mapped to notificationType in [12] – see annex A	Notification header - see [12].
`monitorId`	M, Y	Monitor.monitorId	See monitorId definition in clause 6.5.1.

7.7.2.3 Triggering Event

7.7.2.3.1 From-state

`stateBeforeObjectDeletion`.

Assertion Name	Definition
`stateBeforeObjectDeletion`	The number of instances of the IOC ManagedEntity is equal to N.

7.7.2.3.2 To-state

`stateAfterObjectDeletion`.

Assertion Name	Definition
`stateAfterObjectDeletion`	The number of instances of the IOC ManagedEntity is equal to N - 1.

7.7.3 notifyThresholdMonitorStatusChanged (O)

7.7.3.1 Definition

The `PMIRP` Agent notifies all subscribed `IRPManagers` about the status changes of a `ThresholdMonitor`. The status changes in that case include Suspended=>Active, Active=>Suspended.

NOTE: The notifyThresholdMonitorStatusChanged notification is mandatory if PMIRPOperations 2 is supported.

7.7.3.2 Input Parameters

Parameter Name	Qualifier	Matching Information	Comment
objectClass	M, Y	PMIRP.objectClass	Notification header - see [12].
objectInstance	M, Y	PMIRP.objectInstance	Notification header - see [12].
notificationId	M, N	--	Notification header - see 3GPP TS 32.302 [12]
eventTime	M, Y	--	Notification header - see 3GPP TS 32.302 [12]
notificationType	M, Y	"notifyThresholdMonitorStatusChanged".	Notification header - see 3GPP TS 32.302 [12]
systemDN	C, Y	IRPAgent.systemDN.	It carries the DN of the IRPAgent that emits this notification. Notification header - see 3GPP TS 32.302 [12]
monitorId	M, Y	Monitor.monitorId	
monitorStatus	M, N	ThresholdMonitor.thresholdMonitorStatus	The new status of the ThresholdMonitor.
reason	O, N	String	It carries one or several of the assertion names of the From-state of Triggering Event.

7.7.3.3 Triggering Event

7.7.3.3.1 From-state

resumeThresholdMonitor OR suspendThresholdMonitor

Assertion Name	Definition
resumeThresholdMonitor	The resumeThresholdMonitor returns success.
suspendThresholdMonitor	The suspendThresholdMonitor returns success.

7.7.3.3.2 To-state

thresholdMonitorStatusChanged

Assertion Name	Definition
thresholdMonitorStatusChanged	The ThresholdMonitor.thresholdMonitorStatus changed to a new value.

End of change in clause 7.6 and 7.7

Annex C (informative): Change history

Change history							
Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Old	New
Dec 2004	SA_26	SP-040784	008	--	Correct definition of ObjectClass and ObjectInstance in “notifyMeasurementJobStatusChanged” and “notifyThresholdMonitorStatusChanged”	6.2.0	6.3.0

3GPP TSG-SA5 (Telecom Management) ***Tdoc S5-056087***
Meeting #41, Lisbon, PORTUGAL, 24 - 28 January 2005

CR-Form-v7.1

CHANGE REQUEST

⌘ **32.413** **CR** **006** ⌘ **rev** **-** ⌘ Current version: **6.3.0** ⌘

*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:	⌘	Remove the ambiguity that a PM IRP compliant system necessarily contains functionalities defined in Kernel CM IRP – Align wih TS 32.412
Source:	⌘	**SA5** (Ericsson ; edwin.tse@ericsson.com, ulf.hubinette@ericsson.com)
Work item code:	⌘	OAM-PM
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:

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:	⌘	Align with corresponding changes in PM IRP IS 32.412.
Summary of change:	⌘	Introduce definitions of notifyThresholdMonitorObjectCreation and notifyThresholdMonitorObjectDeletion. Add missing filter qualifier.
Consequences if not approved:	⌘	User of PM IRP compliant system may have the wrong expectation that the PM IRP system contains Kernel CM IRP functionalities. Not clear how to implement the notifications without the filter constraints.

