

ETSI TS 128 705 V18.0.0 (2024-05)



**Universal Mobile Telecommunications System (UMTS);
LTE;
Telecommunication management;
IP Multimedia Subsystem (IMS)
Network Resource Model (NRM)
Integration Reference Point (IRP);
Information Service (IS)
(3GPP TS 28.705 version 18.0.0 Release 18)**



Reference

RTS/TSGS-0528705vi00

Keywords

LTE,UMTS

ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - APE 7112B
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° w061004871

Important notice

The present document can be downloaded from:

<https://www.etsi.org/standards-search>

The present document may be made available in electronic versions and/or in print. The content of any electronic and/or print versions of the present document shall not be modified without the prior written authorization of ETSI. In case of any existing or perceived difference in contents between such versions and/or in print, the prevailing version of an ETSI deliverable is the one made publicly available in PDF format at www.etsi.org/deliver.

Users of the present document should be aware that the document may be subject to revision or change of status.

Information on the current status of this and other ETSI documents is available at

<https://portal.etsi.org/TB/ETSIDeliverableStatus.aspx>

If you find errors in the present document, please send your comment to one of the following services:

<https://portal.etsi.org/People/CommitteeSupportStaff.aspx>

If you find a security vulnerability in the present document, please report it through our
Coordinated Vulnerability Disclosure Program:

<https://www.etsi.org/standards/coordinated-vulnerability-disclosure>

Notice of disclaimer & limitation of liability

The information provided in the present deliverable is directed solely to professionals who have the appropriate degree of experience to understand and interpret its content in accordance with generally accepted engineering or other professional standard and applicable regulations.

No recommendation as to products and services or vendors is made or should be implied.

No representation or warranty is made that this deliverable is technically accurate or sufficient or conforms to any law and/or governmental rule and/or regulation and further, no representation or warranty is made of merchantability or fitness for any particular purpose or against infringement of intellectual property rights.

In no event shall ETSI be held liable for loss of profits or any other incidental or consequential damages.

Any software contained in this deliverable is provided "AS IS" with no warranties, express or implied, including but not limited to, the warranties of merchantability, fitness for a particular purpose and non-infringement of intellectual property rights and ETSI shall not be held liable in any event for any damages whatsoever (including, without limitation, damages for loss of profits, business interruption, loss of information, or any other pecuniary loss) arising out of or related to the use of or inability to use the software.

Copyright Notification

No part may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm except as authorized by written permission of ETSI.

The content of the PDF version shall not be modified without the written authorization of ETSI.

The copyright and the foregoing restriction extend to reproduction in all media.

© ETSI 2024.
All rights reserved.

Intellectual Property Rights

Essential patents

IPRs essential or potentially essential to normative deliverables may have been declared to ETSI. The declarations pertaining to these essential IPRs, if any, are publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: "*Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards*", which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (<https://ipr.etsi.org/>).

Pursuant to the ETSI Directives including the ETSI IPR Policy, no investigation regarding the essentiality of IPRs, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Trademarks

The present document may include trademarks and/or tradenames which are asserted and/or registered by their owners. ETSI claims no ownership of these except for any which are indicated as being the property of ETSI, and conveys no right to use or reproduce any trademark and/or tradename. Mention of those trademarks in the present document does not constitute an endorsement by ETSI of products, services or organizations associated with those trademarks.

DECT™, **PLUGTESTS™**, **UMTS™** and the ETSI logo are trademarks of ETSI registered for the benefit of its Members. **3GPP™** and **LTE™** are trademarks of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners. **oneM2M™** logo is a trademark of ETSI registered for the benefit of its Members and of the oneM2M Partners. **GSM®** and the GSM logo are trademarks registered and owned by the GSM Association.

Legal Notice

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

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

The cross reference between 3GPP and ETSI identities can be found under <https://webapp.etsi.org/key/queryform.asp>.

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the [ETSI Drafting Rules](#) (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

Contents

Intellectual Property Rights	2
Legal Notice	2
Modal verbs terminology.....	2
Foreword.....	7
Introduction	7
1 Scope	8
2 References	8
3 Definitions and abbreviations.....	9
3.1 Definitions	9
3.2 Abbreviations	9
4 Model	11
4.1 Imported information entities and local labels	11
4.2 Class diagram	12
4.2.1 Relationships.....	12
4.2.2 Inheritance	16
4.3 Class definitions	20
4.3.1 ASFunction	20
4.3.1.1 Definition	20
4.3.1.2 Attributes.....	20
4.3.1.3 Attribute constraints	20
4.3.1.4 Notifications.....	20
4.3.2 BGCFFunction.....	20
4.3.2.1 Definition	20
4.3.2.2 Attributes.....	20
4.3.2.3 Attribute constraints	20
4.3.2.4 Notifications.....	20
4.3.3 CAMELIMSSFASFunction.....	21
4.3.3.1 Definition	21
4.3.3.2 Attributes.....	21
4.3.3.3 Attribute constraints	21
4.3.3.4 Notifications.....	21
4.3.4 CSCFFunction.....	21
4.3.4.1 Definition	21
4.3.4.2 Attributes.....	21
4.3.4.3 Attribute constraints	21
4.3.4.4 Notifications.....	21
4.3.5 HSSFFunction.....	21
4.3.5.1 Definition	21
4.3.5.2 Attributes.....	21
4.3.5.3 Attribute constraints	22
4.3.5.4 Notifications.....	22
4.3.6 ICSCFFunction	22
4.3.6.1 Definition	22
4.3.6.2 Attributes.....	22
4.3.6.3 Attribute constraints	22
4.3.6.4 Notifications.....	22
4.3.7 IMSMGWFunction.....	22
4.3.7.1 Definition	22
4.3.7.2 Attributes.....	22
4.3.7.3 Attribute constraints	22
4.3.7.4 Notifications.....	22
4.3.8 MGCFFunction.....	22

4.3.8.1	Definition	22
4.3.8.2	Attributes.....	23
4.3.8.3	Attribute constraints	23
4.3.8.4	Notifications.....	23
4.3.9	MRFCFunction.....	23
4.3.9.1	Definition	23
4.3.9.2	Attributes.....	23
4.3.9.3	Attribute constraints	23
4.3.9.4	Notifications.....	23
4.3.10	MRFPFunction.....	24
4.3.10.1	Definition	24
4.3.10.2	Attributes.....	24
4.3.10.3	Attribute constraints	24
4.3.10.4	Notifications.....	24
4.3.11	OSASCSASFunction	24
4.3.11.1	Definition	24
4.3.11.2	Attributes.....	24
4.3.11.3	Attribute constraints	24
4.3.11.4	Notifications.....	24
4.3.12	PCSCFFunction	24
4.3.12.1	Definition	24
4.3.12.2	Attributes.....	24
4.3.12.3	Attribute constraints	24
4.3.12.4	Notifications.....	25
4.3.13	SCSFFunction.....	25
4.3.13.1	Definition	25
4.3.13.2	Attributes.....	25
4.3.13.3	Attribute constraints	25
4.3.13.4	Notifications.....	25
4.3.14	SIPASFunction	25
4.3.14.1	Definition	25
4.3.14.2	Attributes.....	25
4.3.14.3	Attribute constraints	25
4.3.14.4	Notifications.....	25
4.3.15	SLFFunction.....	25
4.3.15.1	Definition	25
4.3.15.2	Attributes.....	25
4.3.15.3	Attribute constraints	26
4.3.15.4	Notifications.....	26
4.3.16	ECSCFFunction	26
4.3.16.1	Definition	26
4.3.16.2	Attributes.....	26
4.3.16.3	Attribute constraints	26
4.3.16.4	Notifications.....	26
4.3.17	Link_AS_ICSCF	26
4.3.17.1	Definition	26
4.3.17.2	Attributes.....	26
4.3.17.3	Attribute constraints	26
4.3.17.4	Notifications.....	26
4.3.18	Link_AS_SCSCF	26
4.3.18.1	Definition	26
4.3.18.2	Attributes.....	26
4.3.18.3	Attribute constraints	27
4.3.18.4	Notifications.....	27
4.3.19	Link_AS_SLF.....	27
4.3.19.1	Definition	27
4.3.19.2	Attributes.....	27
4.3.19.3	Attribute constraints	27
4.3.19.4	Notifications.....	27
4.3.20	Link_BGCF_BGCF	27
4.3.20.1	Definition	27

