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Technical Specification

Universal Mobile Telecommunications System (UMTS);
LTE;
Telecommunication management;
Self-Configuration of Network Elements
Integration Reference Point (IRP);
Information Service (IS)
(3GPP TS 32.502 version 8.2.0 Release 8)

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Foreword

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Contents

Foreword

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x the first digit:

1 presented to TSG for information;

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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 of a TS-family covering the 3rd Generation Partnership Project Technical Specification Group Services and System Aspects, Telecommunication management; as identified below:

32.501: Self-Configuration of Network Elements; Concepts and Integration Reference Point (IRP) Requirements

32.502: Self-Configuration of Network Elements Integration Reference Point (IRP); Information Service (IS)

32.503: Self-Configuration of Network Elements Integration Reference Point (IRP); Common Object Request Broker Architecture (CORBA) Solution Set (SS)

1   Scope

The present document defines the Information Service (IS) part of the Self-Configuration IRP (SCIRP).
It describes the semantics of the information and the interactions visible across Itf-N in a protocol independent way.
The information is specified by means of Information Object Classes (IOCs) and the interactions by means of
operations and notifications. The present document does not specify the syntax (encoding) of the information.

The scope of this version of the TS is restricted to self-configuration of eNBs.

The present documents also describes how already defined Itf-N functionalities are used in the context of Self-
Configuration.

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 TR 21.905: "Vocabulary for 3GPP Specifications".

[2]   3GPP TS 32.101: "Telecommunication management; Principles and high level requirements".

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

[4]   3GPP TS 21.905: "Vocabulary for 3GPP Specifications".

[5]   3GPP TR 32.816: "Telecommunication management; Study on Management of Evolved Universal
            Terrestrial Radio Access Network (E-UTRAN) and Evolved Packet Core (EPC)".

[6]   3GPP TS 32.501: "Telecommunication management; Self-Configuration of Network Elements;
            Concepts and Integration Reference Point (IRP) Requirements".

[7]   3GPP TS 32.532: "Telecommunication management; Software management Integration Reference
            Point (IRP); Information Service (IS)".

[8]   3GPP TS 32.622: "Telecommunication management; Generic network resources Integration
            Reference Point (IRP); Network Resource Model (NRM)".

[9]   3GPP TS 32.312: "Telecommunication management; Generic Integration Reference Point (IRP)
            management: Information Services".

3   Definitions and abbreviations

3.1   Definitions

For the purposes of the present document, the terms and definitions given in TS 32.101 [2], TS 32.102 [3] and TR
21.905 [4] and the following apply. A term defined in the present document takes precedence over the definition of the
same term, if any, in TS 32.501 [6], TS 32.101 [1], TS 32.102 [2] and TS 21.905 [4], in that order.

3.2   Abbreviations

For the purposes of the present document, the abbreviations given in TR 21.905 [4], TS 32.501 [6] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in TR 21.905 [4] and TS 32.501 [6].

4 Stage 2 descriptions

4.1 General

For the logical/Physical architecture of functional blocs and their interactions see in TR 32.816 [5] and TS 32.501 [6].

4.2 Management and Monitoring of Self-Configuration

4.2.1 Usage of Itf-N

For specifically defined interface see 6.3.1.

4.2.1.1 Usage of alarmIRP

AlarmIRP is re-used for alarm reporting of self-establishment.

Specific definitions:

4.2.1.1.2 Usage of information object classes

No specific definitions.

4.2.1.1.2 Usage of notifications

No specific definitions.

4.2.1.1.3 Usage of notifications

For notification without sub-clause no specific definitions exist.

4.2.1.1.3.1 Usage of notifyNewAlarm

The parameter 'probableCause' shall use one of the values
'softwareDownloadFailure' (already defined),
'softwareInstallationError' or
'softwareFallbackError' (the latter two values need to be introduced)

For parameter alarmType the value 'ProcessingErrorAlarm' should be used.

Parameters trendIndication and thresholdInfo should not be used.

4.2.1.1.3.2 Usage of notifyObjectCreation/-deletion/-attributeValueChange

For notifyObjectCreation/-deletion/-attributeValueChange notifications which are triggered by a self-configuration functionality the value SON_operation shall be used for parameter sourceIndicator. The parameter additionalInformation may indicate that this was triggerd by self-configuration.

4.3 Inventory Update

4.3.1 Usage of Itf-N

4.3.1.1 Usage of Inventory Management IRP NRM (32.69n)

The Inventory Management NRM IRP shall be used.

5 Information Object Classes

5.1 Imported information entities and local labels

Label reference	Local label
32.532 [7], information object class, swMCapabilities	swMCapabilities
32.532 [7], information object class, swMProfile	swMProfile
32.532 [7], information object class, swMProcess	swMProcess
3GPP TS 32.622 [6], information object class, Top	top
3GPP TS 32.312 [7], information object class, managedGenericIRP	managedGenericIRP

