

**Oracle® Communications
Performance Intelligence Center**

Release Notes

Release 10.1.5

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ORACLE®

Oracle Communications Performance Intelligence Center Release Notes, Release 10.1.5

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See more information on MOS in the Appendix section.

PIC 10.1.5 Release Notes

Oracle communication PIC 10.1.5 Release Notes

Release notices are distributed to customers with each new release of software. This release notice identifies the new features delivered with this release. It also lists the Bugs that have been Resolved.

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NOTE: The information in this Release Notice reflects the latest data available as of its date of publication and is subject to change.

PIC 10.1.5 Release Notes

Content Summary

PIC 10.1.5 is a Release supporting new qualified Hardware.

Release enhances the capability of a pre-existing Diameter Builder, and features a series of Bug fixes to address issues identified in previous PIC releases.

Platform Lifecycle:

This release is essentially to support new qualified Hardware with HP Gen9 RMS, Oracle X5-2 and Oracle storage Appliances:

- ✓ Integrated Acquisition
 - HP Gen9 RMS
 - Oracle X5-2 (AC only)
- ✓ Probed Acquisition
 - HP Gen9 RMS
 - Oracle X5-2 (AC only)
- ✓ Mediation
 - HP Gen9 RMS
 - Oracle X5-2
- ✓ Data Record Storage
 - HP Gen9 RMS
 - ODA Oracle Database Appliance
- ✓ PDU Storage
 - HP Gen9 RMS
 - ZFS Oracle Appliance (NFS server)
- ✓ Management
 - HP Gen9 RMS
 - Oracle X5-2

PIC Mediation Features / xDR Builder improvement

IMSI field added in IMS Diameter builder

Release 10.1.0 and 10.1.5 interoperability

PIC 10.1.0 and PIC 10.1.5 can coexist and interoperate in the same system, with the following conditions:

- ✓ NSP Management server must be in 10.1.5
- ✓ All IXP base servers within the same IXP subsystem must be at the same release
- ✓ All IMFs attached to a given EAGLE must be at the same release
- ✓ PMF servers can be at one or the other release independently

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Feature name mapping

Legacy Feature Naming	Oracle Feature Naming
Data Acquisition Layer	Data Acquisition - Integrated
Integrated Message Feeder (IMF)	Oracle Communications Performance Intelligence Center, Integrated Acquisition
Data Acquisition Layer	Data Acquisition - Probed
Probe Message Feeder (PMF)	Oracle Communications Performance Intelligence Center, Probed Acquisition
Data Acquisition Layer - Options	Data Acquisition - Product Option
MSU data feed at xMF (TADAPT)	Oracle Communications Performance Intelligence Center, Acquisition DataFeed
Data Mediation & Storage Layer, or 'IXP' (Integrated xDR Platform)	Data Mediation
IXP Base Server	Oracle Communications Performance Intelligence Center, Mediation Server
xDR Builders and Protocols	Oracle Communications Performance Intelligence Center, Mediation Protocol
	Oracle Communications Performance Intelligence Center, Mediation Protocol II
IXP xDR Storage	Oracle Communications Performance Intelligence Center, Data Record Storage
	Oracle Communications Technology Foundation for Monitoring Applications
IXP PDU Storage	Oracle Communications Performance Intelligence Center, Packet Data Unit Storage
Data Mediation - Options	Data Mediation - Product Option
Data feeds	Oracle Communications Performance Intelligence Center, Mediation DataFeed
Applications Layer	Applications
Centralized Configuration Management and Security (CCM) + ProTraQ KPI Builder + ProTrace xDR viewer + xDR enrichment	Oracle Communications Performance Intelligence Center, Management
	Oracle Communications Technology Foundation for Monitoring Applications
Applications Layer -Options	Applications - Product Options
ProTrace (Call-tracing)	Oracle Communications Performance Intelligence Center, Multiprotocol Troubleshooting
ProAlarm viewer + Alarm Forwarding	Oracle Communications Performance Intelligence Center, Network and Service Alarm
ProPerf (Real-time Performance Dashboards)	Oracle Communications Performance Intelligence Center, Network and Service Dashboard
ProDiag (Network Diagnostics)	Oracle Communications Performance Intelligence Center, SS7 Network Surveillance
Intelligent Data Management (IDM), or On Demand User Plane monitoring	Oracle Communications Performance Intelligence Center, On-Demand User Plane Capture

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Load Lineup for the Baseline Release

The software for Oracle Communications Performance Intelligence Center Release 10.1.5 is available on Oracle Software Delivery Cloud <https://edelivery.oracle.com/>

PIC 10.1.5.0.0-8.1.0	Software Version	Zip SKU
Mediation Server – IXP/DWS	10.1.5.0.0-7.1.0	V77400-01
Management – NSP	10.1.5.0.0-8.1.0	V77398-01
Probed and Integrated Acquisition – xMF	10.1.5.0.0-7.1.0	V77399-01
Mediation Protocol - xDR Builder	10.1.5.0.0-5.1.0	V77397-01
Acquisition Data Feed - Tadapt(32bits)	9.0.2-1.1.0	V46403-01
Oracle Database 11g Release 2 Patch Set	11.2.0.4	V73911-01
WebLogic for 64bits JVM support product	10.3.6.0	V77401-01
Platform Components		
TPD Linux HP	7.0.2.0.0-86.28.0	V77391-01
PM&C (Blade only)	6.0.1.0.0-60.20.0	V77389-01
TVOE (Blade only)	3.0.2.0.0-86.28.0	V77390-01
Packages needed for installing PIC		
Oracle Database Appliance	2.10.0.0.0 (11g)	
WebLogic Server on Oracle Database Appliance	2.9.1 for WL 11g (10.3.6)	
Oracle ZFS Storage Appliance	2013.06.05.1.1,1-1.2	
Java 7	7U76	
Firmware		
HP Solutions Firmware Upgrade Pack	2.2.8	
Oracle Firmware Upgrade Pack	3.1.2	

Above versions indicated are versions PIC was tested. For the latest

- PIC components refer to Which Performance Intelligence Center (PIC) 10.1.5 Patches to Update and How to install them? (Doc ID 2058722.1)
- ODA refer to MOS Oracle Database Appliance - 12.1.2 and 2.X Supported ODA Versions & Known Issues (Doc ID 888888.1)
- ZFS refer to MOS Oracle Support Document 2021771.1 (Oracle ZFS Storage Appliance: Software Updates)
- Java 7 refer to MOS Information Center: Installation & Configuration for Oracle Java SE (Doc ID 1412103.2)
- HP Firmware refer to OTN http://docs.oracle.com/cd/E57832_01/index.htm
- Oracle Firmware refer to OTN http://docs.oracle.com/cd/E57832_01/index.htm