4.3.20.2	Attributes.....	27
4.3.20.3	Attribute constraints	27
4.3.20.4	Notifications.....	27
4.3.21	Link_BGCF_MGCF.....	27
4.3.21.1	Definition	27
4.3.21.2	Attributes.....	27
4.3.21.3	Attribute constraints	28
4.3.21.4	Notifications.....	28
4.3.22	Link_BGCF_SCSCF	28
4.3.22.1	Definition	28
4.3.22.2	Attributes.....	28
4.3.22.3	Attribute constraints	28
4.3.22.4	Notifications.....	28
4.3.23	Link_HSS_ICSCF.....	28
4.3.23.1	Definition	28
4.3.23.2	Attributes.....	28
4.3.23.3	Attribute constraints	28
4.3.23.4	Notifications.....	28
4.3.24	Link_ICSCF_SCSCF	28
4.3.24.1	Definition	28
4.3.24.2	Attributes.....	28
4.3.24.3	Attribute constraints	29
4.3.24.4	Notifications.....	29
4.3.25	Link_ICSCF_MGCF	29
4.3.25.1	Definition	29
4.3.25.2	Attributes.....	29
4.3.25.3	Attribute constraints	29
4.3.25.4	Notifications.....	29
4.3.26	Link_ICSCF_PCSCF	29
4.3.26.1	Definition	29
4.3.26.2	Attributes.....	29
4.3.26.3	Attribute constraints	29
4.3.26.4	Notifications.....	29
4.3.27	Link_PCSCF_SCSCF	29
4.3.27.1	Definition	29
4.3.27.2	Attributes.....	29
4.3.27.3	Attribute constraints	30
4.3.27.4	Notifications.....	30
4.3.28	Link_CAMELIMSSFAS_HSS	30
4.3.28.1	Definition	30
4.3.28.2	Attributes.....	30
4.3.28.3	Attribute constraints	30
4.3.28.4	Notifications.....	30
4.3.29	Link_HSS_OSASCSAS.....	30
4.3.29.1	Definition	30
4.3.29.2	Attributes.....	30
4.3.29.3	Attribute constraints	30
4.3.29.4	Notifications.....	30
4.3.30	Link_HSS_SCSCF.....	30
4.3.30.1	Definition	30
4.3.30.2	Attributes.....	30
4.3.30.3	Attribute constraints	31
4.3.30.4	Notifications.....	31
4.3.31	Link_HSS_SIPAS.....	31
4.3.31.1	Definition	31
4.3.31.2	Attributes.....	31
4.3.31.3	Attribute constraints	31
4.3.31.4	Notifications.....	31
4.3.32	Link_ICSCF_SLF.....	31
4.3.32.1	Definition	31
4.3.32.2	Attributes.....	31

4.3.32.3	Attribute constraints	31
4.3.32.4	Notifications	31
4.3.33	Link_IMSMGW_MGCF	31
4.3.33.1	Definition	31
4.3.33.2	Attributes	31
4.3.33.3	Attribute constraints	32
4.3.33.4	Notifications	32
4.3.34	Link_MGCF_SCSCF	32
4.3.34.1	Definitions	32
4.3.34.2	Attributes	32
4.3.34.3	Attribute constraints	32
4.3.34.4	Notifications	32
4.3.35	Link_MRFC_MRFP	32
4.3.35.1	Definition	32
4.3.35.2	Attributes	32
4.3.35.3	Attribute constraints	32
4.3.35.4	Notifications	32
4.3.36	Link_MRFC_SCSCF	32
4.3.36.1	Definition	32
4.3.36.2	Attributes	32
4.3.36.3	Attribute constraints	33
4.3.36.4	Notifications	33
4.3.37	Link_SCSCF_SCSCF	33
4.3.37.1	Definition	33
4.3.37.2	Attributes	33
4.3.37.3	Attribute constraints	33
4.3.37.4	Notifications	33
4.3.38	Link_SCSCF_SLF	33
4.3.38.1	Definition	33
4.3.38.2	Attributes	33
4.3.38.3	Attribute constraints	33
4.3.38.4	Notifications	33
4.3.39	Link_PCSCF_ECSCF	33
4.3.39.1	Definition	33
4.3.39.2	Attributes	33
4.3.39.3	Attribute constraints	34
4.3.39.4	Notifications	34
4.3.40	Link_BGCF_ECSCF	34
4.3.40.1	Definition	34
4.3.40.2	Attributes	34
4.3.40.3	Attribute constraints	34
4.3.40.4	Notifications	34
4.3.41	Link_MGCF_ECSCF	34
4.3.41.1	Definition	34
4.3.41.2	Attributes	34
4.3.41.3	Attribute constraints	34
4.3.41.4	Notifications	34
4.4	Attribute definitions	34
4.4.1	Attribute properties	34
4.4.2	Constraints	35
4.5	Common notifications	35
4.5.1	Alarm notifications	35
4.5.2	Configuration notifications	35
Annex A (informative):	Change history	36
History		37

Foreword

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

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

Version x.y.z

where:

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

Introduction

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:

28.704: IP Multimedia Subsystem (IMS) Network Resource Model (NRM) Integration Reference Point (IRP): Requirements.

28.705: IP Multimedia Subsystem (IMS) Network Resource Model (NRM) Integration Reference Point (IRP): Information Service (IS).

28.706: IP Multimedia Subsystem (IMS) Network Resource Model (NRM) Integration Reference Point (IRP): Solution Set (SS) definitions.

1 Scope

The present document specifies the IP Multimedia Subsystem (IMS) network resource information that can be communicated between an IRP Agent and an IRP Manager for telecommunication network management purposes, including management of converged networks.

This document specifies the semantics and behaviour of information object class attributes and relations visible across the reference point in a protocol and technology neutral way. It does not define their syntax and encoding.

The IMS NRM IRP comprises a set of specifications defining Requirements, a protocol neutral Information Service and one or more Solution Set(s).

The present document specifies the protocol neutral IMS NRM IRP: Information Service (IS). It reuses relevant parts of the Generic NRM IRP: IS in 3GPP TS 28.622 [9], either by direct reuse or sub-classing, and in addition to that defines IMS specific Information Object Classes.

Finally, in order to access the information defined by this NRM, an Interface IRP is needed, such as the Basic CM IRP in 3GPP TS 32.602 [10]. However, which Interface IRP that is applicable is outside the scope of the present document.

2 References

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

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

- [1] 3GPP TS 32.101: "Telecommunication management; Principles and high level requirements".
- [2] 3GPP TS 32.102: "Telecommunication management; Architecture".
- [3] 3GPP TS 32.662: "Telecommunication management; Configuration Management (CM); Kernel CM IRP Information Service (IS)".
- [4] 3GPP TS 32.150: "Telecommunication management; Integration Reference Point (IRP) Concept and definitions".
- [5] 3GPP TS 32.111-2: "Telecommunication management; Fault Management; Part 2: Alarm Integration Reference Point: Information Service (IS)".
- [6] 3GPP TS 32.300: "Telecommunication management; Configuration Management (CM); Name convention for Managed Objects".
- [7] 3GPP TS 32.600: "Telecommunication management; Configuration Management (CM); Concept and high-level requirements".
- [8] 3GPP TS 23.002: "Network architecture".
- [9] 3GPP TS 28.622: "Telecommunication management; Generic Network Resource Model (NRM) Integration Reference Point (IRP); Information Service (IS)".
- [10] 3GPP TS 32.602: "Telecommunication management; Configuration Management (CM); Basic Configuration Management Integration Reference Point (IRP): Information Service (IS)".
- [11] 3GPP TS 28.702: "Telecommunication management; Configuration Management (CM); Core Network (CN) Network Resource Model (NRM) Integration Reference Point (IRP); Information Service (IS)".

- [12] 3GPP TS 32.156: "Telecommunication management; Fixed Mobile Convergence (FMC) Model Repertoire".
- [13] ITU-T Recommendation X.710 (1991): "Common Management Information Service Definition for CCITT Applications".
- [14] 3GPP TS 32.302: "Telecommunication management; Configuration Management (CM); Notification Integration Reference Point (IRP): Information Service (IS)".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TS 32.101 [1], 3GPP TS 32.102 [2], 3GPP TS 32.600 [7] and the following apply:

Association: See definition in TS 28.622 [9].

Managed Element (ME): See definition in TS 28.622 [9].

Managed Object (MO): See definition in TS 28.622 [9].

Management Information Model (MIM): See definition in TS 28.622 [9].

Network Resource Model (NRM): See definition in TS 28.622 [9].