5.2 Class diagram

5.2.1 Attributes and relationships

The diagram reflects the definitions in the text of the following clauses. In case of conflict text takes precedence.
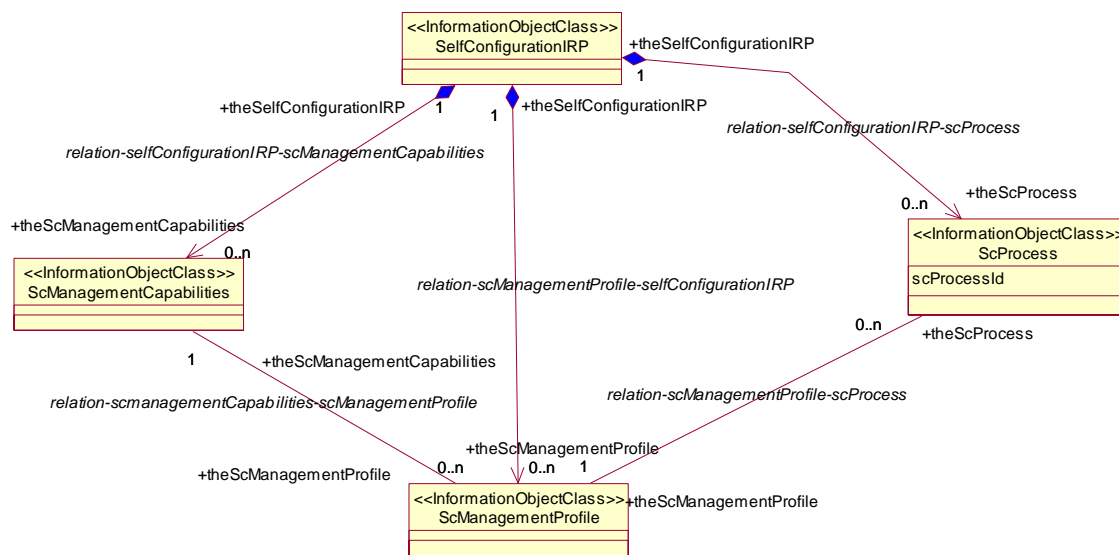
5.2.2   Inheritance

The diagram reflects the definitions in the text of the following clauses. In case of conflict text takes precedence.

```
                        ┌──────────────────────────┐
                        │ <<InformationObjectClass>>│
                        │           Top             │
                        │      (from TS 32.622)     │
                        ├──────────────────────────┤
                        ├──────────────────────────┤
                        └──────────────────────────┘
```

<<InformationObjectClass>>
GenManCapabilities
(from TS 32.532)

<<InformationObjectClass>>
GenManProfile
(from TS 32.532)

<<InformationObjectClass>>
GenManProcess
(from TS 32.532)

<<InformationObjectClass>>
SwMCapabilities
(from TS 32.532)

<<InformationObjectClass>>
SwMProfile
(from TS 32.532)

<<InformationObjectClass>>
ScManagementCapabilities

<<InformationObjectClass>>
ScManagementProfile

<<InformationObjectClass>>
ScProcess

<<InformationObjectClass>>
ManagedGenericIRP
(from TS 32.312)

<<InformationObjectClass>>
SelfConfigurationIRP
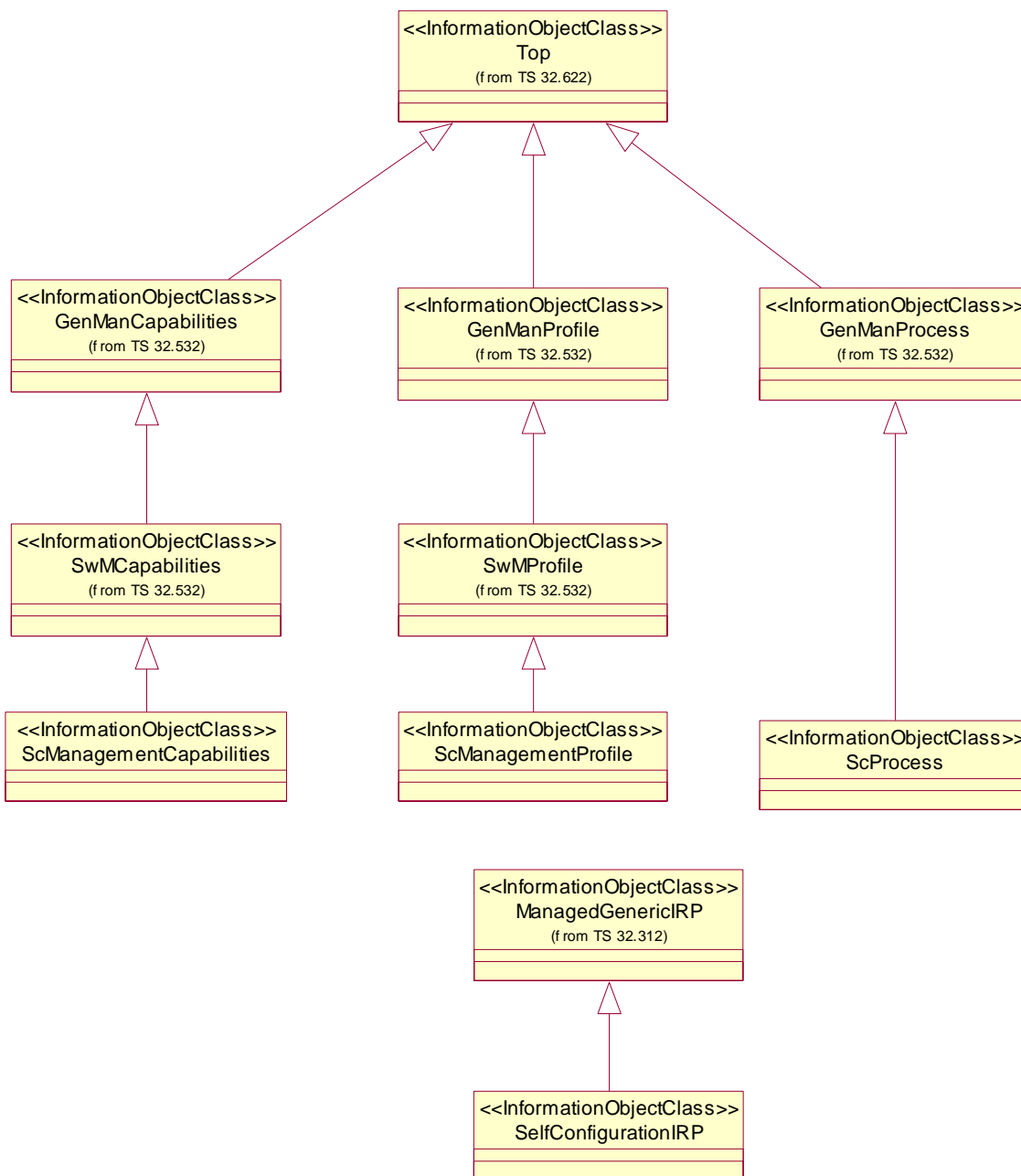
5.3 Information object class definitions