Clauses affected:	⌘	sub-clause 1, 5.1, 5.3, Annex A.3.

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

Other comments:	⌘	This CR is dependent on a corresponding CR for TS 32.412.

Change in Clause 1

1 Scope

The present document specifies the Common Object Request Broker Architecture (CORBA) Solution Set (SS) for the IRP whose semantics is specified in PM (Performance Management) IRP: Information Service 3GPP TS 32.412 [7].

This Solution Set specification is related to 3GPP TS 32.412 V6.4~~2~~.X.

End of change in Clause 1

Change in Clause 5.1

5.1 Operation and Notification mapping

PMIRP: IS 3GPP TS 32.412 [7] defines semantics of operation and notification visible across the PMIRP. 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 32.412 [7]	SS Method	Qualifier
createMeasurementJob	create_measurement_job	M
stopMeasurementJob	stop_measurement_job	M
suspendMeasurementJob	suspend_measurement_job	O
resumeMeasurementJob	resume_measurement_job	O
listMeasurementJobs	list_measurement_jobs	M
createThresholdMonitor	create_threshold_monitor	O
deleteThresholdMonitor	delete_threshold_monitor	O
listThresholdMonitors	list_threshold_monitors	O
suspendThresholdMonitor	suspend_threshold_monitor	O
resumeThresholdMonitor	resume_threshold_monitor	O
getIRPVersion	get_PM_IRP_versions	M
getOperationProfile (see note)	get_PM_IRP_operations_profile	O
getNotificationProfile (see note)	get_PM_IRP_notification_profile	O
notifyMeasurementJobStatusChanged	push_structured_events(See subclause 6.1)	M
notifyThresholdMonitorObjectCreation	push_structured_events (See subclause 6.1)	O
notifyThresholdMonitorObjectDeletion	push_structured_events (See subclause 6.1)	O
notifyThresholdMonitorStatusChanged	push_structured_events(See subclause 6.1)	O
NOTE: This operation is of ManagedGenericIRP IOC specified in 3GPP TS 32.312 [8]. The PMIRP IOC of [7] inherits from it.		

End of change in Clause 5.1

Change in Clause 5.3

5.3 Notification parameter mapping

The PMIRP: IS 3GPP TS 32.412 [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 PMIRP: IS 3GPP TS 32.412 [7] defined notification parameters.

Table 5.3.1: Mapping for `notifyMeasurementJobStatusChanged`

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 "notifyMeasurementJobStatusChanged".
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 remaining_body	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]).
jobId	One NV pair of filterable_ body_fields	M	Name of NV pair is the JOB_ID of PMIRPNotifDefs::notifyMeasurementJobStatusChanged Value of NV pair is JobIdType of module PMIRPConstDefs.
jobStatus	One NV pair of remaining_body	M	Name of NV pair is the JOB_STATUS of PMIRPNotifDefs::notifyMeasurementJobStatusChanged Value of NV pair is JobStatusType of module PMIRPConstDefs.
reason	One NV pair of remaining_body	O	Name of NV pair is the REASON of PMIRPNotifDefs::notifyMeasurementJobStatusChanged Value of NV pair is a string.

Table 5.3.2: Mapping for `notifyThresholdMonitorObjectCreation`

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 "notifyThresholdMonitorObjectCreation".
There is no corresponding IS attribute	event_name	M	It carries no information.
There is no corresponding	Variable Header		