3.2 Abbreviations

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

AS	Application Server
BGCF	Breakout Gateway Control Function
CN	Core Network
DN	Distinguished Name (see 3GPP TS 32.300 [6])
E-CSCF	Emergency Call Session Control Function
I-CSCF	Interrogating Call Session Control Function
IM-SSF	IP Multimedia Service Switching Function
IMS	IP Multimedia Subsystem
IMS-MGW	IMS Media Gateway
IOC	Information Object Class
IRP	Integration Reference Point
ISO	International Standards Organization
ME	Managed Element
MGCF	Media Gateway Control Function
MO	Managed Object
MOI	Managed Object Instance
MRFC	Multimedia Resource Function Controller
MRFP	Multimedia Resource Function Processor
NE	Network Element
NM	Network Manager
NR	Network Resource
NRM	Network Resource Model
OSI	Open Systems Interconnection
P-CSCF	Proxy Call Session Control Function
RDN	Relative Distinguished Name (see 3GPP TS 32.300 [6])
S-CSCF	Serving Call Session Control Function
SLF	Subscription Locator Function
TMN	Telecommunications Management Network
UML	Unified Modelling Language

UMTS Universal Mobile Telecommunications System

4 Model

4.1 Imported information entities and local labels

Label reference	Local label
28.622 [9], information object class, <code>Link</code>	<code>Link</code>
28.622 [9], information object class, <code>ManagedElement</code>	<code>ManagedElement</code>

4.2 Class diagram

4.2.1 Relationships

This clause depicts the set of classes (e.g. IOCs) that encapsulates the information relevant for this IRP. This clause provides the overview of the relationships of relevant classes in UML. Subsequent clauses provide more detailed specification of various aspects of these classes. The figures below show the containment/naming hierarchy and the associations of the information object classes defined in the present document.

NOTE: The listed cardinality numbers represent transient as well as steady-state numbers, and reflect all managed object creation and deletion scenarios in all figures.

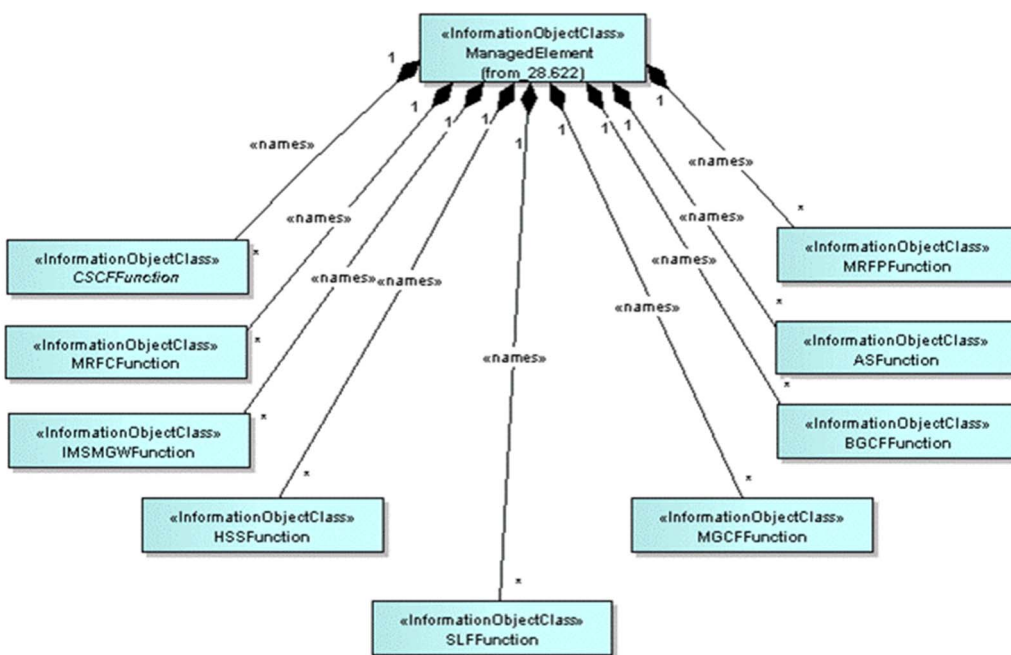
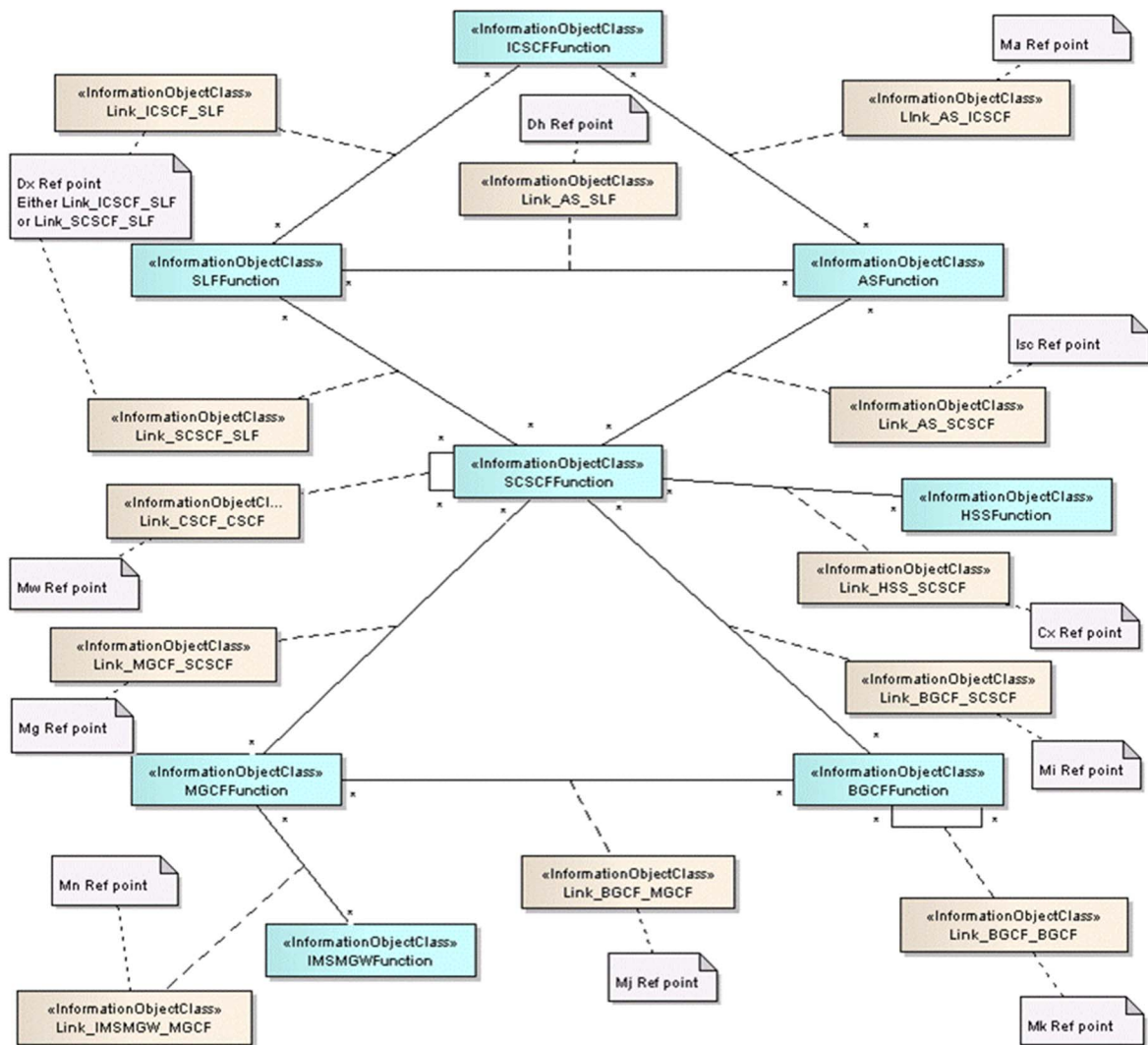


Figure 4.2.1.1: IMS NRM Containment/Naming relationships



Note: If this NRM has interfaces (Link IOCs) modelled to IOCs in other NRM(s), the Link IOC definitions may be defined in the other NRM(s) and need to be considered in implementations.

