

**Oracle® Communications
Performance Intelligence Center**

Release Notes

Release 10.1

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ORACLE®

Oracle Communications Performance Intelligence Center Release Notes, Release 10.1

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My Oracle Support (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.

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See more information on MOS in the Appendix section.

PIC 10.1.0 Release Notes

Oracle communication PIC 10.1 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 10.1.0 Release Notes

Introduction

The following document contains the Oracle Communication PIC 10.1 Release Notes. PIC 10.1 is a build stream that provides major and minor content releases for new features. It also contains Bug fixes to address issues found in previous PIC releases. The most current build stream is PIC 10.1 and software SKUs for that stream are included in this Release Notes.

The information in this document reflects the latest data available as of its date of publication.

PIC 10.1.0 Release Notes

PIC 10.1 Feature Content Summary

Platform Lifecycle :

- ✓ Full 64 bits support (Except Acquisition Data Feed T-ADAPT)
- ✓ IMF performance (Capacity/Footprint improvement)
- ✓ KPI Engine performance improvement
- ✓ IMF on E5-APP-B H/W

PIC Mediation Features / xDR Builder

- ✓ Sigtran Transport xDR builder (new builder)
- ✓ RAN CC2 xDR builder (new builder with improved feature vs. existing RAN CC xDR builder)
- ✓ LTE GTPv2 Mobility Management xDR builder (new builder) - S3, S10, S16 LTE interfaces
- ✓ S1 RAN ESM xDR builder (new builder)
- ✓ S1 RAN EMM xDR builder (new builder)
- ✓ Diameter Gy xDR builder (new builder)
- ✓ Diameter S9 xDR builder (new builder)
- ✓ Cisco E-ISUP CDR builder (new builder)

PIC Mediation Features / xDR Builder improvements

- ✓ Moving to 3GPP Release 11 support for some protocols (see annex A)
- ✓ xDR builder performance enhancement
- ✓ Merge of Mobile Activity xDR to IPS xDR (IP session)
- ✓ Added fields in S1AP xDR, Gx xDR, BSSAP xDR, Iu-CS/PS xDR, Gn xDR,

PIC Applications improvements

- ✓ PCAP Ethereal export extended to Diameter SCTP
- ✓ PCAP Ethereal export extended to protocols over TCP/UDP (SIP-I, BICC and all diameter builders)
- ✓ SCTP full decoding in Trace Application (ProTrace, Oracle Communications PIC Management, Oracle Communications PIC Multi-protocol troubleshooting)

PIC Management / Product Administration

- ✓ Extended Dictionary (KPI application improvement, Oracle Communications PIC Management)
- ✓ Capacity Management (new system performance statistics replacing Diagnostic Utility Application)
- ✓ Alarm display improvement

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PIC 10.1 Load Lineup for the Baseline Release

The software for Oracle Communications Performance Intelligence Center Release 10.1 is available on Oracle Software Delivery Cloud

<https://edelivery.oracle.com/>

PIC 10.1.0-6.1.0 (64 bits) except Tadapt	Software Version	Zip SKU	ISO P/N
Mediation Server – IXP/DWS – HP Gen8	10.1.0-6.2.0	V56298-01	872-3101-101
Management – NSP – HP Gen8	10.1.0-6.1.0	V56288-01	872-3102-101
Probed and Integrated Acquisition – xMF – HP Gen8	10.1.0-6.2.0	V56297-01	872-3103-101
Integrated Acquisition – xMF – E5-APP-B	10.1.0-6.2.0	V56296-01	872-3105-101
Mediation Protocol - xDR Builder – HP Gen8	10.1.0-6.1.0	V52239-01	872-3104-101
Acquisition Data Feed - Tadapt(32bits)	9.0.2-1.1.0	V46403-01	872-2684-101
Platform Components			
TPD Linux HP (Gen8) (64bits)	6.5.2-82.35.0	V45698-01	TPD.install-6.5.2_82.35.0-CentOS6.5-x86_64.iso
TPD Linux E5-APP-B (64bits)	5.5.1-75.20.0	V50883-01	TPD.install-5.5.1_75.20.0-CentOS5.10-x86_64.iso
PM&C (Blade only)	5.5.2-55.20.0	V50881-01	872-2586-102
TVOE (Blade only)	2.5.2-82.37.0	V50880-01	872-2525-101
Packages needed for installing PIC		Software Version	
Oracle Database 11g Release 2 Patch Set	11.2.0.4	V73911-01	
WebLogic for 64bits JVM support product	10.3.5.0	V73325-01	
Firmware			
HP Service Pack for ProLiant (SPP)	Min 2.2.6	N/A	
MISC FIRMWARE	Min 2.2.6	N/A	

* In case of COTS Hardware being delivered by Oracle, please contact the Oracle Support to get access to the recommended firmware package.

https://beehiveonline.oracle.com/teamcollab/overview/CGBU_Platform_Engineering_Firmware_Workspace

In case of COTS Hardware not being sourced through Oracle, please consider following Firmware Management guiding notes:

- Oracle (Tekelec) does not test firmware or support firmware.
- We do soak the firmware while we are developing and testing the PIC SW products.