IS Parameters	OMG CORBA Structured Event attribute	Qualifier	Comment
IS attribute.			
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 remaining body	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]).
MonitorId	One NV pair of remaining body	M	Name of NV pair is the MONITOR_ID of module PMIRPNotifDefs::notifyThresholdMonitorObjectCreation Value of NV pair is MonitorIdType of module PMIRPConstDefs.
monitorGranularityPeriod	One NV pair of remaining body	M	Name of NV pair is the MONITOR_GRANULARITY_PERIOD of module PMIRPNotifDefs::notifyThresholdMonitorObjectCreation Value of NV pair is monitorGranularityType of module PMIRPConstDefs.
EventType	One NV pair of remaining body	M	Name of NV pair is the EVENT_TYPE of module PMIRPNotifDefs::notifyThresholdMonitorObjectCreation Value of NV pair is EventTypeType of module PMIRPConstDefs.
probableCause	One NV pair of remaining body	M	Name of NV pair is the PROBABLE_CAUSE of module PMIRPNotifDefs::notifyThresholdMonitorObjectCreation Value of NV pair is probableCauseType of module PMIRPConstDefs.
specificProblem	One NV pair of remaining body	M	Name of NV pair is the SPECIFIC_PROBLEM of module PMIRPNotifDefs::notifyThresholdMonitorObjectCreation Value of NV pair is specificProblemType of module PMIRPConstDefs.
direction	One NV pair of remaining body	M	Name of NV pair is the DIRECTION of module PMIRPNotifDefs::notifyThresholdMonitorObjectCreation Value of NV pair is directionType of module PMIRPConstDefs.
thresholdMonitorStatus	One NV pair of remaining body	M	Name of NV pair is the THRESHOLD_MONITOR_STATUS of module PMIRPNotifDefs::notifyThresholdMonitorObjectCreation Value of NV pair is thersholdMonitorStatusType of module PMIRPConstDefs.

Table 5.3.3: Mapping for `notifyThresholdMonitorObjectDeletion`

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 "notifyThresholdMonitorObjectDeletion".
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 remaining body	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]).
monitorId	One NV pair of filterable body_fields	M	Name of NV pair is the MONITOR_ID of PMIRPNotifDefs::notifyThresholdMonitorObjectDeletion Value of NV pair is MonitorIdType of module PMIRPConstDefs.

Table 5.3.42: Mapping for `notifyThresholdMonitorStatusChanged`

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 "notifyThresholdMonitorStatusChanged".
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 remaining_body	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]).
monitorId	One NV pair of filterable_ body_fields	M	Name of NV pair is the MONITOR_ID of PMIRPNotifDefs::notifyThresholdMonitorStatusChanged Value of NV pair is MonitorIdType of module PMIRPConstDefs.
monitorStatus	One NV pair of remaining_body	M	Name of NV pair is the MONITOR _STATUS of PMIRPNotifDefs::notifyThresholdMonitorStatusChanged Value of NV pair is MonitorStatusType of module PMIRPConstDefs.
reason	One NV pair of remaining_body	O	Name of NV pair is the REASON of PMIRPNotifDefs::notifyThresholdMonitorStatusChanged Value of NV pair is a string.