Figure 4.2.1.2: IMS NRM Link Associations 1

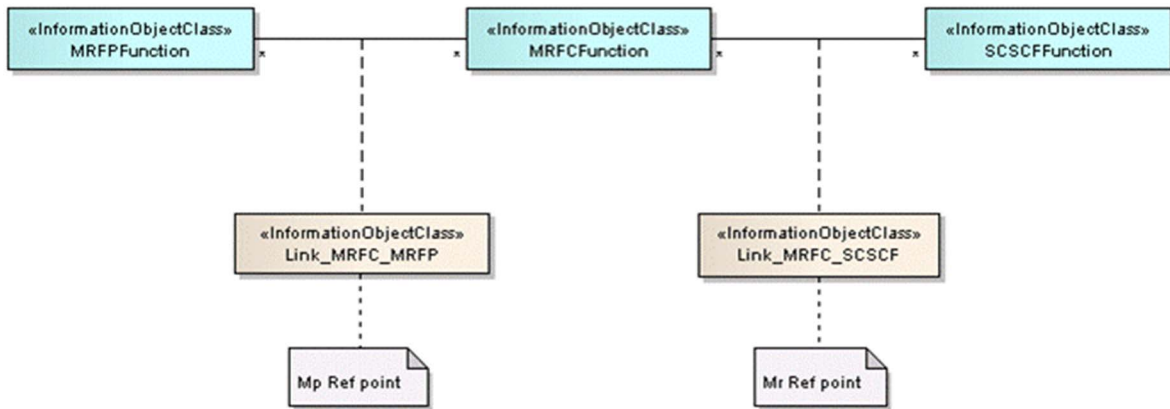


Figure 4.2.1.3: IMS NRM Link Associations 2

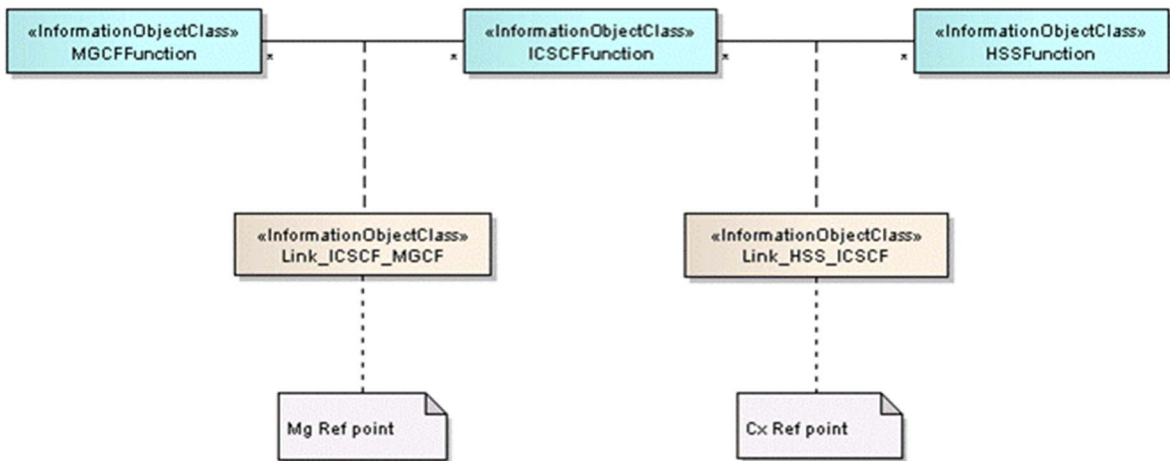


Figure 4.2.1.4: IMS NRM Link Associations 3

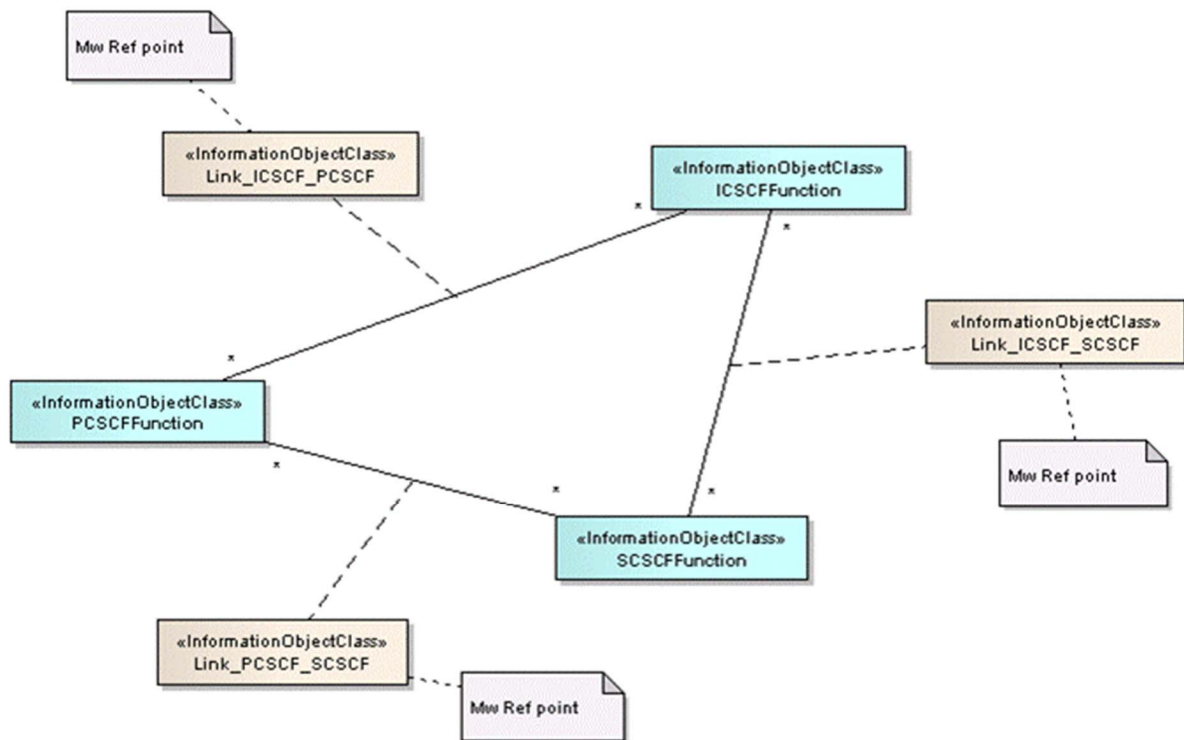


Figure 4.2.1.5: IMS NRM Link Associations 4

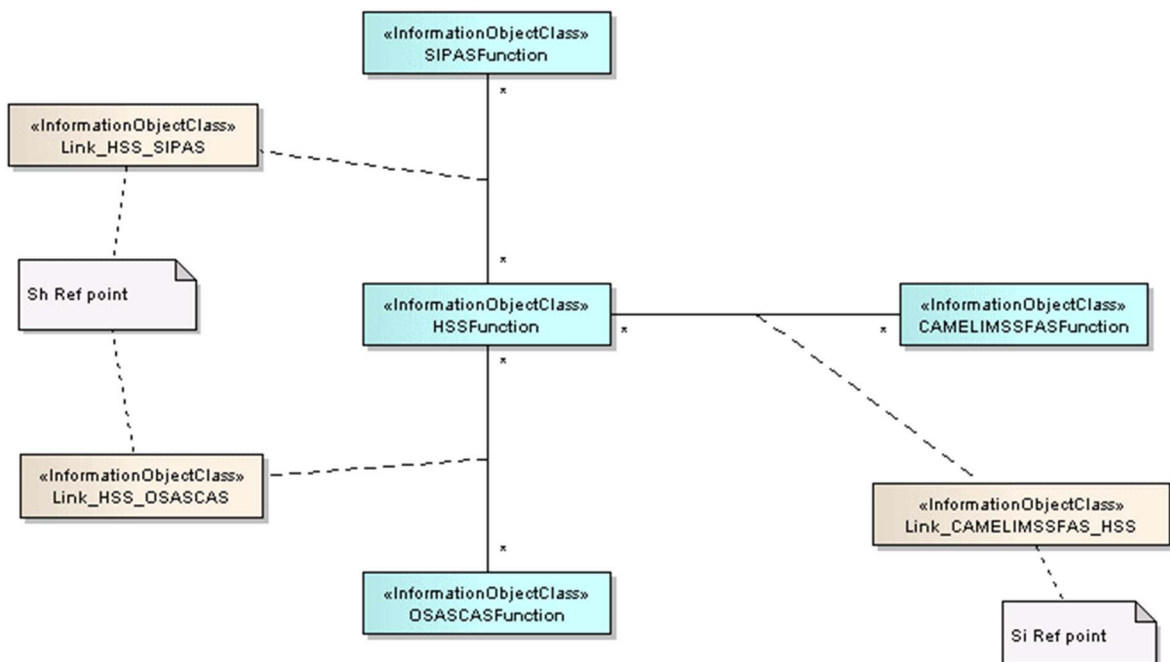


Figure 4.2.1.6: IMS NRM Link Associations 5

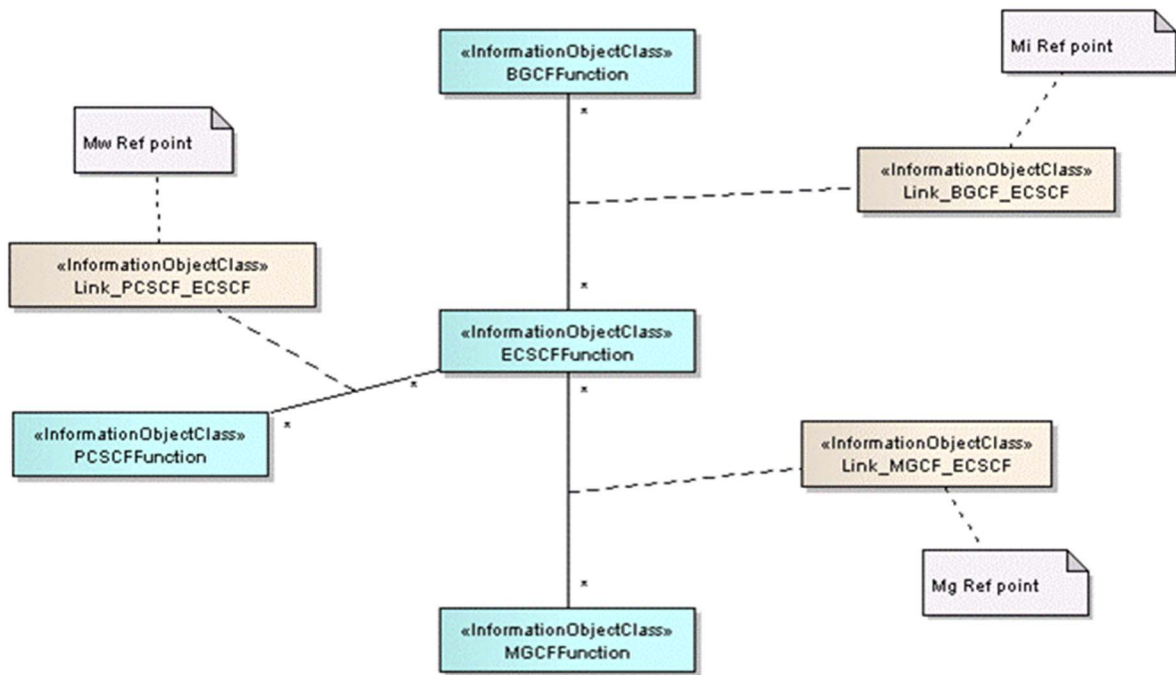


Figure 4.2.1.7: IMS NRM Link Associations 6

4.2.2 Inheritance

This clause depicts the inheritance relationships that exist between IOCs.