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- We do take reliability very seriously, and do not let 3rd party elements like firmware pose a risk to the total product performance.
- We have therefore been very proactive in analyzing the weakness of the firmware and piecing together the most current firmware with a variety of follow on service packs and updates. Therefore we “modified” the version of firmware to optimize the performance of the PIC software. This is nothing the end customer couldn’t also do.
- We cannot legally sell or provide our modified version of firmware to customers separately from HW that we sell.
- We do not evaluate or test all the versions of firmware and the many combinations of service packs and updates, and therefore do not or could not aren’t in a position to make a recommendation about which standard version of HP firmware is most compatible or least risky.

The responsibility of managing firmware resides between the end user (Partner or Service Provider) and the HW supplier (HP), and that responsibility is even emphasized in case the end-user sources directly the HW.

Upgrade Path

Upgrade/Installations are supported with the software distributions described in these Release Notes.

Major Upgrade:

PIC 9.0.3 to 10.1

PIC 9.0.4 to 10.1

Incremental Upgrade Support: For patching purpose

PIC 10.0 to 10.1

Fresh Install Support:

PIC 10.1

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Hardware baseline for new projects and supported Hardware

Management

	Conf#	Variation	Form Factor	Series	Storage Array	PWR
Management server	1 - Baseline	1 box	RMS	1x DL360 Gen8	+1x D2700 + 10x HDD	AC
	2 - Supported	1 box	RMS	1x DL360 G6	+1x D2700 + 10x HDD	AC
	3 - Supported	4 box	RMS	4x DL360 G6	+1x D2700 + 10x HDD	AC
	4 – Supported	1 box	Blade	1x BL460p Gen8	+1x P2000 +10x HDD	AC
	5 – Supported	1 box	Blade	1x BL460p G6	+1x P2000 +10x HDD	AC
	6 – Supported	4 box	Blade	4x BL460p G6	+1x P2000 +10x HDD	AC

HDD capacity can be with 300GB or 600GB, with no mix in the same storage array. Disk used as hot spare is not counted in the table above.

No mix hardware configuration is supported for PIC management servers.

Upgrade of existing hardware to HP Gen8, needs replacement of the existing PIC management server(s) by a one box version on HP Gen8.

Mediation

		Server		
		Form Factor	Series	PWR
Mediation server	H/W base line	RMS	DL360 Gen8	AC
	Supported H/W	RMS	DL360 G6	AC

G6 and Gen8 servers can be fully mixed in the same mediation subsystem.

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Mediation Data record storage

	Conf#	Variation	Form Factor	Series	Storage Array	PWR
Data Record Storage server	1 - Baseline	1 box	RMS	1x DL360 Gen8	+1x D2700 + 24x HDD	AC
	2 - Supported	1 box	RMS	1x DL360 G6	+ 1x D2700 + 24x HDD	AC

G6 and Gen8 servers can be mixed in the same subsystem as mediation

Mixed G6/Gen8 Data Record servers must have 24+1 disk drives and the same Data Record retention disk space (4.2 or 8.4 TB)

HDD are 300GB or 600GB capacity. No disk capacity mix is supported in the same subsystem. Disk used as hot spare is not counted in the table above.

DL360 G5 and MSA 30 Storage array are not supported in PIC 10.1

Mediation Packet Data Unit storage

	Conf#	Variation	Form Factor	Series	Storage Array	PWR
Packet Data Unit Storage server	1 - Baseline	1 box	RMS	1x DL360 Gen8	+1x D2700 + 24x HDD	AC
	2 - Supported	1 box	RMS	1x DL360 G6	+ 1x D2700 + 24x HDD	AC

G6 and Gen8 servers can be mixed in the same subsystem as mediation

Mixed G6/Gen8 PDU servers must have 24+1 disk drives and the same Packet Data Unit retention disk space (4.7 or 9.4 TB)

HDD are 300GB or 600GB capacity. No disk capacity mix is supported in the same subsystem. Disk used as hot spare is not counted in the table above.