5.3.1 ScManagementCapability

5.3.1.1 Definition

This object class is a sub-class of `swMCapability` and represents the IRPAgent"s capabilities in support of self configuration.

It is created by the IRPAgent and cannot be modified by the IRPManager.
A `ScManagementCapability` object is valid for a certain NE type or a set of NE types. For an NE there shall be no ambiguity which `ScManagementCapability` object is valid for the NE.
Multiple `ScManagementCapability` objects may be instantiated in the IRPAgent.

The object identifies
a) the sequence of the self-configuration steps
and for each step
a.1) the NE behavior in case the step does not perform normally
a.2) the possibility, whether before the step a stop point can be selected, such that the self-configuration step is suspended and waits for a request by the IRPManager to resume.

Information on Requirements Traceability:

Referenced TS	Requirement label	Comment
3GPP TS 32.501 [6]	REQ_SCMAN_FUN_1	
3GPP TS 32.501 [6]	REQ_SCSW_FUN_4	
3GPP TS 32.501 [6]	REQ_SCSW_FUN_5	

5.3.1.2 Attributes

All attributes inherited from IOC `swMCapability.`

Additional attributes: None

5.3.1.2 Notifications

Name	Qualifier	Notes
notifyNewScManagementAvailability	O	

5.3.2 ScManagementProfile

5.3.2.1 Definition

This object class is a sub-class of `swMProfile`. It represents the IRPManager decision related to self configuration.

A `ScManagementProfile` object is valid for a certain NE type or a set of NE types.
For an NE starting its self-configuration process (see ScProcess) there shall be no ambiguity which `ScManagementProfile` is valid for the NE.
Multiple `ScManagementProfile` objects may be instantiated in the IRPAgent.

By using this object the IRPManager decides which of the possible stop points offered in `scManagementCapability` are used to suspend the self-configuration process of the specified NE type (or set of NE types).

Information on Requirements Traceability:

Referenced TS	Requirement label	Comment
3GPP TS 32.501 [6]	REQ_SCMAN_FUN_1	
3GPP TS 32.501 [6]	REQ_SCMAN_FUN_2	
3GPP TS 32.501 [6]	REQ_SCMON_FUN_3	
3GPP TS 32.501 [6]	REQ_SCSW_FUN_5	
3GPP TS 32.501 [6]	REQ_SCSW_FUN_6	

5.3.2.2   Attributes

All attributes inherited from IOC `swMProfile`.

Additional attributes: None.

5.3.2.2   Notifications

Name	Qualifier	Notes
`notifyScManagementProfileCreation`	M	
`notifyScManagementProfileChanged`	CM	Condition: Present if operation `changeScManagementProfile` is supported.
`notifyScManagementProfileDeletion`	M	

5.3.3   ScProcess

5.3.3.1   Definition

This object class is a sub-class of `genManProcess` . It describes the Self Configuration process for an NE. It allows the IRPManager to be informed about the current progress of the Self Configuration process and where stop points are set. No intervention of the IRPManager is foreseen except to provide indication to resume after a stop point was reached or to abort the self-configuration.

When the automated management process for an NE starts, an instance of the `scProcess` is created automatically.

The `id` of the `scProcess` shall be identical to the identifier of the NE and identify the `scProcess` instance uniquely.

The steps in the `stepInfoList` shall conform to the content of the relevant `scManagementProfile` instance.
Examples:
1. If the `stepsAndSelectedStopPointList` of `scManagementProfile` indicates `stopPointCanBeSetBeforeThisStep=No` for step X, then the entry for step X in the `stepInfoList` of `scProcess` can only have the value `stopPointIsNotSet` .
2. All steps within the `stepInfoList` shall have the same `sequenceNumberInScProcess` as in the `scStepList` of `scManagementProfile` .

When there is no relevant `scManagementProfile` at creation time of `scProcess`, then the IRPAgent creates the `scProcess` based on the relevant `scManagementCapability`. In this case preferably no stop point shall be set in the self configuration process.

When the last step of the self configuration process is completed successfully, the `scProcess` instance is deleted automatically.

When self configuration process is terminated by the IRPManager, the `scProcess` instance is deleted automatically.