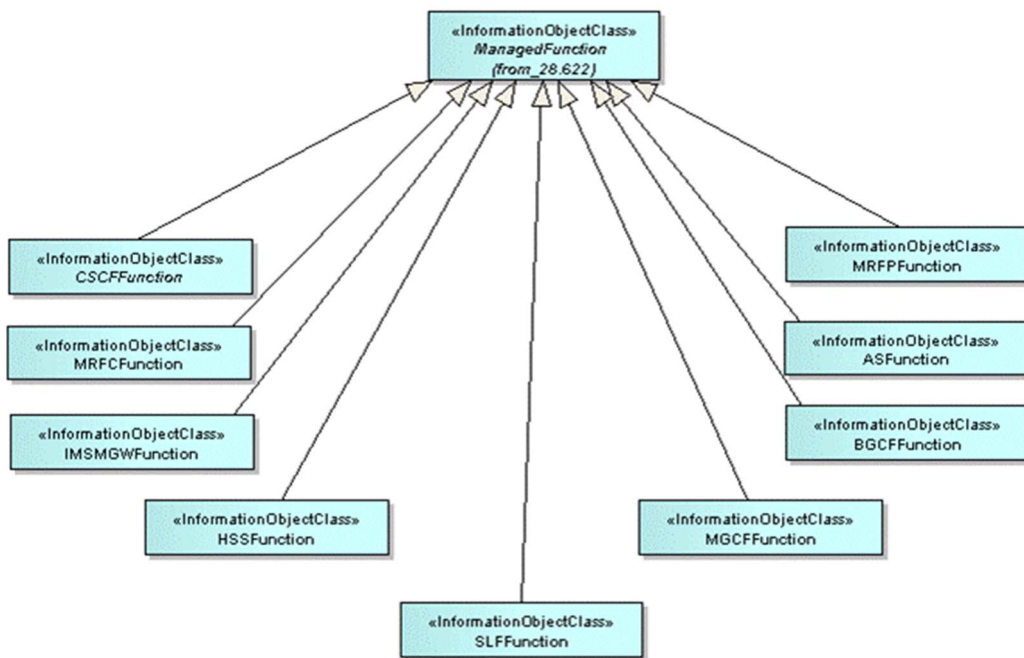


Figure 4.2.2.1: IMS NRM Inheritance Hierarchy 1

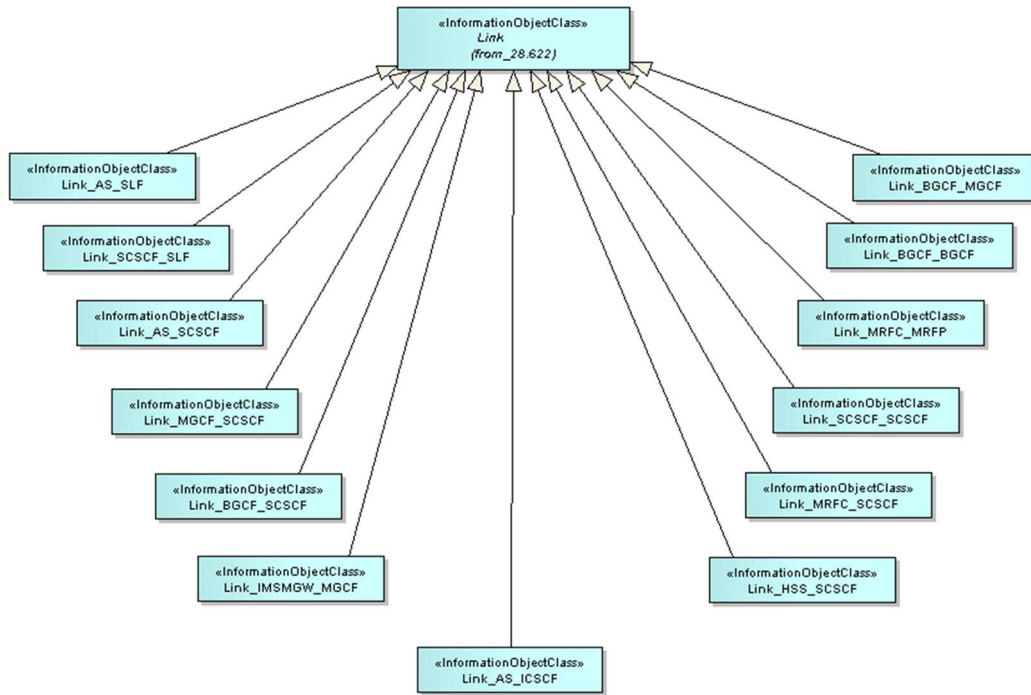


Figure 4.2.2.2: IMS NRM Inheritance Hierarchy 2

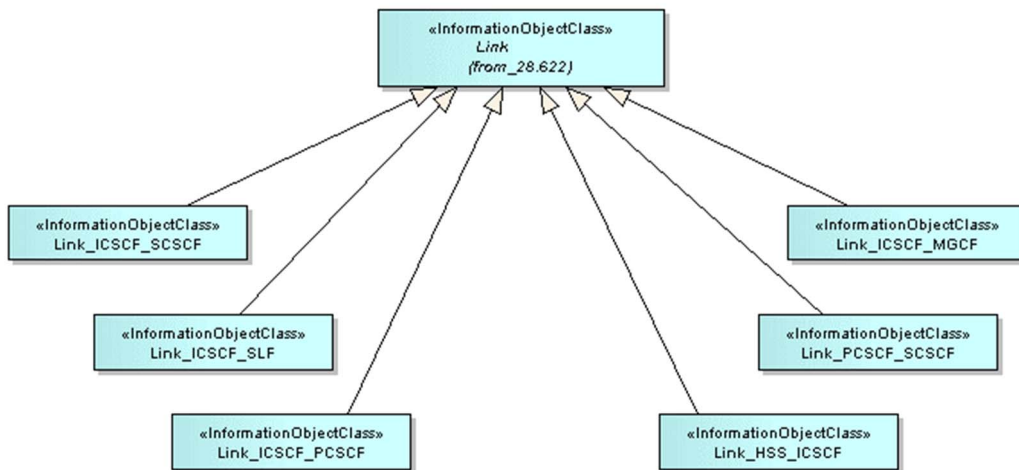


Figure 4.2.2.3: IMS NRM Inheritance Hierarchy 3

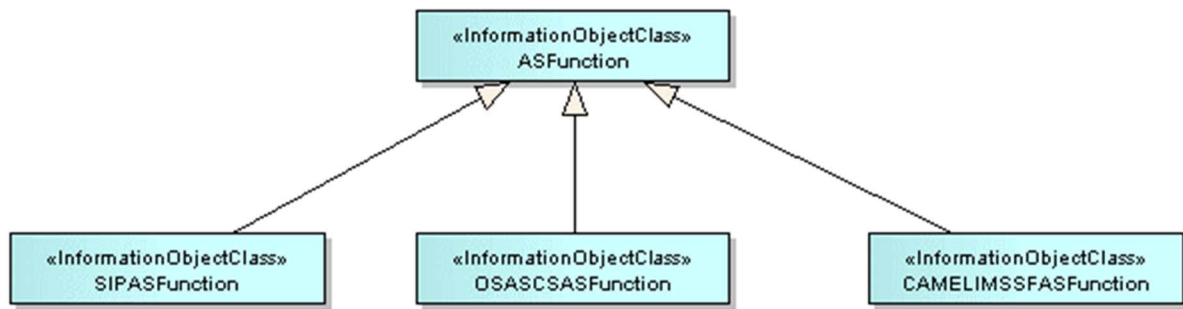


Figure 4.2.2.4: IMS NRM Inheritance Hierarchy 4

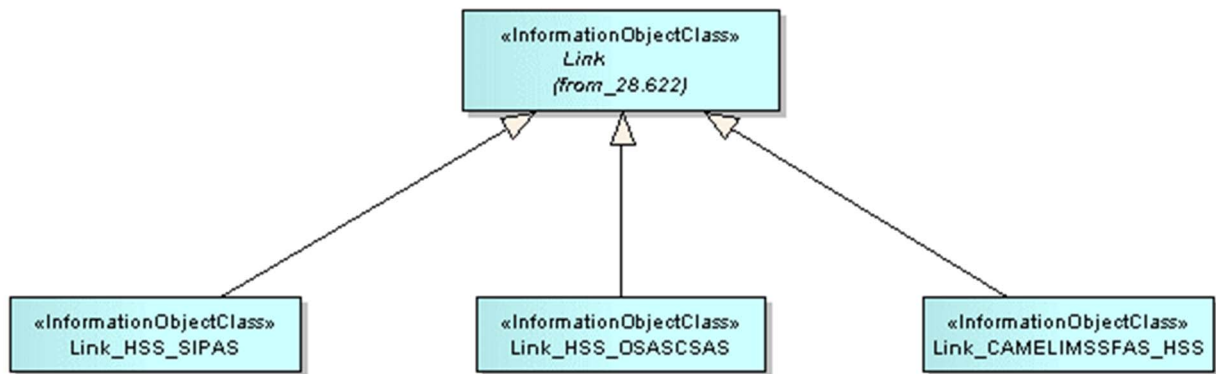


Figure 4.2.2.5: IMS NRM Inheritance Hierarchy 5

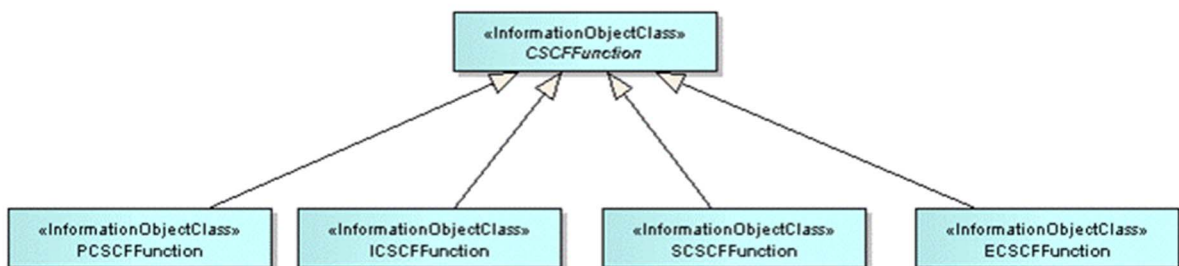


Figure 4.2.2.6: IMS NRM Inheritance Hierarchy 6

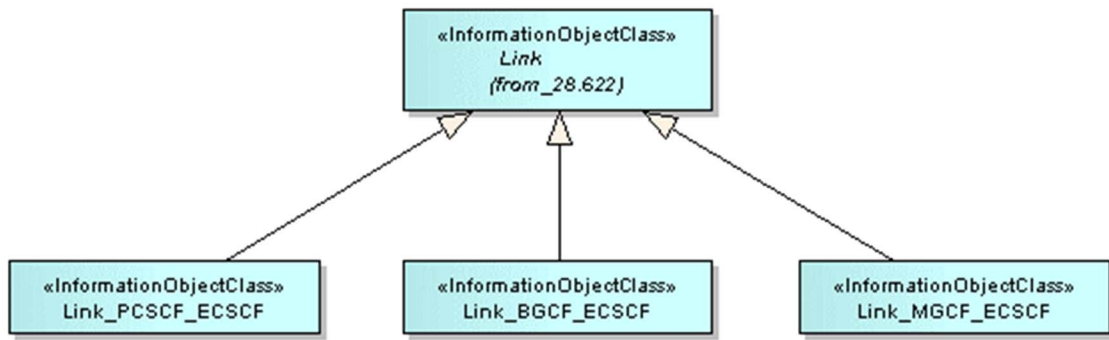


Figure 4.2.2.7: IMS NRM Inheritance Hierarchy 7

4.3 Class definitions

4.3.1 ASFunction

4.3.1.1 Definition

This IOC represents AS functionality. For more information about the AS, see 3GPP TS 23.002 [8]. ASFunction may be instantiated when a specific Application Server type is not already represented with an IOC subclassed from this IOC in this specification. If the Application Server type is already represented by an IOC in this specification, then it should instead be used. In the case a subclassed IOC is utilized, the ASFunction relationships (including link objects) are carried forward to the sub-classed IOC through inheritance.

4.3.1.2 Attributes

Attribute Name	Support Qualifier	isReadable	isWritable	isInvariant	isNotifyable
linkList	O	M	-	-	M

4.3.1.3 Attribute constraints

There is no attribute constraint defined.

4.3.1.4 Notifications

The common notifications defined in subclause 4.6 are valid for this IOC, without exceptions or additions.