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Upgrade and Installation

Upgrade/Installations are supported with the software distributions described in these Release Notes. All documents are available on OTN

Major Upgrade:

- PIC 9.0.3 to 10.1.5
- PIC 9.0.4 to 10.1.5
- PIC 10.1.0 to 10.1.5

Incremental Upgrade Support: PIC 10.1.5 to 10.1.5

For patching purpose

Fresh Install Support: PIC 10.1.0 and PIC 10.1.5 can coexist in the same system, upgrade to PIC 10.1.5 may not affect all servers in the system:

- Management Server must be upgraded
All servers from a mediation or integrated acquisition subsystem must use the same release

Disaster Recovery: PIC 10.1.5

For (re-)installation of supported hardware

Hardware baseline for new projects and supported Hardware

Refer to PIC Hardware installation Guidelines – Release 10.1.5 – E64544-01 available on OTN

Legacy interoperability

Interoperability with Tekelec MSW Gb/TDM/ATM probe, Cross Connect, Falco SS7/Gb converter and Neptune Probe is supported.

EAGLE compatibility

Oracle Communication PIC 10.1.5 has been validated with the following EAGLE Releases:

PIC Release Baseline	EAGLE Release Baseline
PIC 10.1.5	EAGLE 46.x
Note: EAGLE 45.x is compatible with PIC 10.1.5 although it has not been validated. EAGLE 43 & 44 are compatible with PIC 10.1.5, but resolution of bugs may require upgrade to EAGLE 45 or 46.	

PIC 10.1.5 Release Notes

Documentation Library

PIC customer documentation and online help are created whenever significant changes are made that affect system operation or configuration. Revised editions of the documentation and online help are distributed and installed on the customer system. Consult your NSP Installation Manual for details on how to update user documentation. Additionally, all customer documentation is available on the Oracle Technology Network (OTN). Release Notes are available on OTN with each new release of software. The Release Notes list the PRs that have been resolved in the current release and the PRs that are known to exist in the current release.

Listed below is the entire PIC documentation library of User's Guides.

- Security Guide
- NSP Security User's Guide
- Alarm Forwarding Administrator's Guide
- ProAlarm Viewer User's Guide
- ProAlarm Configuration User's Guide
- Centralized Configuration Manager Administrator's Guide
- Customer Care User's Guide
- ProTraq User's Guide
- ProPerf User's Guide
- ProPerf Configuration User's Guide
- System Alarms User's Guide
- ProTrace User's Guide
- Data Feed Export User's Guide
- Audit Viewer Administrator's Guide
- ProDiag User's Guide
- SigTran ProDiag User's Guide
- Reference Data User's Guide
- Exported Files User's Guide
- Scheduler User's Guide
- Quick Start User's Guide

Workstation minimal requirements are now part of the Quick Start User's Guide.

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Known Issues

Bug	Title	Workaround
19285045	Filtering using % is not working	In database run these update queries - update COR_DATASRC_PATTERN_COND set PATTERN_CONDITION = 'LIKE~%' where DATASOURCE_ID=5 and PATTERN_ID='%' and PATTERN_CONDITION = 'LIKE'; - update COR_DATASRC_PATTERN_COND set PATTERN_CONDITION = 'NOT LIKE~%' where DATASOURCE_ID=5 and PATTERN_ID='%' and PATTERN_CONDITION = 'NOT LIKE';
19544603	Pduserver restarted several times while testing E5APPB performance	Process is automatically restarted. If PDU storage is activated there is no PDU loss.
19642455	Third party MFP Feed setup is no more displayed in GUI after Migration	Go to acquisition->xMF site->PDU Data Flows-> select the DF you want to use for MFP stream. Click on manage MFP routes and move the application on which you want to configure MFP stream.
	FIPS integrity verification test failed when initiating SSH session	Keep the file /etc/system-fips however you have the message. Erasing the file will make fail the next TPD upgrade.
	hpacucli is not available on TPD 7.0.x	Use hpssacli instead of hpacucli on HP servers.
20937805	Scheduler tasks not exporting after major upgrade	As a workaround, the scheduled task can be opened in scheduler and date can be updated. After saving the task, it starts working fine.
20980417	NSP_LOG tablespace to fill up	It is recommended to fix the issue generating the high number of alarms. Otherwise tablespace should be increased.
21434279	The new association is not getting discovered	Delete the old association (which is removed from eagle) from CCM and then sync for new associations.
21373845	Cancel change is not working on major upgrade setup	Execute the following commands on NSP Database: INSERT INTO COR_MANAGED_OBJECT(MO_ID, MO_CLASS_ID, NAME, MO_OID, PARENT_ID, RESOURCE_DATA_ID) SELECT DATASOURCE_ID, 37, NAME, OID, NULL, NULL FROM CFG_DATASOURCE WHERE DATASOURCE_ID NOT IN (SELECT MO_ID FROM COR_MANAGED_OBJECT) AND DATA_TYPE=0; COMMIT;

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Bug Severity Definitions

The following sections refer to Bug severity levels. Definitions of these levels can be found in the following publication: TL9000 *Quality Management System - Revision 4.0*

Bugs resolved

Bug	Component	Title
19099228	MEDSRV	[225341]Monitoring of the sessions may not be correct if the storage pool is mad
19285663	MEDSRV	Store Dataflow processing is unable to create and store GZIP files
19426808	MEDSRV	DecipheringFileBackup files are filling /usr partition
19663319	MEDSRV	Error: Alarm raised for tpdNTPSourceIsBad
19882245	PROBED	Hardware requirement missing in the Installation document
19999243	PROBED	Wrong IXGBE 10 G driver installed after upgrade 10 to 10.1
20222233	PROBED	Falco traffic altered by pmf.
20325732	MEDPROT	Mobile Database inactivity can't be increased over one day.
20981364	PROBED	analyze_subsystem is not able to reach servers of subsystems due to /etc/hosts
21081239	MEDPROT	GTPv2 builder is crashing
21083710	PROBED	UDP fragmented frames missing in xDR
21133277	MGMT	Saving Protrace filter on link with wildcard adds backslashes
21133457	MGMT	Protrace "add condition" creates an invalid filter when the field contains #
21133588	MGMT	Saved Protrace filter with backslash are not matching any XDRs
21133762	MGMT	Error message displayed when validating protrace query is unclear
21160491	MEDSRV	CSV streaming API description is missing from the user doc
21370638	MEDSRV	Capacity Management don't identify uniquely the Store resources
21423114	MGMT	No Time displayed on the ProPerf dashboard when you click on the curves
19099228	MEDSRV	[225341]Monitoring of the sessions may not be correct if the storage pool is mad
19111542	MEDSRV	[235404]Datafeed apply changes is not working due to IDB limit reached
19119316	MGMT	[241531]xDR finder return incomplete and non matching result
19285663	MEDSRV	Store Dataflow processing is unable to create and store GZIP files
19426808	MEDSRV	DecipheringFileBackup files are filling /usr partition
19663319	MEDSRV	Error: Alarm raised for tpdNTPSourceIsBad

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Appendix A: List of supported protocols and builders

The following spreadsheet identifies protocols supported by PIC and the version of the protocol specification implemented.