End of change in Clause 5.3

Change in Clause annex A.3

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

```
// File: PMIRPNotifications.idl

#ifndef _PMIRPNOTIFICATIONS_IDL_
#define _PMIRPNOTIFICATIONS_IDL_

#include "PMIRPConstDefs.idl"
#include "NotificationIRPConstDefs.idl"
#include "NotificationIRPNotifications.idl"

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

/* ## Module: PMIRPNotifDefs
This module contains the specification of all notifications of PM IRP Agent.
=================================================================
*/
module PMIRPNotifications
{

   /**
   * Constant definitions for the notifyMeasurementJobStatusChanged notification
   */
   interface notifyMeasurementJobStatusChanged: NotificationIRPNotifications::Notify
   {
     const string EVENT_TYPE = "notifyMeasurementJobStatusChanged";
     /**
     * This constant defines the name of the jobId property.
     * The data type for the value of this property
     * is PMIRPConstDefs::JobIdType.
     */
     const string JOB_ID = PMIRPConstDefs::AttributeNameValue::JOB_ID;

     /**
     * This constant defines the name of the jobStatus property.
     * The data type for the value of this property
     * is PMIRPConstDefs::JobStatusType.
     */
     const string JOB_STATUS = PMIRPConstDefs::AttributeNameValue::JOB_STATUS;

     /**
     * This constant defines the name of the reason property.
     * The data type for the value of this property is string.
     */
     const string REASON = PMIRPConstDefs::AttributeNameValue::REASON;
   };

/**
   * Constant definitions for the notifyThresholdMonitorObjectCreation notification
   */
   interface notifyThresholdMonitorObjectCreation:
       NotificationIRPConstDefs::AttributeNameValue
   {
     const string EVENT_TYPE = "notifyThresholdMonitorObjectCreation";

     /**
     * This constant defines the name of the monitorId property,
     * which is transported in the filterable_body fields.
     * The data type for the value of this property
     * is PMIRPConstDefs::MonitorIdType.
     */
     const string MONITOR_ID = PMIRPConstDefs::AttributeNameValue::MONITOR_ID;

     /**
     * This constant defines the name of the monitorGranularityPeriod property,
     * which is transported in the filterable_body fields.
     * The data type for the value of this property
     * is PMIRPConstDefs::MonitorGranularityPeriodType.
```

```
      */
      const string MONITOR_GRANULARITY_PERIOD =
          PMIRPConstDefs::AttributeNameValue::MONITOR_GRANULARITY_PERIOD;

      /**
      * This constant defines the name of the eventType property,
      * which is transported in the filterable_body fields.
      * The data type for the value of this property
      * is PMIRPConstDefs::EventTypeType.
      */
      const string EVENT_TYPE = PMIRPConstDefs::AttributeNameValue::EVENT_TYPE;

      /**
      * This constant defines the name of the probableCause property,
      * which is transported in the filterable_body fields.
      * The data type for the value of this property
      * is PMIRPConstDefs::ProbableCauseType.
      */
      const string PROBABLE_CAUSE =
          PMIRPConstDefs::AttributeNameValue::PROBABLE_CAUSE;

      /**
      * This constant defines the name of the specificProblem property,
      * which is transported in the filterable_body fields.
      * The data type for the value of this property
      * is PMIRPConstDefs::SpecificProblemType.
      */
      const string SPECIFIC_PROBLEM =
          PMIRPConstDefs::AttributeNameValue::SPECIFIC_PROBLEM;

      /**
      * This constant defines the name of the direction property,
      * which is transported in the filterable_body fields.
      * The data type for the value of this property
      * is PMIRPConstDefs::DirectionType.
      */
      const string DIRECTION = PMIRPConstDefs::AttributeNameValue::DIRECTION;
    };

      /**
      * This constant defines the name of the thresholdMonitorStatus property,
      * which is transported in the filterable_body fields.
      * The data type for the value of this property
      * is PMIRPConstDefs::MonitorStatusType.
      */
      const string THRESHOLD_MONITOR_STATUS =
          PMIRPConstDefs::AttributeNameValue::THRESHOLD_MONITOR_STATUS;
    };

    /**
    * Constant definitions for the notifyThresholdMonitorObjectDeletion notification
    */
    interface notifyThresholdMonitorObjectDeletion:
        NotificationIRPConstDefs::AttributeNameValue
    {
      const string EVENT_TYPE = "notifyThresholdMonitorObjectDeletion";

      /**
      * This constant defines the name of the monitorId property,
      * which is transported in the filterable_body fields.
      * The data type for the value of this property
      * is PMIRPConstDefs::MonitorIdType.
      */
      const string MONITOR_ID = PMIRPConstDefs::AttributeNameValue::MONITOR_ID;

      /**
      * This constant defines the name of the monitorStatus property,
      * which is transported in the filterable_body fields.
      * The data type for the value of this property
      * is PMIRPConstDefs::MonitorStatusType.
      */
      const string MONITOR_STATUS =
          PMIRPConstDefs::AttributeNameValue::MONITOR_STATUS;

      /**
      * This constant defines the name of the reason property,
      * which is transported in the filterable_body fields.
```

```
      * The data type for the value of this property is string.
      */
      const string REASON = PMIRPConstDefs::AttributeNameValue::REASON;
    };

    /**
    * Constant definitions for the notifyThresholdMonitorStatusChanged notification
    */
    interface notifyThresholdMonitorStatusChanged: NotificationIRPNotifications::Notify
    {
      const string EVENT_TYPE = "notifyThresholdMonitorStatusChanged";

      /**
      * This constant defines the name of the monitorId property.
      * The data type for the value of this property
      * is PMIRPConstDefs::MonitorIdType.
      */
      const string MONITOR_ID = PMIRPConstDefs::AttributeNameValue::MONITOR_ID;

      /**
      * This constant defines the name of the monitorStatus property.
      * The data type for the value of this property
      * is PMIRPConstDefs::MonitorStatusType.
      */
      const string MONITOR_STATUS = PMIRPConstDefs::AttributeNameValue::MONITOR_STATUS;

      /**
      * This constant defines the name of the reason property.
      * The data type for the value of this property is string.
      */
      const string REASON = PMIRPConstDefs::AttributeNameValue::REASON;
    };

};

#endif //_PMIRPNOTIFICATIONS_IDL_
```