4.3.2 BGCFFunction

4.3.2.1 Definition

This IOC represents BGCF functionality. For more information about the BGCF, see 3GPP TS 23.002 [8].

4.3.2.2 Attributes

Attribute Name	Support Qualifier	isReadable	isWritable	isInvariant	isNotifyable
linkList	O	M	-	-	M

4.3.2.3 Attribute constraints

There is no attribute constraint defined.

4.3.2.4 Notifications

The common notifications defined in subclause 4.6 are valid for this IOC, without exceptions or additions.

4.3.3 CAMELIMSSFASFunction

4.3.3.1 Definition

This IOC represents CAMEL IM-SSF AS functionality. For more information about the CAMEL IM-SSF AS, see 3GPP TS 23.002 [8].

4.3.3.2 Attributes

None.

4.3.3.3 Attribute constraints

There is no attribute constraint defined.

4.3.3.4 Notifications

The common notifications defined in subclause 4.6 are valid for this IOC, without exceptions or additions.

4.3.4 CSCFFunction

4.3.4.1 Definition

This IOC represents CSCF functionality. For more information about the CSCF, see 3GPP TS 23.002 [8].

This IOC cannot be instantiated. It is defined for sub-classing purposes.

4.3.4.2 Attributes

Attribute Name	Support Qualifier	isReadable	isWritable	isInvariant	isNotifyable
linkList	O	M	-	-	M

4.3.4.3 Attribute constraints

There is no attribute constraint defined.

4.3.4.4 Notifications

The common notifications defined in subclause 4.6 are valid for this IOC, without exceptions or additions.

4.3.5 HSSFunction

4.3.5.1 Definition

This IOC represents HSS functionality. For more information about the HSS, see 3GPP TS 23.002 [8].