Family	Protocol	Organization	Complete Reference	PIC 10.1 standards	Final builder
SS7	ISUP V1	ITU-T			see ISUP V3
SS7	ISUP V2	ITU-T			see ISUP V3
SS7	ISUP V3	ITU-T	Signalling system N°7 - ISDN user part formats and codes	Q.763 / Sept_97 (Q.761 to Q.764, Q.766 and Q.767)	SS7IsupEtsiCdr SS7IsupEtsiSudrAccounting Ss7IsupEtsiSuperCdr SS7UMSudr
SS7	BT NUP (UK)	National UK BT	BT Network Requirement	BTNR 167 Jul-87	SS7BtntpCdr
SS7	IUP	British Standard Institute	PNO-ISC Information Document Number 004 - Proprietary Extensions to C7 Interconnect User Part (IUP), Issue 2 PNO-ISC Specification Number 006 - Interconnect User Part (IUP)	PNO-ISC/INFO/004 Oct-99 PNO-ISC/SPEC/006 Jul-00	SS7IupCdr
SS7	ISUP ANSI Party Information Parameter (PIP)	ANSI	Signalling System N°7 (SS7) - Integrated Services Digital Network (ISDN) User Part Calling Party Name Convention Facility Specification	T1.113-1995 Jun-05 TICO076E Feb-98	SS7IsupAnsiCdr Ss7IsupAnsiSentinelCdr SS7UMSudr
SS7	TUP	ITU-T	Telephone User Part - Formats and codes Incompatible with SSUTR2 and BTNUP	Q.723 (Q.721 to Q.725) Nov-88	SS7TupCdr
SS7	TUP Chinese	National China	Technical specifications of SS7 for the national Telephone network of China	GF 001 - 9001	see TUP
SS7	TUP Brazilian variant				see TUP
SS7	ISUP Chinese		ETSI ISUP support with 24 bits OPC/DPC		see ISUP V3
SS7	ISUP Russian Variant (Sovintel)	National	CIS ISUP - Functional Description	CIS ISUP - Functional Description	see ISUP V3
SS7	ISUP Portuguese Variant (NOVIS)	National Portugal PT	ESPECIFICAÇÃO DE INTERFACE COM A REDE PÚBLICA INTERFACE DE COMUTADOR (2 Mbit/s) Sinalização Canal Comum SS#7 - Procedimento de taxaço em ISUP	Spécifications PT - Procedimento de taxaço em ISUP Apr-99	see ISUP V3
SS7	ISUP Brazilian Variant	TELEBRAS	#7 Common Channel Signaling System ISDN User part - ISUP, Issue 3	TB 220-250-732 Apr-98	see ISUP V3

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Family	Protocol	Organization	Complete Reference	PIC 10.1 standards	Final builder
SS7	ISUP Colombian Variant	Ministerio des Comunicaciones	Norma Nacional de Señalización por Canal Comun N.º7 - SCC7	Norma Nacional <i>Apr-98</i>	see ISUP V3
SS7	ISUP Mexican Variant	Telmex	E-801.04 Sepcification - Integrated Services Digital Network user Part (ISUP), Edition "C-3"	E-801.04 <i>Dec-97</i>	see ISUP V3
SS7	ISUP Argentina variant	Telefonica Argentina	RDSI User Part Specification Signaling System N°7	General Specification AR.EG.s1.002 Ed 1 corrected	see ISUP V3
SS7	Cisco E-ISUP	Cisco	EISUP Specification - Cisco Systems	Cisco ENG-46168 Release 44	SS7_EISUP_CDR
		IETF	Reliable UDP Protocol	draft-ietf-sigtran-reliable-udp-00.txt <i>Feb-1999</i>	
SS7	LSSU	ITU-T	Signalling link	Q.703 <i>Jul-96</i>	
SS7	MTP ITU-T Level 2 & 3	ITU-T	Functional description of the Message Transfer Part (MTP) of Signalling System No. 7	Q.701 <i>Mar-93</i>	SS7L2L3EtsiSudr SS7Q752EtsiStats
			Signalling link	Q.703 / Q.704 <i>Jul-96</i>	
SS7	MTP ANSI Level 2 & 3	ANSI	Signalling System N°7 - Message Transfer Part (MTP)	T1.111-1996 <i>Mar-96</i>	SS7L2L3AnsiSudr
SS7	SCCP ITU-T	ITU-T	Signalling connection control part formats and codes	Q.713 <i>Jul-96</i>	Ss7SccpSuaSudr
SS7	SCCP ANSI	ANSI	Signalling System Number 7 - Signalling Connection Control Part (SCCP)	T1.112-1996 <i>Jan-96</i>	Ss7SccpSuaSudr
SS7	TCAP (MAP & INAP support)	ITU-T	Transaction capabilities formats and encoding	Q.773 <i>Jun-97</i>	
SS7	TCAP (IS-41 support)	ANSI	Signalling System Number 7 (SS7) - Transaction Capabilities Application Part (TCAP)	T1.114-1996 <i>Mar-96</i>	
		ANSI	Signalling System Number 7 (SS7) - Transaction Capabilities Application Part (TCAP)	T1.114-2000 <i>Jun-00</i>	
SS7	INAP Siemens	Specific: Siemens	Siemens Core INAP	P30308-A7128-A120-01-7659 <i>May-98</i>	SS7InapSudrAccounting SS7InapTdr SS7_INAP_Compact_TDR
SS7	INAP CS1	ETSI	Intelligent Network (IN); Intelligent Network Capability Set 1 (CS1); Core Intelligent Network Application Protocol (INAP);	ETS 300 374-1 <i>Sep-94</i>	SS7InapSudrAccounting SS7InapTdr SS7_INAP_Compact_TDR
		ITU-T	Introduction to intelligent network capability set 1	ITU-T Q.1211 <i>Mar-93</i>	