DL360 G5 and MSA 30 Storage array are not supported in PIC 10.1

Support of existing Blades System by PIC Mediation

WARNING: HP G6 and Gen8 blade systems are still supported in PIC 10.1 but these equipment are no more in the shipping baseline of PIC 10.1. Existing systems can be extended with new blades and storage, but not with new enclosure. Mix of HP G6 and HP Gen8 blade is allowed with P2000/D2700 only. As for RMS, HDD are 300GB or 600GB capacity and no disk capacity mix is allowed in the same subsystem.

Extension of existing PIC system on blades can be performed with new subsystem based on RMS hardware.

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IMPORTANT NOTE: the maximum number of Data Record storage servers per P2000 is 2. Remaining slots can be used for Packet Data Unit Storage (for instance one P2000 used for Data Record storage for blade 1 + one D2700 attached to the P2000 for Data Record storage for blade 2 can only be extended with additional one or two D2700 for Packet Data unit storage for blade 3 & 4).

PIC 10.1 supports PM&C server (installed in each base storage and Network Extension blade cabinet) on HP G6 and HP Gen8. Nevertheless PM&C is no more a shipping base line of PIC 10.1

		Server		
		Form Factor	Serie	PWR
PM&C	Supported base line	RMS	DL360 Gen8	AC
	Supported base line	RMS	DL360 G6	AC

Integrated acquisition

	Server		
	Form Factor	Serie	PWR
H/W base line	RMS	DL360 Gen8	DC or AC*
H/W base line	Proprietary	E5-APP-B	DC
Supported H/W	RMS	DL380 G6	DC or AC

Note *: DC is recommended for RMS Integrated Acquisition.

In case of Integrated Acquisition AC implementation, Oracle does not recommend AC and DC equipment to use a common ground. and AC equipment shall not be closer than 7 feet to any DC equipment for safety reason.

Tek servers (T1000, T1100 and T1200) are no more supported by PIC 10.1

HP Gen8 upgrade can be mixed with HP G6 Integrated Acquisition in the same subsystem and in the same frame.

Probed acquisition

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	Server		
	Form Factor	Serie	PWR
H/W base line	RMS	DL360 Gen8	AC or DC
Supported H/W	RMS	DL380 G6	AC or DC

PMF on Tek servers and HP G4/G5 are no more supported by PIC 10.1

PIC 10.1 New Hardware Support

Additional BOM hardware is supported in PIC 10.1

HP P/N	Technical description	Qty for xMF AC	Qty for xMF DC	Qty for IXP AC
654081-B21	HP ProLiant DL360p Gen8 8 SFF Configure-to-order Server	1	1	1
708641-B21	HP 16GB 2Rx4 PC3-14900R-13 Kit	4	4	4
652241-B21	HP 9.5mm SATA DVD RW JackBlack Optical Drive	1	1	1
684208-B21	HP Ethernet 1Gb 4-port 331FLR FIO Adapter	1	1	1
631679-B21	HP 1GB P-series Smart Array Flash Backed Write Cache	1	1	1
512485-B21	HP iLO Advanced including 1yr 24x7 Technical Support and Updates Single Server License	1	1	1
712506-L21	HP DL360p Gen8 Intel Xeon E5-2680v2 (2.8GHz/10-core/25MB/115W) Processor Kit	1	1	1
712506-B21	HP DL360p Gen8 Intel Xeon E5-2680v2 (2.8GHz/10-core/25MB/115W) FIO Processor Kit	1	1	1
652583-B21	HP 600GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	2	2	2
734807-B21	HP 1U Small Form Factor Easy Install Rail Kit	1	1	1
656363-B21	HP 750W Common Slot Platinum Plus Hot Plug Power Supply Kit	2	0	2
636673-B21	HP 750W Common Slot -48VDC Hot Plug Power Supply Kit	0	2	0
631673-B21	Smart Array P421/1GB FBWC Controller	0	0	1
665249-B21	HP Ethernet 10Gb 2-port 560SFP+ Adapter	2	2	0

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Integrated and probed acquisitions are sharing same configurations (one for AC and one for DC). Management, Data Record Storage, Packet storage and Mediation are sharing same configuration (AC only).

Storage Array BOM for mediation Packet Data storage, Data Record storage and Management is not changed:

HP P/N	Technical description	For 7.2 TB storage per enclosure	For 14.4 TB storage per enclosure
AJ941A	HP D2700 Disk Enclosure	1	1
507127-B21	HP 300GB 6G SAS 10K 2.5in DP ENT HDD	25	0
581286-B21	HP 600GB 6G SAS 10K 2.5in DP ENT HDD	0	25

PIC 10.1 Products with discontinued Support

- ✓ Report Software Platform (RSP)
- ✓ Export Server
- ✓ Business Object-based Analytics packages
- ✓ Builders: Gb statistics by APN builder

Legacy interoperability

Tekelec MSW Gb/TDM/ATM, Cross Connect, Falco SS7/Gb and Neptune Probes are supported.