4.3.5.2 Attributes

Attribute Name	Support Qualifier	isReadable	isWritable	isInvariant	isNotifyable
linkList	O	M	-	-	M

4.3.5.3 Attribute constraints

There is no attribute constraint defined.

4.3.5.4 Notifications

The common notifications defined in subclause 4.6 are valid for this IOC, without exceptions or additions.

4.3.6 ICSCFFunction

4.3.6.1 Definition

This IOC represents I-CSCF functionality. For more information about the I-CSCF, see 3GPP TS 23.002 [8].

4.3.6.2 Attributes

None.

4.3.6.3 Attribute constraints

There is no attribute constraint defined.

4.3.6.4 Notifications

The common notifications defined in subclause 4.6 are valid for this IOC, without exceptions or additions.

4.3.7 IMSMGWFunction

4.3.7.1 Definition

This IOC represents IMS-MGW functionality. For more information about IMS-MGW, see 3GPP TS 23.002 [8].

4.3.7.2 Attributes

Attribute Name	Support Qualifier	isReadable	isWritable	isInvariant	isNotifiable
linkList	O	M	-	-	M

4.3.7.3 Attribute constraints

There is no attribute constraint defined.

4.3.7.4 Notifications

The common notifications defined in subclause 4.6 are valid for this IOC, without exceptions or additions.

4.3.8 MGCFFunction

4.3.8.1 Definition

This IOC represents MGCF functionality. For more information about the MGCF, see 3GPP TS 23.002 [8].

4.3.8.2 Attributes

Attribute Name	Support Qualifier	isReadable	isWritable	isInvariant	isNotifiable
linkList	O	M	-	-	M

4.3.8.3 Attribute constraints

There is no attribute constraint defined.

4.3.8.4 Notifications

The common notifications defined in subclause 4.6 are valid for this IOC, without exceptions or additions.

4.3.9 MRFCFunction

4.3.9.1 Definition

This IOC represents MRFC functionality. For more information about the MRFC, see 3GPP TS 23.002 [8].

4.3.9.2 Attributes

Attribute Name	Support Qualifier	isReadable	isWritable	isInvariant	isNotifiable
linkList	O	M	-	-	M

4.3.9.3 Attribute constraints

There is no attribute constraint defined.

4.3.9.4 Notifications

The common notifications defined in subclause 4.6 are valid for this IOC, without exceptions or additions.

4.3.10 MRFPFunction

4.3.10.1 Definition

This IOC represents MRFP functionality. For more information about the MRFP, see 3GPP TS 23.002 [8].

4.3.10.2 Attributes

Attribute Name	Support Qualifier	isReadable	isWritable	isInvariant	isNotifyable
linkList	O	M	-	-	M

4.3.10.3 Attribute constraints

There is no attribute constraint defined.

4.3.10.4 Notifications

The common notifications defined in subclause 4.6 are valid for this IOC, without exceptions or additions.

4.3.11 OSASCSASFunction

4.3.11.1 Definition

This IOC represents OSA Application Server (Service Capability Server) functionality. For more information about the OSA Service Capability Server, see 3GPP TS 23.002 [8].

4.3.11.2 Attributes

None.

4.3.11.3 Attribute constraints

There is no attribute constraint defined.

4.3.11.4 Notifications

There is no notification defined.

4.3.12 PCSCFFunction

4.3.12.1 Definition

This IOC represents P-CSCF functionality. For more information about the P-CSCF, see 3GPP TS 23.002 [8].

4.3.12.2 Attributes

None.

4.3.12.3 Attribute constraints

There is no attribute constraint defined.

4.3.12.4 Notifications

The common notifications defined in subclause 4.6 are valid for this IOC, without exceptions or additions.

4.3.13 SCSFFunction

4.3.13.1 Definition

This IOC represents S-CSCF functionality. For more information about the S-CSCF, see 3GPP TS 23.002 [8].

4.3.13.2 Attributes

None.

4.3.13.3 Attribute constraints

There is no attribute constraint defined.

4.3.13.4 Notifications

The common notifications defined in subclause 4.6 are valid for this IOC, without exceptions or additions.

4.3.14 SIPASFunction

4.3.14.1 Definition

This IOC represents SIP AS functionality. For more information about the SIP AS, see 3GPP TS 23.002 [8].

4.3.14.2 Attributes

None.

4.3.14.3 Attribute constraints

There is no attribute constraint defined.

4.3.14.4 Notifications

There is no notification defined.

4.3.15 SLFFunction

4.3.15.1 Definition

This IOC represents SLF functionality. For more information about the SLF, see 3GPP TS 23.002 [8].

4.3.15.2 Attributes

Attribute Name	Support Qualifier	isReadable	isWritable	isInvariant	isNotifiable
linkList	O	M	-	-	M

4.3.15.3 Attribute constraints

There is no attribute constraint defined.

4.3.15.4 Notifications

The common notifications defined in subclause 4.6 are valid for this IOC, without exceptions or additions.

4.3.16 ECSCFFunction

4.3.16.1 Definition

This IOC represents E-CSCF functionality. For more information about the E-CSCF, see 3GPP TS 23.002 [8].

4.3.16.2 Attributes

None.

4.3.16.3 Attribute constraints

There is no attribute constraint defined.

4.3.16.4 Notifications

The common notifications defined in subclause 4.6 are valid for this IOC, without exceptions or additions.

4.3.17 Link_AS_ICSCF

4.3.17.1 Definition

This IOC models the Ma reference point as defined in TS 23.002 [8].

4.3.17.2 Attributes

None.

4.3.17.3 Attribute constraints

There is no attribute constraint defined.

4.3.17.4 Notifications

The common notifications defined in subclause 4.6 are valid for this IOC, without exceptions or additions.

4.3.18 Link_AS_SCSCF

4.3.18.1 Definition

This IOC models the Isc reference point as defined in TS 23.002 [8].

4.3.18.2 Attributes

None.

4.3.18.3 Attribute constraints

There is no attribute constraint defined.

4.3.18.4 Notifications

The common notifications defined in subclause 4.6 are valid for this IOC, without exceptions or additions.

4.3.19 Link_AS_SLF

4.3.19.1 Definition

This models the Dh reference point as defined in TS 23.002 [8].

4.3.19.2 Attributes

None.

4.3.19.3 Attribute constraints

There is no attribute constraint defined.

4.3.19.4 Notifications

The common notifications defined in subclause 4.6 are valid for this IOC, without exceptions or additions.

4.3.20 Link_BGCF_BGCF

4.3.20.1 Definition

This models the Mk reference point as defined in TS 23.002 [8].

4.3.20.2 Attributes

None.

4.3.20.3 Attribute constraints

There is no attribute constraint defined.

4.3.20.4 Notifications

The common notifications defined in subclause 4.6 are valid for this IOC, without exceptions or additions.

4.3.21 Link_BGCF_MGCF

4.3.21.1 Definition

This models the Mj reference point as defined in TS 23.002 [8].

4.3.21.2 Attributes

None.

4.3.21.3 Attribute constraints

There is no attribute constraint defined.

4.3.21.4 Notifications

The common notifications defined in subclause 4.6 are valid for this IOC, without exceptions or additions.

4.3.22 Link_BGCF_SCSCF

4.3.22.1 Definition

This models the Mi reference point as defined in TS 23.002 [8].

4.3.22.2 Attributes

None.

4.3.22.3 Attribute constraints

There is no attribute constraint defined.

4.3.22.4 Notifications

The common notifications defined in subclause 4.6 are valid for this IOC, without exceptions or additions.

4.3.23 Link_HSS_ICSCF

4.3.23.1 Definition

This IOC models the Cx reference point as defined in TS 23.002 [8].

4.3.23.2 Attributes

None.

4.3.23.3 Attribute constraints

There is no attribute constraint defined.

4.3.23.4 Notifications

The common notifications defined in subclause 4.6 are valid for this IOC, without exceptions or additions.

4.3.24 Link_ICSCF_SCSCF

4.3.24.1 Definition

This models the Mw reference point as defined in TS 23.002 [8].

4.3.24.2 Attributes

None.

4.3.24.3 Attribute constraints

There is no attribute constraint defined.

4.3.24.4 Notifications

The common notifications defined in subclause 4.6 are valid for this IOC, without exceptions or additions.

4.3.25 Link_ICSCF_MGCF

4.3.25.1 Definition

This IOC models the Mg reference point as defined in TS 23.002 [8].

4.3.25.2 Attributes

None.