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Family	Protocol	Organization	Complete Reference	PIC 10.1 standards	Final builder
		ITU-T	Distributed functional plane for intelligent network CS-1	ITU-T Q.1214 <i>Oct-95</i>	
		ITU-T	Interface Recommendation for intelligent network CS-1	ITU-T Q.1218 <i>Oct-95</i>	
SS7	INAP CS2	ITU-T	Intelligent Network (IN); Intelligent Network Application Protocol (INAP); Capability Set 2 (CS2)	ETS 301 140-1 <i>Jun-96</i>	SS7InapSudrAccounting SS7InapTdr SS7_INAP_Compact_TDR
SS7	INAP Ericsson CS1	Ericsson	ERICSSON SUPPORT OF ETSI CORE INAP CS1 Ericsson Support of ETSI Core INAP CS1	87/155-CRT 249 12 Uen <i>May-98</i>	SS7InapSudrAccounting SS7InapTdr SS7_INAP_Compact_TDR
SS7	INAP Ericsson CS1+	Ericsson	Ericsson INAP CS1+, Services assumed from TCAP, revision A Ericsson INAP CS1+, Abstract Synthax, revision B	4/155 17-CRT 249 09 Uen <i>Aug-96</i> 171/155 17-CRT 249 12 Uen <i>Jun-03</i>	SS7InapSudrAccounting SS7InapTdr SS7_INAP_Compact_TDR
SS7	INAP Ericsson V2 / V3 / V4	Ericsson	Ericsson's Protocol for Intelligent Networks, version 4, Formats and Codes	2/155 17-CRT 249 01 Uen D (V2) <i>Jan-96</i> 7/155 17-CRT 249 01 Uen B (V3) <i>Jan-97</i> 12/155 17-CRT 249 01 Uen A (V4) <i>Jan-98</i>	SS7InapSudrAccounting SS7InapTdr SS7_INAP_Compact_TDR
SS7	INAP Alcatel V3	Alcatel	INAP for E10 Version 3	ALCATEL E10 Version 3 <i>Sep-96</i>	SS7InapSudrAccounting SS7InapTdr SS7_INAP_Compact_TDR
SS7	INAP Alcatel V4	Alcatel	INAP for E10 Version 5	ALCATEL E10 Version 5 <i>Jan-99</i>	SS7InapSudrAccounting SS7InapTdr SS7_INAP_Compact_TDR
SS7	INAP Alcatel CS1	Alcatel	INAP Alcatel CS1	ALCATEL INAP CS1	SS7InapSudrAccounting SS7InapTdr SS7_INAP_Compact_TDR
SS7	CAMEL Phase 2	ETSI	Digital cellular telecommunications system (Phase 2+); Customised Applications for Mobile network Enhanced Logic (CAMEL); CAMEL Application Part (CAP) specification - GSM 09.78	TS 101 046 V7.0.0 (Release 98) <i>Aug-99</i>	SS7InapSudrAccounting SS7InapTdr SS7_INAP_Compact_TDR

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Family	Protocol	Organization	Complete Reference	PIC 10.1 standards	Final builder
SS7	CAMEL Phase 3	ETSI	Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Customised Applications for Mobile network Enhanced Logic (CAMEL); CAMEL Application Part (CAP) specification - GSM 29.78	TS 129 078 V5.9.0 (Release 5) <i>Sep-04</i>	SS7InapSudrAccounting SS7InapTdr SS7_INAP_Compact_TDR
SS7	CAMEL Phase 4	ETSI	Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Customised Applications for Mobile network Enhanced Logic (CAMEL); CAMEL Application Part (CAP) specification - GSM 29.78	TS 129 078 V6.5.0 (Release 6) <i>Jun-06</i>	SS7InapSudrAccounting SS7InapTdr SS7_INAP_Compact_TDR
SS7	BSSAP (Phase 2+) BSSMAP	ETSI	Digital cellular telecommunications system (Phase 2+); Mobile-services Switching Centre – Base Station System (MSC – BSS) interface; Layer 3 specification - 3GPP TS 08.08	TS 48.008 V7.13.0 (Release 7) <i>Sep-08</i>	RanCC2Cdr RanMMTdr RanSMSTdr RanUSSD SS7BssapTdr
	DTAP		Digital cellular telecommunications system (Phase 2+); Mobile Radio Interface; Layer 3 specification - 3GPP TS 04.08	TS 24.008 V7.12.0 (Release 7) <i>Jun-08</i>	
	SMS		Digital cellular telecommunications system (Phase 2+); Point-to-Point (PP) Short message Service support on mobile radio interface - 3GPP TS 04.11	TS 24.011 V7.1.0 (Release 7) <i>Jun-09</i>	
	SMS SM-TP		Digital cellular telecommunications system (Phase 2+); Technical realization of the short Message Service (SMS) - 3GPP TS 03.40	TS 23.040 V7.2.0 (Release 7) <i>Mar-09</i>	
	Supplementary Services		Digital cellular telecommunications system (Phase 2+); Mobile Radio interface layer 3 supplementary service specification; Formats and Coding - 3GPP TS 04.80	TS 24.080 V7.4.0 (Release 7) <i>Sep-07</i>	
SS7	BSSAP+ (Gs Interface)	ETSI	Digital Cellular Telecommunications System (Phase 2+); Universal Mobile Telecommunications System (UMTS); general Packet radio Service (GPRS); Serving GPRS Support Node (SGSN) - Visitor Location register (VLR); Gs Interface layer 3 Specification - 3GPP TS 29.018	TS 29.018 V6.5.0 (Release 6) <i>Dec-06</i>	Ss7GsInterfaceTdr

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Family	Protocol	Organization	Complete Reference	PIC 10.1 standards	Final builder
SS7	GSM MAP	ETSI	Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Mobile Application Part (MAP) specification - 3GPP TS 29.002	TS 29.002 V7.14.0 (Release 7) <i>Dec-09</i>	Ss7HLRVTr SS7MapTdr SS7MapSudrAccounting SS7MapSmTdr SS7MapMultiLegTdr SS7MapDB SS7Smdr SS7_MAP_Compact_TDR
SS7	IS-41 Révisions B, C, D & E (MAP) MEID IS-41-P IS-41-EE	ANSI	Cellular Radiotelecommunications Intersystem Operations	ANSI/TIA/EIA-41-D-1997 <i>Nov-97</i>	SS7IS41DB SS7IS41DE SS7IS41Tdr
		3GPP2	3G Mobile Equipment identifier (MEID) - Stage 1	3GPP2 S.R0048-A Ver 4.0 <i>Jun-05</i>	
		Telecommunications Industry Association	MEID Standards Update, version 1.8.4	TIA-MEID <i>Apr-06</i>	
		Lucent	ANSI -41 Protocol Extensions for Interfaces C and D (HLR - VLR/MSC) - Issue 2.0	IS-41-P <i>Nov-04</i>	
Ericsson	IS-41 Intersystem Call delivery Signalling	IS-41-EE <i>Jan-99</i>			
SS7	ISDN over IUA	ITU-T	ISDN user-network interface layer 3 specification for basic call control	Q.931 <i>May-98</i>	VoIP_Q_931_Cdr
SS7	AIN MTP ANSI Level 2 & 3 SCCP ANSI TCAP (IS-41 support) Services - CNAM - ATF - NS 800 - LNP - Flexible Number Rounting	ANSI	Signalling System N°7 - Message Transfer Part (MTP)	T1.111-1996 <i>Mar-96</i>	SS7AinTdr
		ANSI	Signalling System Number 7 - Signalling Connection Control Part (SCCP)	T1.112-1996 <i>Jan-96</i>	
		ANSI	Signalling System Number 7 (SS7) - Transaction Capabilities Application Part (TCAP)	T1.114-2000 <i>Jun-00</i>	
		Telcordia	Telcordia Technologies Generic Requirements, GR-1188-CORE: Calling Name Delivery Generic Requirements, Issue 2	GR-1188-CORE <i>Dec-00</i>	
		Telcordia	Telcordia Technologies Generic Requirements, GR-533-CORE: Datababase Services Service Switching Points - Toll-Free Service Generic Requirements, Issue 2	GR-533-CORE <i>Jun-01</i>	
Telcordia	Telcordia Technologies Generic Requirements, GR-1299-CORE: Switch - Service Control Point (SCP) / Adjunct Interface Generic requirements, Issue 6	GR-1299-CORE <i>Nov-00</i>			