Information on Requirements Traceability:

Referenced TS	Requirement label	Comment
3GPP TS 32.501 [6]	REQ_SCMAN_FUN_3	
3GPP TS 32.501 [6]	REQ_SCMAN_FUN_4	
3GPP TS 32.501 [6]	REQ_SCMON_FUN_2	
3GPP TS 32.501 [6]	REQ_SCMON_FUN_4	
3GPP TS 32.501 [6]	REQ_SCMON_FUN_5	
3GPP TS 32.501 [6]	REQ_SCMON_FUN_6	

5.3.3.2   Attributes

All attributes inherited from IOC `GenManProcess.`

No additional attributes.

5.3.3.2   Notifications

Name	Qualifier	Notes
notifyScProcessCreation	M	
notifyScProcessStage	M	
notifyScProcessDeletion	M	

5.3.4   SelfConfigurationIRP

5.3.4.1   Definition

This information object represents a self-configuration IRP. It inherits from IOC `managedGenericIRP`.

4.3.4.2   Attributes

All attributes inherited from IOC `managedGenericIRP`.

Additional attributes: None.

4.3.4.3   Notifications

All notifications inherited from IOC `managedGenericIRP`.

Additional notifications: None.

5.4 Information relationship definitions

5.4.1 relation-SelfConfigurationIRP-scManagementCapability (M)

5.4.1.1 Definition

This represents the relationship between `SelfConfigurationIRP` and `ScManagementCapability`.

5.4.1.2 Roles

Name	Definition
theSelfConfigurationIRP	It represents the `SelfConfigurationIRP`.
theScManagementCapability	It represents the `ScManagementCapability`

5.4.1.3 Constraints

There is no constraint for this relationship.

5.4.2 relation-SelfConfigurationIRP-scManagementProfile (M)

5.4.2.1 Definition

This represents the relationship between `SelfConfigurationIRP` and `ScManagementProfile`.

5.4.2.2 Roles

Name	Definition
theSelfConfigurationIRP	It represents the `SelfConfigurationIRP`.
theScManagementProfile	It represents the `ScManagementProfile`.

5.4.2.3 Constraints

There is no constraint for this relationship.

5.4.3 relation-SelfConfigurationIRP-scProcess (M)

5.4.3.1 Definition

This represents the relationship between `SelfConfigurationIRP` and `ScProcess`.

5.4.3.2 Roles

Name	Definition
theSelfConfigurationIRP	It represents the `SelfConfigurationIRP`.
theScProcess	It represents the `ScProcess.`

5.4.3.3 Constraints

There is no constraint for this relationship.

5.4.4 relation-ScManagementCapabilites-scManagementProfile (M)

5.4.4.1 Definition

This represents the relationship between `ScManagementCapability` and `ScManagementProfile`.

5.4.4.2 Roles

Name	Definition
`theScManagementCapability`	It represents the `ScManagementCapability`.
`theScManagementProfile`	It represents the `ScManagementProfile`.

5.4.4.3 Constraints

A relation can only exist between a `ScManagementProfile` and a `ScManagementCapability` when
a) all steps which are entries in the `stepsAndSelectedStopPointList` of `ScManagementProfile` have
`stopPointCanBeSetBeforeThisStep = Yes` in the `stepsAndOfferedStopPointList` of the
`ScManagementCapability`.b) `nEInformation` of `ScManagementProfile` is a subset of
`nEInformation of ScManagementCapability` :

5.4.5 relation scManagementProfile-scProcess (M)

5.4.5.1 Definition

This represents the relationship between `ScManagementProfile` and `ScProcess`.

5.4.5.2 Roles

Name	Definition
`theScManagementProfile`	It represents the `theScManagementProfile`.
`theScProcess`	It represents the `ScProcess`.

5.4.5.3 Constraints

A `ScProcess` shall perform all self-configuration steps according to `stepsAndOfferedStopPointList` of
`ScManagementProfile`.

A relation can only exist between a `ScProcess` and a `ScManagementProfile` when
`nEIdentification of ScProcess` falls into `nEInformation of ScManagementProfile`:

5.5   Information attribute definitions

5.5.1   Definition and legal values

Attribute Name	Definition	Legal Values
`id`	It identifies uniquely an instance of its object class.	
`nEIdentification`	See 32.532	
`nEInformation`	See 32.532	
`swVersionToBeInstalled`	See 32.532	

`stepsAndOfferedStopPointList`	See 32.532	See 32.532
		The following values for `nameOfStep` can be used additionally to those defined in 32.532:
		`prepareBasicConfigurationAndOAMLink`
		`retrieveConfigurationData`
		`setUpPreConfiguredSignallingLinks`
		`setFinalStateOfNE`
		All steps may be offered as stop points.

`stepsAndSelectedStopPointList`	See 32.532	
`scProcessList`	This attribute contains information about the instances of `scProcess`. Each entry in the list contains (SET OF): • `id` (of the process) • `nEIdentification` • `stepInfoList`	See individual definitions of the list entry content.
`stepInfoList`	See 32.532	
`suspendBehaviour`	See 32.532	
`offeredFinalAdministrativeStateInformation`	See 32.532	
`selectedFinalAdministrativeState`	See 32.532	
`swVersionToBeInstalledOfferList`	See 32.532	
`versionNumber`	See 32.532	
`matchingProfileIdentification`	See 32.532	
`matchingNEInformation`	See 32.532	

5.5.2   Constraints

Name	Definition
FFS	

5.6   Common Notifications

Name	Qualifier	Notes
FFS		

NOTE: This clause does not need to be present when there are no common notifications.