4.3.25.3 Attribute constraints

There is no attribute constraint defined.

4.3.25.4 Notifications

The common notifications defined in subclause 4.6 are valid for this IOC, without exceptions or additions.

4.3.26 Link_ICSCF_PCSCF

4.3.26.1 Definition

This models the Mw reference point as defined in TS 23.002 [8].

4.3.26.2 Attributes

None.

4.3.26.3 Attribute constraints

There is no attribute constraint defined.

4.3.26.4 Notifications

The common notifications defined in subclause 4.6 are valid for this IOC, without exceptions or additions.

4.3.27 Link_PCSCF_SCSCF

4.3.27.1 Definition

This models the Mw reference point as defined in TS 23.002 [8].

4.3.27.2 Attributes

None.

4.3.27.3 Attribute constraints

There is no attribute constraint defined.

4.3.27.4 Notifications

The common notifications defined in subclause 4.6 are valid for this IOC, without exceptions or additions.

4.3.28 Link_CAMELIMSSFAS_HSS

4.3.28.1 Definition

This IOC models the Si reference point between CAMEL Application Server (IM-SSF) and HSS as defined in TS 23.002 [8].

4.3.28.2 Attributes

None.

4.3.28.3 Attribute constraints

There is no attribute constraint defined.

4.3.28.4 Notifications

The common notifications defined in subclause 4.6 are valid for this IOC, without exceptions or additions.

4.3.29 Link_HSS_OSASCSAS

4.3.29.1 Definition

This IOC models the Sh reference point between OSA Application Server (Service Capability Server) and HSS as defined in TS 23.002 [8].

4.3.29.2 Attributes

None.

4.3.29.3 Attribute constraints

There is no attribute constraint defined.

4.3.29.4 Notifications

The common notifications defined in subclause 4.6 are valid for this IOC, without exceptions or additions.

4.3.30 Link_HSS_SCSCF

4.3.30.1 Definition

This IOC models the Cx reference point as defined in TS 23.002 [8].

4.3.30.2 Attributes

None.

4.3.30.3 Attribute constraints

There is no attribute constraint defined.

4.3.30.4 Notifications

The common notifications defined in subclause 4.6 are valid for this IOC, without exceptions or additions.

4.3.31 Link_HSS_SIPAS

4.3.31.1 Definition

This IOC models the Sh reference point between SIP Application Server and HSS as defined in TS 23.002 [8].

4.3.31.2 Attributes

None.

4.3.31.3 Attribute constraints

There is no attribute constraint defined.

4.3.31.4 Notifications

The common notifications defined in subclause 4.6 are valid for this IOC, without exceptions or additions.

4.3.32 Link_ICSCF_SLF

4.3.32.1 Definition

This models the Dx reference point as defined in TS 23.002 [8].

4.3.32.2 Attributes

None.

4.3.32.3 Attribute constraints

There is no attribute constraint defined.

4.3.32.4 Notifications

The common notifications defined in subclause 4.6 are valid for this IOC, without exceptions or additions.

4.3.33 Link_IMSMGW_MGCF

4.3.33.1 Definition

This models the Mn reference point as defined in TS 23.002 [8].

4.3.33.2 Attributes

None.

4.3.33.3 Attribute constraints

There is no attribute constraint defined.

4.3.33.4 Notifications

The common notifications defined in subclause 4.6 are valid for this IOC, without exceptions or additions.

4.3.34 Link_MGCF_SCSCF

4.3.34.1 Definitions

This models the Mg reference point as defined in TS 23.002 [8].

4.3.34.2 Attributes

None.

4.3.34.3 Attribute constraints

There is no attribute constraint defined.

4.3.34.4 Notifications

The common notifications defined in subclause 4.6 are valid for this IOC, without exceptions or additions.

4.3.35 Link_MRFC_MRFP

4.3.35.1 Definition

This IOC models the Mp reference point as defined in TS 23.002 [8].

4.3.35.2 Attributes

None.

4.3.35.3 Attribute constraints

There is no attribute constraint defined.

4.3.35.4 Notifications

The common notifications defined in subclause 4.6 are valid for this IOC, without exceptions or additions.

4.3.36 Link_MRFC_SCSCF

4.3.36.1 Definition

This IOC models the Mr reference point as defined in TS 23.002 [8].

4.3.36.2 Attributes

None.

4.3.36.3 Attribute constraints

There is no attribute constraint defined.

4.3.36.4 Notifications

The common notifications defined in subclause 4.6 are valid for this IOC, without exceptions or additions.

4.3.37 Link_SCSCF_SCSCF

4.3.37.1 Definition

This models the Mw reference point as defined in TS 23.002 [8].

4.3.37.2 Attributes

None.

4.3.37.3 Attribute constraints

There is no attribute constraint defined.

4.3.37.4 Notifications

The common notifications defined in subclause 4.6 are valid for this IOC, without exceptions or additions.

4.3.38 Link_SCSCF_SLF

4.3.38.1 Definition

This IOC models the Dx reference point as defined in TS 23.002 [8].

4.3.38.2 Attributes

None.

4.3.38.3 Attribute constraints

There is no attribute constraint defined.

4.3.38.4 Notifications

The common notifications defined in subclause 4.6 are valid for this IOC, without exceptions or additions.

4.3.39 Link_PCSCF_ECSCF

4.3.39.1 Definition

This IOC models the Mw reference point as defined in TS 23.002 [8].

4.3.39.2 Attributes

None.

4.3.39.3 Attribute constraints

There is no attribute constraint defined.

4.3.39.4 Notifications

The common notifications defined in subclause 4.6 are valid for this IOC, without exceptions or additions.

4.3.40 Link_BGCF_ECSCF

4.3.40.1 Definition

This IOC models the Mi reference point as defined in TS 23.002 [8].

4.3.40.2 Attributes

None.

4.3.40.3 Attribute constraints

There is no attribute constraint defined.

4.3.40.4 Notifications

The common notifications defined in subclause 4.6 are valid for this IOC, without exceptions or additions.

4.3.41 Link_MGCF_ECSCF

4.3.41.1 Definition

This IOC models the Mg reference point as defined in TS 23.002 [8].

4.3.41.2 Attributes

None.

4.3.41.3 Attribute constraints

There is no attribute constraint defined.

4.3.41.4 Notifications

The common notifications defined in subclause 4.6 are valid for this IOC, without exceptions or additions.

4.4 Attribute definitions

4.4.1 Attribute properties

Attribute Name	Documentation and Allowed Values	Properties
linkList	An attribute containing all of the related link object Distinguished Names for the object instance, if any. allowedValues: N/A	type: DN multiplicity: 0..* isOrdered: False isUnique: True defaultValue: No default value isNullable: True

4.4.2 Constraints

None.

4.5 Common notifications

4.5.1 Alarm notifications

This clause presents a list of notifications, defined in [5], that IRPManager can receive. The notification header attribute `objectClass/objectInstance`, defined in [14], would capture the DN of an instance of an IOC defined in this IRP specification.

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [5])	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [5])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [5])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [5])	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [5])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [5])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [5])	

4.5.2 Configuration notifications

This clause presents a list of notifications, defined in [3], that IRPManager can receive. The notification header attribute `objectClass/objectInstance`, defined in [14], would capture the DN of an instance of an IOC defined in this IRP specification.

Name	Qualifier	Notes
notifyAttributeValueChange	O	
notifyObjectCreation	O	
notifyObjectDeletion	O	

Annex A (informative): Change history

Change history								
Date	TSG #	TSG Doc.	CR	R	Subject/Comment	Cat	Old	New
Jun-2013	SA#60	SP-130304	001	2	Elimination of ambiguities in the TS	F	11.0.0	11.1.0
Jun-2014	SA#64	SP-140360	002	-	remove the feature support statements	F	11.1.0	11.2.0
2014-10	-	-	-	-	Update to Rel-12 version (MCC)		11.2.0	12.0.0
2016-01	-	-	-	-	Update to Rel-13 version (MCC)		12.0.0	13.0.0
2017-03	SA#75	-	-	-	Promotion to Release 14 without technical change		13.0.0	14.0.0

Change history							
Date	Meeting	TDoc	CR	Rev	Cat	Subject/Comment	New version
2018-06						Update to Rel-15 version (MCC)	15.0.0
2020-07	-	-	-	-	-	Update to Rel-16 version (MCC)	16.0.0
2022-03	-	-	-	-	-	Update to Rel-17 version (MCC)	17.0.0
2024-04	-	-	-	-	-	Update to Rel-18 version (MCC)	18.0.0

History

Document history		
V18.0.0	May 2024	Publication