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Family	Protocol	Organization	Complete Reference	PIC 10.1 standards	Final builder
		Telcordia	Telcordia Technologies Generic Requirements, GR-1519-CORE: CCS Network Interface Specification (CCSNIS) Supporting TR-NWT-001188 Calling Name Delivery Generic Requirements, Issue 1A	GR-1519-CORE <i>Oct-94</i>	
		Telcordia	Telcordia Technologies Generic Requirements, GR-2982-CORE: Local Number LNP Capability, Issue 1	GR-2982-CORE <i>Dec-97</i>	
		Telcordia	Telcordia Technologies Generic Requirements, GR-246-CORE: Specification of Signaling System Number 7, Issue 5	GR-246-CORE <i>Dec-00</i>	
		Telcordia	Telcordia Technologies Generic Requirements, GR-2892-CORE: Switching and Signaling Generic Requirements for Toll-Free Service using AIN, Issue 1	GR-2892-CORE <i>Apr-95</i>	
SS7	LIDB	Telcordia	Telcordia Technologies Generic Requirements, GR-1158-CORE : OSSGR Section 22.3: Line Information Database, Issue 4	GR-1158-CORE <i>Dec-00</i>	SS7LidbTdr
			Telcordia Technologies Generic Requirements, GR-1149-CORE - OSSGR Section 10: System Interfaces, Issue 6	GR-1149-CORE <i>Sep-06</i>	
SS7	CLASS	Telcordia	Telcordia Technologies Generic Requirements, GR-1188-CORE: Calling Name Delivery Generic Requirements, Issue 2	GR-1188-CORE <i>Dec-00</i>	SS7ClassTdr
			Telcordia Technologies Generic Requirements, GR-215-CORE: LSSGR: CLASS Feature: Automatic Callback (FSD 01-02-1250), Issue 2	GR-215-CORE <i>Apr-02</i>	
			Telcordia Technologies Generic Requirements, GR-220-CORE: LSSGR: CLASS Feature: Screening List Editing (FSD 30-28-0000), Issue 2	GR-220-CORE <i>Apr-02</i>	
			Telcordia Technologies Generic Requirements, GR-227-CORE: LSSGR: CLASS Feature: Automatic Recall (FSD 01-02-1260), Issue 2	GR-227-CORE <i>Apr-02</i>	
SS7	WIN Services IS-771	Telcordia	Wireless Intelligent Network	EIA/TIA IS-771 <i>Jul-99</i>	SS7WinServiceTdr
		Telcordia	Wireless Intelligent Network - Addendum 1	EIA/TIA IS-771 <i>Aug-01</i>	
		Telcordia	Cellular Radiotelecommunications ntersystem Operations, Revision B to E	EIS/TIA IS-41 <i>Nov-97</i>	
		3GPP2	Win Phase 1, Version 1.0	3GPP2 N.S0013-0 <i>Dec-98</i>	
		3GPP2	Win Phase 2, Version 1.0	3GPP2 N.S0004-0 <i>Apr-01</i>	

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Family	Protocol	Organization	Complete Reference	PIC 10.1 standards	Final builder
	IS-826	3GPP2	ANSI -41-D Miscellaneous Enhancements, Version 1.0.0, Revision 0	3GPP2 N.S0015 <i>Jan-00</i>	
	J-STD-036B	Telcordia	Wireless Intelligent Network Capabilities for pre-paid Charging	TIA/EIA/IS-826 (1 to 7) <i>Aug-00</i>	
	IS-843	ANSI	Enhanced Wireless SP-3-3890-RV2 9-1-1 Phase II	J-STD-036-B <i>Jan-08</i>	
	IS-801	Telecommunications Industry Association	Wireless Intelligent network Support for Location Based Services	TIA-843 <i>Aug-04</i>	
	IS-881	Telecommunications Industry Association	Position Determination Service for cdma2000 Spread Spectrum Systems	TIA-801-A <i>Apr-04</i>	
	IS-725	Nortel	TIA/EIA-41-D Location Services Enhancements	TIA-881 <i>Mar-04</i>	
	IS-764	Telecommunications Industry Association	TIA/EIA-41-D Enhancements for Over-The-Air Service Provisioning (OTASP) & Parameter Administration (OTAPA), Version 1	TIA/EIA/IS-725-A <i>Mar-99</i>	
	IS-756	Telcordia	TIA/EIA-41-D Enhancements for Wireless Calling Name - Feature Descriptions	TIA-764 <i>Jan-02</i>	
			TIA/EIA-41-D Enhancements for Wireless Number Portability Phase II	TIA/EIA/IS-756-A <i>Dec-98</i>	
SS7	BICC ETSI	ITU-T	Bearer Independant Call Control protocol	Q.1901 <i>Apr-02</i>	Ss7BICCEtsiCdr
			Signaling System N°7 - ISDN User Part	Q.763 <i>Sep-97</i> (Q.761 to Q.764, Q.766 and Q.767)	
SS7	BICC ANSI	ANSI	Specifications of the Bearer Independant Call Control	ANSI T1.BICC.1-2000 to ANSI T1.BICC.7-2000 <i>Jan-00</i>	Ss7BICCAnsiCdr