5.7   System State Model

FFS

6 IRP descriptions: Interface Definitions

6.1 Imported information entities and local labels

Label reference	Local label
32.532 [7], operation, `listSwmCapabilities`	`listScManagementCapabilities`
32.532 [7], operation, `listSwmProfiles`	`listScManagementProfiles`
32.532 [7], operation, `createSwmProfile`	`createScManagementProfile`
32.532 [7], operation, `deleteSwmProfile`	`deleteScManagementProfile`
32.532 [7], operation, `listSwmProcesses`	`listScManagementProcesses`
32.532 [7], operation, `resumeSwmProcess`	`resumeScManagementProcess`
32.532 [7], operation, `swFallback`	`swFallback`
32.532 [7], operation, `changeSwmProfile`	`changeScManagementProfile`
32.532 [7], operation, `terminateSwmProcess`	`terminateScManagementProcess`
32.532 [7], notification, `notifySwmProfileCreation`	`notifyScManagementProfileCreation`
32.532 [7], notification, `notifySwmProfileDeletion`	`notifySManagementProfileDeletion`
32.532 [7], notification, `notifySwmProcessCreation`	`notifySManagementProcessCreation`
32.532 [7], notification, `notifySwmProcessStage`	`notifyScManagementProcessStage`
32.532 [7], notification, `notifySwmProcessDeletion`	`notifySManagementProcessDeletion`
32.532 [7], notification, `notifySwmProfileChange`	`notifyScManagementProfileChange`

6.2   Class diagram representing interfaces

The diagram reflects the definitions in the text of the following clauses. In case of conflict text takes precedence.
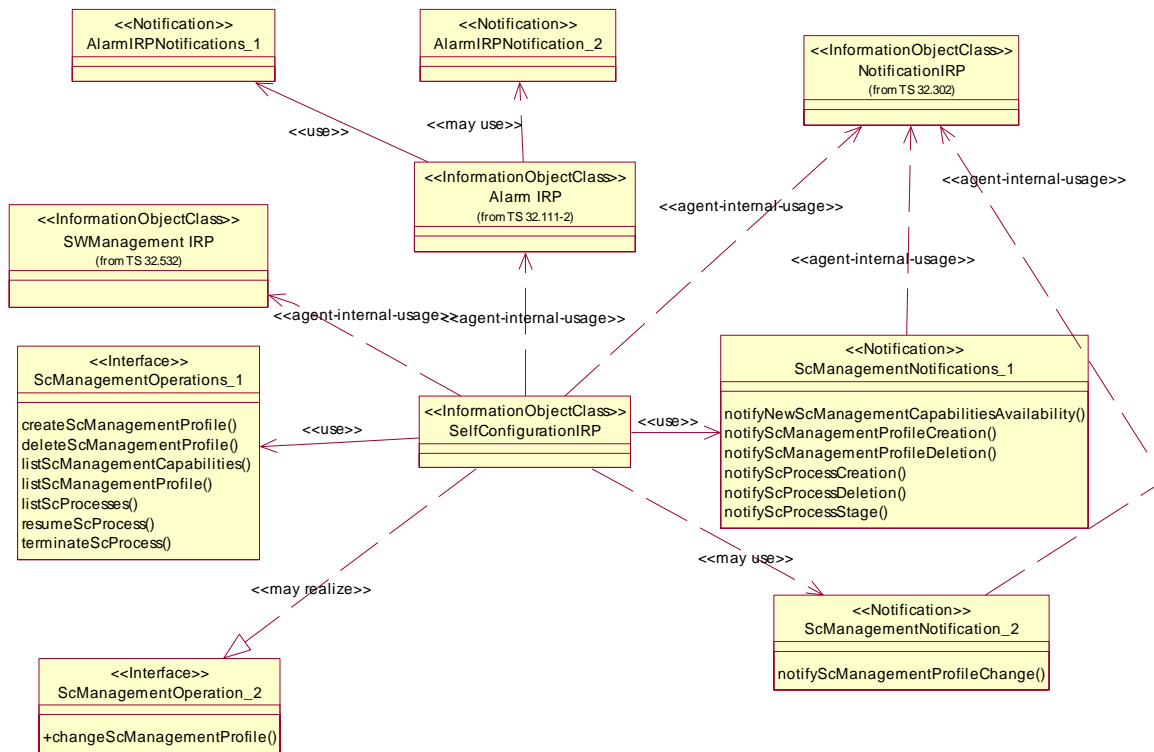
6.3   Generic rules

Rule 1: each operation with at least one input parameter supports a pre-condition valid_input_parameter which indicates that all input parameters shall be valid with regards to their information type. Additionally, each such operation supports an exception operation_failed_invalid_input_parameter which is raised when pre-condition valid_input_parameter is false. The exception has the same entry and exit state.

Rule 2: Each operation with at least one optional input parameter supports a set of pre-conditions supported_optional_input_parameter_yyy where "yyy" is the name of the optional input parameter and the pre-condition indicates that the operation supports the named optional input parameter. Additionally, each such operation supports an exception operation_failed_unsupported_optional_input_parameter_yyy which is raised when (a) the pre-condition supported_optional_input_parameter_yyy is false and (b) the named optional input parameter is carrying information. The exception has the same entry and exit state.