End of change in Clause annex A.3
End of Document

Annex B (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Mar 2004	S_23	SP-040136	--	--	Submitted to TSG SA#23 for Approval	2.0.0	6.0.0
Jun 2004	S_24	SP-040273	001	--	Correction and enhancement of data type definitions in IDL files	6.0.0	6.1.0
Sep 2004	S_25	SP-040557	002	--	Align to latest PM IRP Information Service (IS) 32.412 version number	6.1.0	6.2.0
Sep 2004	S_25	SP-040558	003	--	Add Measurement Job Overload Management function – Align with 32.412	6.1.0	6.2.0
Dec 2004	SA_26	SP-040784	004	--	Add missing exception & filter to PM IRP CORBA SS, Align with IDL Style Guide in 32.150	6.2.0	6.3.0

3GPP TSG-SA5 (Telecom Management) **S5-056089**
Meeting #41, Lisbon, PORTUGAL, 24-28 January 2005

CR-Form-v7

CHANGE REQUEST

⌘ **32.412** **CR** **010** ⌘**rev** **-** ⌘ Current version: **6.3.0** ⌘

*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 the Generic System Context – Align with TS 32.150
Source:	⌘	**SA5** (clemens.suerbaum@siemens.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:

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.
Summary of change:	⌘	Align the title of subclause 4.1 with other Interface IRPs and 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.
Consequences if not approved:	⌘	Redundant, time-consuming and error prone duplication of the same text for the System Context in all Interface IRPs.

Clauses affected:	⌘	2, 4.

Other specs affected: ⌘	Y	N	
		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.

…

[14] 3GPP TS 32.403: "Telecommunication management; Performance Management (PM); Performance measurements - UMTS and combined UMTS/GSM".

[15] 3GPP TS 32.150: "Telecommunication management; Integration Reference Point (IRP) Concept and definitions".

End of Change in Clause 2

Change in Clause 4

4 System Ooverview

4.1 System Ccontext

The general definition of the System Context for the present IRP is found in 3GPP TS 32.150 [15] subclause 4.7.

In addition, the set of related IRP(s) relevant to the present IRP is shown in the two diagrams below~~Figures 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) (see figure 4.1) or a Network Element (NE) (see figure 4.2). In the former case, the interfaces (represented by a thick dotted line) between the EM and the NEs are not the subject of this IRP.~~

~~An IRPAgent supports one of the two System Contexts defined here. By observing the interaction across this Itf-N, an IRPManager cannot deduce if EM and NE are integrated in a single system or if they run in separate systems~~.