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Family	Protocol	Organization	Complete Reference	PIC 10.1 standards	Final builder
SS7	SIGTRAN	IETF	Support only for ISUP Family Planned for MAP, INAP and IS-41		IPSctpStats IPSctpSudr SS7M2paStats SS7M2PaSudr Ss7M2uaStats Ss7M2uaSudr SS7M3uaStats Ss7M3uaSudr Ss7SccpSuaSudr Ss7SuaStats SS7_SIGTRAN_Transport_SUDR
	SCTP		Stream Control Transmission Protocol . Used as support for SIGTRAN	RFC 2960 Oct-00	
	M3UA		Signaling System 7 (SS7) Message Transfer Part 3 (MTP3) - User Adaptation Layer (M3UA). SUDR & Statistics	RFC 4666 Sep-06	
	M2UA		Signaling System 7 (SS7) Message Transfer Part 2 (MTP2) - User Adaptation Layer	RFC 3331 Sep-02	
	SUA		Signaling Connection Control Part User Adaptation Layer (SUA)	RFC 3868 Oct-04	
	M2PA		Signaling System 7 (SS7) Message Transfer Part 2 (MTP2) - User Peer-to-Peer Adaptation Layer (M2PA). SUDR & Statistics	RFC 4165 Sep-05	
GPRS / IP	GPRS Gn & Gp	ETSI	Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS);GPRS Tunneling Protocol (GTP) across the Gn and Gp Interface - 3GPP TS 09.60	TS 101 347 V7.8.0 (Release 98) Sep-01	GprsGnGpCdr GprsGnGpStats GprsGnGpTdr IP_Sessions_summary_TDR
			Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); General Packet Radio Service (GPRS);GPRS Tunneling Protocol (GTP) across the Gn and Gp Interface - 3GPP TS 09.60	TS 29.060 V11.6.0 (Release 11) Mar-13	
GPRS	GPRS Gb Network Service (NS)	ETSI	Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS); Base Station System (BSS) - Serving GPRS Support Node (SGSN) Interface; Network Service - 3GPP TS 48.016	TS 48.016 V7.4.0 (Release 7) Mar-08	GprsGbTdr

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Family	Protocol	Organization	Complete Reference	PIC 10.1 standards	Final builder
	BSS GPRS Protocol (BSSGP)	ETSI	Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS); Base Station System (BSS) - Serving GPRS Support Node (SGSN) Interface; BSS GPRS Protocol (BSSGP) - 3GPP TS 48.018	TS 48.018 V7.13.0 (Release 7) <i>Dec-09</i>	
	Logical Link Control (LLC)	ETSI	Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS); Mobile Station - Serving GPRS Support Node (MS - SGSN) Logical Link Control Layer (LLC) - 3GPP TS 04.64	TS 44.064 V7.3.0 (Release 7) <i>Mar-08</i>	
	GPRS Mobility Management (GMM) GPRS Session Management (GSM)	ETSI	Digital cellular telecommunications system (Phase 2+)(GSM); Mobile Radio Interface; Layer 3 Specification - 3GPP TS 04.08	TS 24.008 V7.12.0 (Release 7) <i>Jun-08</i>	
	SNDCP	ETSI	Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS); Mobile Station - Serving GPRS Support Node (MS - SGSN); Subnetwork Dependent Convergence Protocol (SNDCP) - 3GPP TS 04.65	TS 24.065 V7.0.0 (Release 7) <i>Dec-06</i>	
	Short Message Service (SMS)	ETSI	Digital cellular telecommunications system (Phase 2+); Point-to-Point (PP) Short Message service (SMS) Support on Mobile Rdio Interface - 3GPP TS 04.11	TS 24.011 V7.1.0 (Release 7) <i>Jun-09</i>	
			Digital cellular telecommunications system (Phase 2+); Technical realization of Short Message Service (SMS) Point-to-Point (PP) - 3GPP TS 03.40	TS 23.040 V7.2.0 (Release 7) <i>Mar-09</i>	
GPRS	GPRS Gr & Gd	ETSI	Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Mobile Application Part (MAP) specification - 3GPP TS 29.002	TS 29.002 V7.14.0 (Release 7) <i>Dec-09</i>	SS7MapTdr SS7_MAP_Compact_TDR
IP	DNS	IETF	Domain Names - Concepts and Facilities	RFC 1034 <i>Nov-87</i> Not relevant or supported: RFC1101, RFC1183, RFC1348, RFC1876, RFC1982, RFC2065, RFC2181, RFC2308, RFC2535, RFC4033, RFC4034, RFC4035, RFC4343, RFC4035, RFC4592, RFC5936	IpDnsTdr

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Family	Protocol	Organization	Complete Reference	PIC 10.1 standards	Final builder
			Domain Names - Implementation and Specification	RFC 1035 <i>Nov-87</i> Not relevant or supported: RFC1101, RFC1183, RFC1348, RFC1876, RFC1982, RFC1995, RFC1996, RFC2065, RFC2136, RFC2181, RFC2137, RFC2308, RFC2535, RFC2845, RFC3425, RFC3658, RFC4033, RFC4034, RFC4035, RFC4343, RFC5936, RFC5966	
IP	DNS ENUM	IETF	E.164 Number and DNS	RFC 2916 <i>Sep-00</i>	IpDnsEnumTdr
IP	RADIUS	IETF	Remote Authentication Dial In User Service (RADIUS)	RFC 2865 <i>Jun-00</i> RFC2866 <i>Jun-00</i> Not relevant or supported: RFC2868, RFC3575, RFC5080	IpRadius
IP	DHCP				IpDhcpTdr
	BOOTP	IETF	Bootstrap protocol (BOOTP)	RFC 951 <i>Sep-85</i> Not relevant or supported: RFC1395, RFC1497, RFC1532, RFC1542, RFC5494	
	DHCP	IETF	Dynamic Host Configuration Protocol	RFC 2131 <i>May-97</i> Not relevant or supported: RFC3396, RFC4361, RFC5494	
IP	WAP				IpWapv1Tdr
	WTP	WAP Forum / OMA	Wireless Transaction protocol	WAP-224-WTP-20010710-a <i>Jul-01</i>	
	WSP	WAP Forum / OMA	WAP - Wireless Session Protocol Specification	WAP-230-WSP-20010705-p <i>Jul-01</i>	
IP	MMS	OMA	Multimedia Messaging Service Encapsulation Protocol Version 1.1	OMA-MMS-ENC-v1_1-20021030-C <i>Oct-02</i>	IpMmsWapv1Tdr IpMmsWapv2Tdr
IP	HTTP	IETF	Hypertext Transfer Protocol - HTTP/1.1	RFC 2616 <i>Jun-99</i> Not relevant or supported: RFC2817, RFC5785, RFC6266	IpHttpTdr
IP	WAP2	IETF	Hypertext Transfer Protocol - HTTP/1.1	RFC 2616 <i>Jun-99</i> Not relevant or supported: RFC2817, RFC5785, RFC6266	IpWapv2Tdr