Rule 3: each operation shall support a generic exception operation_failed_internal_problem which is raised when an internal problem occurs and that the operation cannot be completed. The exception has the same entry and exit state.

6.4 SCManagementOperations_1 Interface (M)

6.4.1 Operation listScManagementCapabilities (M)

6.4.1.1 Definition

This operation allows the IRPManager to determine on the Itf-N interface in which sequence the self-configuration steps are performed in NEs of a certain type, what is done by the NE in case a step does not perform normally and before which steps a stop point can be set, such that the self-configuration step halts and waits for a continuation request by the IRPManager.

This operation imports from operation `listSwmCapabilities` defined in 32.532[7]. It delivers instances of scManagementCapability.

Information on Requirements Traceability:

Referenced TS	Requirement label	Comment
3GPP TS 32.501 [6]	REQ_SCMAN_FUN_1	
3GPP TS 32.501 [6]	REQ_SCSW_FUN_4	
3GPP TS 32.501 [6]	REQ_SCSW_FUN_5	

6.4.1.2 Input parameters

Same as operation `listSwmCapabilities` defined in 32.532[7].

6.4.1.3 Output parameters

Parameter Name	Qualifier	Matching Information	Comment
capabilitiesList	M	swm.scManagementCapabilitiesList	List of `scManagementCapability` instances and their content. Each entry in the list contains: • `Id` of `scManagementCapability` • `nEInformation` of `scManagementCapability` • optionally `swVersionToBeInstalledOfferList` of `scManagementCapability` • `stepsAndOfferedStopPointList` of `scManagementCapability` • `offeredFinalAdministrativeStateInformation` of `scManagementCapability`
Result	M	swm.result	result=success and empty `capabilitiesList` mean: No instance found.

Same as operation `listSwmCapabilities` defined in 32.532[7]. The entries in the `capabilityList` refer to instances of `scManagementCapability`.

6.4.1.4 Pre-condition

Same as operation `listSwmCapabilities` defined in 32.532[7].

6.4.1.5 Post-condition

Same as operation `listSwmCapabilities` defined in 32.532[7].

6.4.1.6 Exceptions

Same as operation `listSwmCapabilities` defined in 32.532[7].

6.4.2 Operation listScManagementProfiles (M)

6.4.2.1 Definition

This operation allows the IRPManager to find out which instances of `scManagementProfile` are valid for NEs of a certain type.

This operation imports from operation `listSwmProfiles` defined in 32.532[7]. It delivers instances of scManagementProfiles.

Information on Requirements Traceability:

Referenced TS	Requirement label	Comment
3GPP TS 32.501 [6]	REQ_SCMAN_FUN_1	
3GPP TS 32.501 [6]	REQ_SCMON_FUN_2	

6.4.2.2 Input parameters

Same as operation `listSwmProfiles` defined in 32.532[7].

6.4.2.3 Output parameters

Same as operation `listSwmProfiles` defined in 32.532[7].

6.4.2.4 Pre-condition

Same as operation `listSwmProfiles` defined in 32.532[7].

6.4.2.5 Post-condition

Same as operation `listSwmProfiles` defined in 32.532[7].

6.4.2.6 Exceptions

6.4.2.6.1 exceptionName

Same s operation `listSwmProfiles` defined in 32.532[7].

6.4.3 Operation createScManagementProfile (M)

6.4.3.1 Definition

This operation allows the IRPManager to establish an instance of `scManagementProfile` to be valid for NEs of a certain type.

This operation imports from operation `createSwmProfile` defined in 32.532[7].

Information on Requirements Traceability:

Referenced TS	Requirement label	Comment
3GPP TS 32.501 [6]	REQ_SCMAN_FUN_2	

6.4.3.2   Input parameters

Same as operation `createSwmProfile` defined in 32.532[7].

6.4.3.3   Output parameters

Same as operation `createSwmProfile` defined in 32.532[7].

6.4.3.4   Pre-condition

Same as operation `createSwmProfile` defined in 32.532[7].

6.4.3.5   Post-condition

Same as operation `createSwmProfile` defined in 32.532[7].

6.4.3.6   Exceptions

6.4.3.6.1   exceptionName

Same as operation `createSwmProfile` defined in 32.532[7].

6.4.4   Operation deleteScManagementProfile (M)

6.4.4.1   Definition

This operation allows the IRPManager to delete an instance of `scManagementProfile`.

This operation imports from operation `deleteSwmProfile` defined in 32.532[7].

Information on Requirements Traceability:

Referenced TS	Requirement label	Comment
3GPP TS 32.501 [6]	REQ_SCMAN_FUN_2	

6.4.4.2   Input parameters

Same as operation `deleteSwmProfile` defined in 32.532[7].

6.4.4.3   Output parameters

Same as operation `deleteSwmProfile` defined in 32.532[7].

6.4.4.4   Pre-condition

Same as operation `deleteSwmProfile` defined in 32.532[7].

6.4.4.5   Post-condition

Same as operation `deleteSwmProfile` defined in 32.532[7].

6.4.4.6   Exceptions

6.4.4.6.1   exceptionName

Same as operation `deleteSwmProfile` defined in 32.532[7].

6.4.5   Operation `listScProcesses` (M)

6.4.5.1   Definition

This operation allows the IRPManager to find out the status of one or several `scProcess` instances.

This operation imports from operation `listSwmProcesses` defined in 32.532[7].