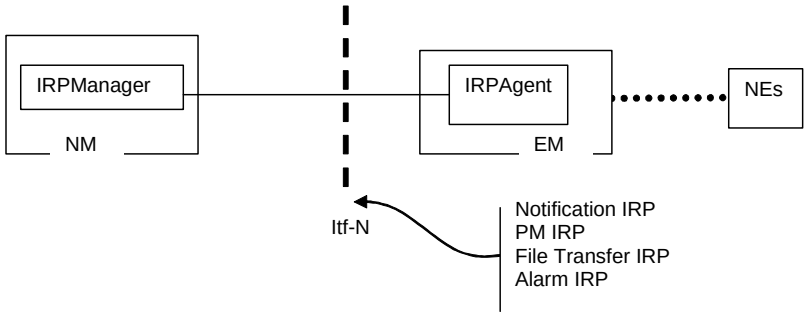


Figure 4.1: System Context A

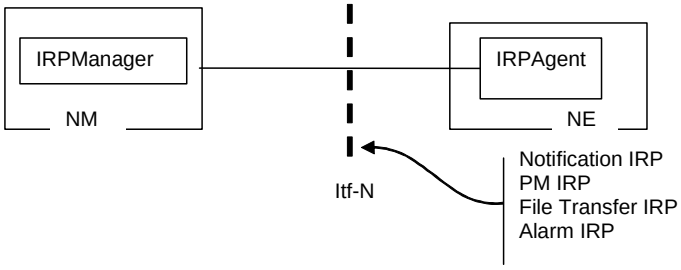


Figure 4.2: System Context B

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 32.102 [2].

Change in Clause 4
End of document

Annex C (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Jun 2003	SA_20	SP-030295	--	--	Submitted to TSG SA#20 for Information	1.0.0	
Dec 2004	SA_26	SP-040784	007	--	Correct ambiguous precondition statement related to createThresholdMonitor operation	6.2.0	6.3.0
Dec 2004	SA_26	SP-040784	008	--	Correct definition of ObjectClass and ObjectInstance in “notifyMeasurementJobStatusChanged” and “notifyThresholdMonitorStatusChanged”	6.2.0	6.3.0

3GPP TSG-SA5 (Telecom Management) **S5-056092**
Meeting #41, Lisbon, PORTUGAL, 24-28 January 2005

CR-Form-v7

CHANGE REQUEST

⌘ **32.413** **CR** **007** ⌘**rev** **-** ⌘ Current version: **6.3.0** ⌘

*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 the Generic System Context, update of reference to IS specification – Align wih TS 32.412
Source:	⌘	**SA5** (clemens.suerbaum@siemens.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:

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

Change in Clause Scope

1 Scope

The present document specifies the Common Object Request Broker Architecture (CORBA) Solution Set (SS) for the IRP whose semantics is specified in PM (Performance Management) IRP: Information Service 3GPP TS 32.412 [7].

This Solution Set specification is related to 3GPP TS 32.412 V6.4~~2~~.X.

End of Change in Clause Scope
End of Document

Annex B (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Mar 2004	S_23	SP-040136	--	--	Submitted to TSG SA#23 for Approval	2.0.0	6.0.0
Jun 2004	S_24	SP-040273	001	--	Correction and enhancement of data type definitions in IDL files	6.0.0	6.1.0
Sep 2004	S_25	SP-040557	002	--	Align to latest PM IRP Information Service (IS) 32.412 version number	6.1.0	6.2.0
Sep 2004	S_25	SP-040558	003	--	Add Measurement Job Overload Management function – Align with 32.412	6.1.0	6.2.0
Dec 2004	SA_26	SP-040784	004	--	Add missing exception & filter to PM IRP CORBA SS, Align with IDL Style Guide in 32.150	6.2.0	6.3.0