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Family	Protocol	Organization	Complete Reference	PIC 10.1 standards	Final builder
		WAP Forum / OMA	WAP Architecture	WAP-210-WAPArch-20010712 <i>Jul-01</i>	
IP	POP3	IETF	Post Office protocol - Version 3	RFC 1460 <i>Jun-93</i>	IpPop3Tdr
IP	SMTP	IETF	Simple Mail Transfer Protocol	RFC 2821 <i>Apr-01</i>	IpSmtpTdr
IP	IMAP4	IETF	Internet Message Access Protocol - Version 4rev1	RFC 2060 <i>Mar-03</i>	IpImap4Tdr
IP	FTP	IETF	File Transfer Protocol	RFC 959 <i>Oct-85</i> Not relevant or supported: RFC2228, RFC2640, RFC2773, RFC3659, RFC5797	IpFtpTdr
IP	TCP	IETF	Transmission Control Protocol	RFC 793 <i>Sep-81</i> Not relevant or supported: RFC1122, RFC3168, RFC6093	IpTcpCdr
IP	RTSP	IETF	Real Time Streaming Protocol (RTSP)	RFC 2326 <i>Apr-98</i>	IpRtspTdr
		IETF	SDP:Session Description Protocol	RFC 2327 <i>Apr-98</i>	
IP	SMPP	SMS Forum	Short Message Peer-to-Peer protocol Specification, Version 5.0	SMPP v5.0 <i>Feb-03</i>	IpSmppTdr
IP	UCP	Logica CMG	Short Message Service center; EMI - UCP Interface 4.6	EMI UCP Interface <i>May-05</i>	IpUcpTdr
UMTS	UMTS Iu-CS Control Plane over IP Iu-PS Control Plane over IP		Universal Mobile Telecommunications System (UMTS); UTRAN Iu interface Radio Access Network Application Part (RANAP) signalling - 3GPP TS 25.413 Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Mobile radio interface layer 3 specification; Radio Resource Control (RRC) protocol - 3GPP TS 44.018 Digital cellular telecommunications system (Phase 2+); Mobile Radio interface layer 3 supplementary service specification; Formats and Coding - 3GPP TS 04.80	TS 25 413 V7.10.0 (Release 7) <i>Mar-09</i> TS 44 018 V7.17.0 (Release 7) <i>Jun-09</i> TS 24.080 V7.4.0 (Release 7) <i>Sep-07</i>	Ran_CC2_Cdr Ran_MM_Tdr Ran_SMS_Tdr Ran_USSD UMTS_Iu_C_TDR UMTS_Iu_P_GMM_TDR UMTS_Iu_P_TDR UMTS_Iu_P_SM_TDR

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Family	Protocol	Organization	Complete Reference	PIC 10.1 standards	Final builder
	lu-PS User Plane over IP	ETSI	Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Technical realization of Short Message Service (SMS) Point-to-Point (PP) - 3GPP TS 24.011	TS 24.011 V7.1.0 (Release 7) <i>Jun-09</i>	
			Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Mobile radio interface Layer 3 specification; Core network protocols; Stage 3 - 3GPP TS 24.008	TS 24.008 V7.12.0 (Release 7) <i>Jun-08</i>	
			Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); General Packet Radio Service (GPRS); GPRS Tunneling Protocol (GTP) across the Gn and Gp Interface - 3GPP TS 09.60	TS 29.060 V11.6.0 (Release 11) Mar-13	
VoIP	VoIP SIP / SIP-T / SIP-I	IETF	SIP Session Initiation Protocol	RFC 3261 <i>Jun-02</i> Not relevant or supported: RFC3853, RFC4320, RFC4916, RFC5393, RFC5621, RFC5626, RFC5630, RFC5922, RFC5954, RFC6026, RFC6141	VoipSipCdr VoipSiptAnsiCdr VoipSipttUcDr
		IETF	Reliability of Provisional Responses in the Session Initiation Protocol (SIP)	RFC 3262 <i>Jun-02</i>	
		IETF	Session Initiation Protocol (SIP) - Specific Event Notification	RFC 3265 <i>Jun-02</i> Not relevant or supported: RFC5367, RFC5727, RFC6446	
		IETF	The Session Initiation Protocol (SIP) UPDATE Method	RFC 3311 <i>Sep-02</i>	
		IETF	The Session Initiation Protocol (SIP) Refer Method	RFC 3515 <i>Apr-03</i>	
		IETF	The SIP INFO Method	RFC 2976 <i>Oct-00</i>	
		IETF	Session Initiation Protocol for Telephones (SIP-T): Context and Architectures	RFC 3372 <i>Sep-02</i>	
		IETF	SDP:Session Description Protocol	RFC 2327 <i>Apr-98</i>	
		IETF	Session Description Protocol (SDP) Simple Capability Declaration	RFC 3407	
		ITU-T	Interworking between Session Initiation Protocol (SIP) and Bearer Independent Call Control Protocol or ISDN User Part.	Q.1912-5 <i>Mar-04</i>	

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Family	Protocol	Organization	Complete Reference	PIC 10.1 standards	Final builder
		Nortel	CS2000 SIP/SIP-T Interoperability Specification (Issue 0.82) System Requirement Document	Nortel CS2000 <i>01/10/2003</i>	
VoIP	VoIP H.225/Q.931	ITU-T	Serie H: Audiovisual and Multimedia Systems - Call Signalling protocols and media stream packetisation for packet-based multimedia communication systems	H.225.0 <i>Jul-03</i>	VoipQ931Cdr
		ITU-T	ISDN user-network interface layer 3 specification for basic call control	Q.931 <i>Dec-99</i>	
VoIP	VoIP H.225/RAS	ITU-T	Call Signalling protocols and media stream packetisation for packet-based multimedia communication systems	H.225.1 <i>Jul-03</i>	VoipRasTdr
VoIP	VoIP H.245	ITU-T	Control Protocol for multimedia communication	H.245 <i>Jul-03</i>	VoipH245Tdr
VoIP	VoIP RTCP	IETF	RTP: A Transport Protocol for Real-Time Application	RFC 3550, <i>Jul-03</i> RFC3551 <i>Jul-03</i> Not relevant or supported: RFC5506, RFC5761, RFC6051, RFC6222	VoipRtcpStats
VoIP	MGCP	IETF	Media Gateway Control Protocol (MGCP) version 1.0	RFC 3435 <i>Jan-03</i> Not relevant or supported: RFC3661	VoipMgcpCdr VoipMgcpTdr
		IETF	Media Gateway Control Protocol (MGCP) Return Code Usage	RFC 3661 <i>Dec-03</i>	
		IETF	Media Gateway Control Protocol (MGCP) Packages	RFC 3660 <i>Dec-03</i>	
VoIP	MEGACO	IETF	Gateway Control Protocol Version 1.0	RFC 3525 <i>Jun-03</i>	VoipMEGACOTdr
VoIP	H.248	ITU-T	Gateway Control Protocol: Version 2	H.248.1 <i>May-02</i> Supported packages H.248.2 until H.248.31	VoipH248Tdr
IMS	Diameter	IETF	Diameter Base Protocol	RFC 3588 <i>Sep-03</i>	ImsDiameterCcTdr ImsDiameterCxTdr ImsDiameterGqTdr ImsDiameterShTdr ImsDiameterTdr
	Diameter Credit-Control (Cc, Ro,	IETF	Diameter Credit-Control Application	RFC 4006 <i>Aug-05</i>	