Information on Requirements Traceability:

Referenced TS	Requirement label	Comment
3GPP TS 32.501 [6]	REQ_SCMON_FUN_4	

6.4.5.2   Input parameters

Same as operation `listSwmProcesses` defined in 32.532[7].

6.4.5.3   Output parameters

Same as operation `listSwmProcesses` defined in 32.532[7].

6.4.5.4   Pre-condition

Same as operation `listSwmProcesses` defined in 32.532[7].

6.4.5.5   Post-condition

Same as operation `listSwmProcesses` defined in 32.532[7].

6.4.5.6   Exceptions

6.4.5.6.1   exceptionName

Same as operation `listSwmProcesses` defined in 32.532[7].

6.4.   Operation `resumeScProcess` (M)

6.4.6.1   Definition

This operation allows the IRPManager to resume a self-configuration process which currently has been suspended at a stop point.

This operation imports from operation `resumeSwmProcess` defined in 32.532[7].

Information on Requirements Traceability:

Referenced TS	Requirement label	Comment
3GPP TS 32.501 [6]	REQ_SCMAN_FUN_3	

6.4.6.2 Input parameters

Same as operation `resumeSwmProcess` defined in 32.532[7].

6.4.6.3 Output parameters

Same as operation `resumeSwmProcess` defined in 32.532[7].

6.4.6.4 Pre-condition

Same as operation `resumeSwmProcess` defined in 32.532[7].

6.4.6.5 Post-condition

Same as operation `resumeSwmProcess` defined in 32.532[7].

6.4.6.6 Exceptions

6.4.6.6.1 exceptionName

Same as operation `resumeSwmProcess` defined in 32.532[7].

6.4.7 Operation `terminateScProcess` (M)

6.4.7.1 Definition

This operation allows the IRPManager to terminate a self-configuration process which is currently ongoing.

After termination it is not possible to resume the terminated self-configuration process again.

This operation imports from operation `terminateSwmProcess` defined in 32.532[7].

Information on Requirements Traceability:

Referenced TS	Requirement label	Comment
3GPP TS 32.501 [6]	REQ_SCMAN_FUN_4	

6.4.7.2 Input parameters

Same as operation `terminateSwmProcess` defined in 32.532[7].

6.4.7.3 Output parameters

Same as operation `terminateSwmProcess` defined in 32.532[7].

6.4.7.4 Pre-condition

Same as operation `terminateSwmProcess` defined in 32.532[7].

6.4.7.5 Post-condition

Same as operation `terminateSwmProcess` defined in 32.532[7].

6.4.7.6 Exceptions

6.4.7.6.1 exceptionName

Same as operation `terminateSwmProcess` defined in 32.532[7].

6.5 SCManagementOperations_2 Interface (O)

6.5.1 Operation changeScManagementProfile (O)

6.5.1.1 Definition

This operation allows the IRPManager to change an instance of scManagementProfile.

This operation imports from operation changeSwmProfile defined in 32.532[7].

Information on Requirements Traceability:

Referenced TS	Requirement label	Comment
3GPP TS 32.501 [6]	REQ_SCSW_FUN_6	

6.5.1.2 Input parameters

Same as operation changeSwmProfile defined in 32.532[7].

6.5.1.3 Output parameters

Same as operation changeSwmProfile defined in 32.532[7].

6.5.1.4 Pre-condition

Same as operation changeSwmProfile defined in 32.532[7].

6.5.1.5 Post-condition

Same as operation changeSwmProfile defined in 32.532[7].

6.5.1.6 Exceptions

6.5.1.6.1 exceptionName

Same as operation changeSwmProfile defined in 32.532[7].

6.6 SCManagementNotification_1 Interface (M)

6.6.1 Notification notifyScManagementProfileCreation (M)

6.6.1.1 Definition

This notification conveys information about a creation of an instance of IOC scManagementProfile.

This operation imports from notification notifySwmProfileCreation defined in 32.532[7].

Information on Requirements Traceability:

Referenced TS	Requirement label	Comment
3GPP TS 32.501 [6]	REQ_SCMAN_FUN_2	
3GPP TS 32.501 [6]	REQ_SCMON_FUN_3	

6.6.1.2 Input parameters

Same as notification `notifySwmProfileCreation` defined in 32.532[7].

6.6.1.3 Triggering event

6.6.1.3.1 From state

Same as notification `notifySwmProfileCreation` defined in 32.532[7].

6.6.1.3.2 To state

Same as notification `notifySwmProfileCreation` defined in 32.532[7].

6.6.2 Notification notifyScManagementProfileDeletion (M)

6.6.2.1 Definition

This notification conveys information about the deletion of an instance of IOC scManagementProfile.

This operation imports from notification `notifySwmProfileDeletion` defined in 32.532[7].

Information on Requirements Traceability:

Referenced TS	Requirement label	Comment
3GPP TS 32.501 [6]	REQ_SCMAN_FUN_2	
3GPP TS 32.501 [6]	REQ_SCMON_FUN_3	

6.6.2.2 Input parameters

Same as notification `notifySwmProfileDeletion` defined in 32.532[7].

6.6.2.3 Triggering event

6.6.2.3.1 From state

Same as notification `notifySwmProfileDeletion` defined in 32.532[7].

6.6.2.3.2 To state

Same as notification `notifySwmProfileDeletion` defined in 32.532[7].

6.6.3 Notification notifyScProcessCreation (M)

6.6.3.1 Definition

This notification conveys information about the creation of an instance of IOC `scProcess`.