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Family	Protocol	Organization	Complete Reference	PIC 10.1 standards	Final builder
	Rf, Gy, Ga)				
	Diameter Gq	ETSI / 3GPP	3rd Generation Partnership Project; Technical Specification Group Service and System Aspects; Telecommunication management; Charging management;	TS 32.299 V6.12.0 (release 6) Sep-07	
	Diameter Cx/Dx	ETSI	Diameter charging applications Universal Mobile Telecommunications System (UMTS); Policy control over Gq interface (3GPP TS 29.209 version 6.5.0 Release 6) . Replaced by Rx in LTE	TS 29.209 V6.5.0 (Release 6) Jun-06	
	Diameter Sh	ETSI	Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); IP Multimedia (IM) Subsystem Cx and Dx Interfaces; Signalling flows and message contents 3GPP TS 29.228	TS 29 228 V6.11.0 (Release 6) Jun-06	
		ETSI	Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Cx and Dx interfaces based on the Diameter protocol 3GPP TS 29.229	TS 29 229 V6.8.0 (Release 6) Jun-06	
		ETSI	Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Diameter applications; 3GPP specific codes and identifiers 3GPP TS 29.230	TS 29 230 V6.8.0 (Release 6) Jun-06	
		ETSI	Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Sh interface based on the Diameter protocol; 3GPP TS 29.329	TS 29 329 V11.6.0 (Release 6) Mar-13	
LTE	Diameter S6	3GPP	3rd Generation Partnership Project; Technical Specification Group Core Network and Terminals; Evolved Packet System (EPS); Mobility Management Entity (MME) and Serving GPRS Support Node (SGSN) related interfaces based on Diameter protocol (Release 9)	TS 29.272 V9.4.0 (Release 9) Sep-10	LTE_Diameter_S6_TDR LTE_Diameter_SUDR_Accounting
	Diameter Gx/S7	3GPP	3rd Generation Partnership Project; Technical Specification Group Core Network and Terminals; Policy and Charging Control over Gx reference point (Release 9)	TS 29.212 V9.4.0 (Release 9) Sep-10	LTE_Diameter_Gx_TDR

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Family	Protocol	Organization	Complete Reference	PIC 10.1 standards	Final builder
	Diameter Rx	3GPP	3rd Generation Partnership Project; Technical Specification Group Core Network and Terminals; Policy and Charging Control over Rx reference point (Release 9)	TS 29.214 V9.4.0 (Release 9) <i>Sep-10</i>	LTE_Diameter_Rx_TDR
	Diameter Gy	3GPP	3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Telecommunication management; Charging management; Diameter charging applications	TS 32.299 V11.7.0 (Release 11) Mar-13	LTE_DIAMETER_Gy_TDR
	Diameter S9	3GPP	3rd Generation Partnership Project; Technical Specification Group Core Network and Terminals; Policy and Charging Control (PCC) over S9 reference point; Stage 3	TS 29.215 V11.8.0 (Release 11) Mar-13	LTE_DIAMETER_S9_TDR
	GTPv2	3GPP	3rd Generation Partnership Project; Technical Specification Group Core Network and Terminals; 3GPP Evolved Packet System (EPS); Evolved General Packet Radio Service (GPRS) Tunnelling Protocol for Control plane (GTPv2-C); Stage 3 (Release 9)	TS 29.274 V9.4.0 (Release 9) <i>Sep-10</i>	LTE_GTP_v2_Tunnel_Management_TDR LTE_GTP_v2_Mobility_Management_TDR
	S1-AP	3GPP	3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access Network (E-UTRAN); S1 Application Protocol (S1AP) (Release 9)	TS 36.413 V11.3.0 (Release 11) Mar-13	LTE_S1AP_TDR RAN_ESM_TDR RAN_EMM_TDR
		3GPP	3rd Generation Partnership Project; Technical Specification Group Core Network and Terminals; Non-Access-Stratum (NAS) protocol for Evolved Packet System (EPS); Stage 3 (Release 9)	TS 24.301 V11.6.0 (Release 11) Mar-13	
	SGs	3GPP	3rd Generation Partnership Project; Technical Specification Group Core Network and Terminals; Mobility Management Entity (MME) – Visitor Location Register (VLR) SGs interface specification (Release 9)	TS 29.118 V9.6.0 (Release 9) <i>Dec-12</i>	LTE_SGsAP_TDR
	LTE User Plane (S5-U, S8-U, S1-U, S12-U)	3GPP	3rd Generation Partnership Project; Technical Specification Group Core Network and Terminals; General Packet Radio System (GPRS) Tunnelling Protocol User Plane (GTPv1-U) (Release 9)	TS 29.281 V11.6.0 (Release 11) Mar-13	LTE_GTP_User_Plane_Capture

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Appendix B: My Oracle Support (MOS)

MOS (<https://support.oracle.com>) is your initial point of contact for all product support and training needs. A representative at Customer Access Support (CAS) can assist you with MOS registration.

Call the CAS main number at 1-800-223-1711 (toll-free in the US), or call the Oracle Support hotline for your local country from the list at <http://www.oracle.com/us/support/contact/index.html>. When calling, make the selections in the sequence shown below on the Support telephone menu:

1. Select 2 for New Service Request
2. Select 3 for Hardware, Networking and Solaris Operating System Support
3. Select 2 for Non-technical issue

You will be connected to a live agent who can assist you with MOS registration and provide Support Identifiers. Simply mention you are a Tekelec Customer new to MOS.

MOS is available 24 hours a day, 7 days a week, 365 days a year.

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Appendix C: Locate Product Documentation on the Oracle Technology Network Site

Oracle customer documentation is available on the web at the Oracle Technology Network (OTN) site, <http://docs.oracle.com>. You do not have to register to access these documents. Viewing these files requires Adobe Acrobat Reader, which can be downloaded at www.adobe.com.

1. Log into the Oracle Technology Network site at <http://docs.oracle.com>.
2. Under Industries, click the link for Oracle Communications documentation.

The Oracle Communications Documentation window opens with Tekelec shown near the top.

3. Click Oracle Communications Documentation for Tekelec Products.
4. Navigate to your Product and then the Release Number, and click the View link (the Download link will retrieve the entire documentation set).
5. To download a file to your location, right-click the PDF link and select Save Target As.