This operation imports from notification `notifySwmProcessCreation` defined in 32.532[7].

Information on Requirements Traceability:

Referenced TS	Requirement label	Comment
3GPP TS 32.501 [6]	REQ_SCMON_FUN_5	
3GPP TS 32.501 [6]	REQ_SCSW_FUN_6	

6.6.3.2 Input parameters

Same as notification `notifySwmProcessCreation` defined in 32.532[7].

6.6.3.3 Triggering event

6.6.3.3.1 From state

Same as notification `notifySwmProcessCreation` defined in 32.532[7].

6.6.3.3.2 To state

Same as notification `notifySwmProcessCreation` defined in 32.532[7].

6.6.4 Notification `notifyScProcessStage` (M)

6.6.4.1 Definition

This notification conveys information about progress of a self configuration. It also reports the arrival at a stopPoint (`stepProgress` of a step in `stepInfoList` changed value to `awaitingResume`) or leaving a stop point (`stepProgress` of a step in `stepInfoList` changed value from `awaitingResume`).

This operation imports from notification `notifySwmProcessStage` defined in 32.532[7].

Information on Requirements Traceability:

Referenced TS	Requirement label	Comment
3GPP TS 32.501 [6]	REQ_SCMON_FUN_2	
3GPP TS 32.501 [6]	REQ_SCMON_FUN_5	
3GPP TS 32.501 [6]	REQ_SCMON_FUN_6	
3GPP TS 32.501 [6]	REQ_SCOCE_FUN_2	

6.6.4.2 Input parameters

Same as notification `notifySwmProcessStage` defined in 32.532[7].

6.6.4.3 Triggering event

6.6.4.3.1 From state

Same as notification `notifySwmProcessStage` defined in 32.532[7].

6.6.4.3.2 To state

Same as notification `notifySwmProcessStage` defined in 32.532[7].

6.6.5 Notification notifyScProcessDeletion (M)

6.6.5.1 Definition

This notification conveys information about the deletion of an instance of IOC `scProcess` and what triggered the deletion.

IRPAgent shall also send out this notification in case of a process termination caused by an exception, for example IRP Agent terminates the process because it had to wait too long after a suspend operation.

This operation imports from notification `notifySwmProcessDeletion` defined in 32.532[7].

Information on Requirements Traceability:

Referenced TS	Requirement label	Comment
3GPP TS 32.501 [6]	REQ_SCMON_FUN_5	
3GPP TS 32.501 [6]	REQ_SCSW_FUN_6	

6.6.5.2 Input parameters

Same as notification `notifySwmProcessDeletion` defined in 32.532[7].

6.6.5.3 Triggering event

6.6.5.3.1 From state

Same as notification `notifySwmProcessDeletion` defined in 32.532[7].

6.6.5.3.2 To state

Same as notification `notifySwmProcessDeletion` defined in 32.532[7].

6.6.6 Notification notifyNewScManagementCapabilityAvailability (M)

6.6.6.1 Definition

This notification conveys information about the availability of a new scManagementCapability instance.

Information on Requirements Traceability:

Referenced TS	Requirement label	Comment
3GPP TS 32.501 [6]	REQ_SCSW_FUN_5	

6.6.6.2 Input parameters

Parameter Name	Qualifiers	Matching Information	Comment
Id	M,Y	swm.id	See 32.532
nEInformation	M,Y	swm.nEInformation	See 32.532
stepsAndOfferedStopPointList	M,N	swm.stepsAndOfferedStopPointList	See 32.532*
offeredFinalAdministrative StateInformation	M,N	swm. offeredFinalAdministrative StateInformation	See 32.532
swVersionToBeInstalledOfferList	CM, N	swVersionToBeInstalledOfferList	See 32.532

*) See 32.532 §4.3.4.2

6.6.6.3 Triggering event

6.6.6.3.1 From state

Assertion Name	Definition
newCapabilityAvailable	A new self-configuration capability is available.

6.6.6.3.2 To state

Assertion Name	Definition
irpManagersInformed	IRPManager are informed about the new capabily.

6.7 SCManagementNotification_2 Interface (O)

6.7.1 Notification notifyScManagementProfileChange (O)

6.7.1.1 Definition

This notification conveys information about a change of an instance of IOC `scManagementProfile`.

This operation imports from notification `notifySwmProfileChange` defined in 32.532[7].

Information on Requirements Traceability:

Referenced TS	Requirement label	Comment
3GPP TS 32.501 [6]	REQ_SCSW_FUN_6	

6.7.1.2 Input parameters

Same as notification `notifySwmProfileChange` defined in 32.532[7].

6.7.1.3 Triggering event

6.7.1.3.1 From state

Same as notification `notifySwmProfileChange` defined in 32.532[7].

6.7.33.2 To state

Same as notification `notifySwmProfileChange` defined in 32.532[7].

Annex A (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
2008-12	SP-42	SP-080714			Submitted to SA#42 for information and approval	1.0.0	8.0.0
2009-03	SP-43	SP-090207	001	--	Usage of create-/delete-/change-notifications in context of self-configuration	8.0.0	8.1.0
2009-12	SAP-46	SP-090718	002	--	Correct reference for NotifyScManagementProfileDeletion	8.1.0	8.2.0

History

Document history		
V8.0.0	February 2009	Publication
V8.1.0	April 2009	Publication
V8.2.0	January 2010	Publication