PIC 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

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- 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 is now part of the Quick Start User's Guide.

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PIC / EAGLE Compatibility Matrix

Oracle Communication PIC 10.1 has been validated with the following EAGLE Releases:

PIC Release Baseline	EAGLE Release Baseline
PIC 10.1	EAGLE 45.x EAGLE 46.x : Minimum EAGLE and PIC release to support E5-E1/T1-B
Note: EAGLE 43 & 44 are compatible with PIC 10.1 but resolution of bugs may require upgrade to EAGLE 45 or 46.	

Known Issues

Bug#	Title	Workaround
19285045	Filtering using % is not working	In database run these update queries - <code>update COR_DATASRC_PATTERN_COND set PATTERN_CONDITION = 'LIKE~%' where DATASOURCE_ID=5 and PATTERN_ID='%' and PATTERN_CONDITION = 'LIKE';</code> - <code>update COR_DATASRC_PATTERN_COND set PATTERN_CONDITION = 'NOT LIKE~%' where DATASOURCE_ID=5 and PATTERN_ID='%' and PATTERN_CONDITION = 'NOT LIKE';</code>
19524333	The Backup disappeared while the upgrade	Before starting NSP installation, check NSP backup is present on backup disk and not on system disk.
19529456	Analyse_subsystem.sh is showing error logs on Migrated E5APPB	To fix the issue: - find the server on which the rights are not set properly: <code>> ll /var/TKLC/log/</code> The rights on /var/TKLC/log/xMF directory should be: <code>4 drwxrwxrwx 2 cfguser cfg 4096 Sep 10 13:43 xMF/</code> and not: <code>4 drwxrwxrwx 2 root root 4096 Sep 10 13:43 xMF/</code> - if the rights are not correct, run the command in root: <code>> chown cfguser.cfg /var/TKLC/log/xMF/</code>
19544603	Pduserver restarted several times while testing E5APPB performance	Process is automatically restarted. If PDU storage is activated there is no PDU loss.
19595166	PDU are not loading until Dsapi process is restarted	As cfguser, connect IXP server and run the command : <code>cfguser: pm.kill -9 dsapi</code>
19642113	Alarm did not generated for disk related issue on E5APPB cards	1. In root, open the file /etc/cron.daily/ssdcheck.sh: <code>> vi /etc/cron.daily/ssdcheck.sh</code> 2. Remove 'sudo' usage on the three lines: - line 33: <code>"sudo \$CMD_SMARTCTL while read; do" -> "\$CMD_SMARTCTL while read; do"</code> - line 40: <code>"sudo \$CMD_TRAP "\$ERROR"" -> "\$CMD_TRAP "\$ERROR"</code>

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		- line 44: " <code>sudo \$CMD_TRAP "\$WARNING" -> "\$CMD_TRAP "\$WARNING"</code> " 3. Save and exit to the file
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.
19663319	Error: Alarm raised for tpdNTPSourceIsBad	The alarm is automatically cleared after a few seconds and does not cause any service loss.

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*.

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Resolved Bugs

PIC 10.1 includes Bug resolved in Release 10.0.0 and in Release 10.1

For a better clarity, the list of Bugs is presented below in 2 different tables RN-1 and RN-2

Table RN-1. PIC Release 10.0 Resolved Bugs (sorted in ascending order by PR#)

Tekelec PR#	Oracle Bug#	Component	Title
168589	19083743	NSP	Forwarding: date and time in email should use NSP Server time zone
169187	19083791	NSP	Set NSP name in login page of portal
169509	19083832	NSP	Cannot read Perceived Severity for system alarms
200083	19085264	NSP	PIC7.1:Not able to select required field from the drop down list of any field using Mozilla Firefox3.6.3
200143	19085270	ProAdmin	CCM xDR Sessions lose filter when sort is used
200300	19085286	NSP	PIC system needs an alarm management system to eliminate gross numbers of alarms
205984	19085872	ProAdmin	Signaling Points are in removed tab of synchronization status for c-link monitored on 2 IMF sites and same NSP.
208064	19086079	NSP	Alarm from NSP Automatic/Nightly backup failure
209301	19086238	IXP	lxpForward "Cannot allocate memory" errors
209301	19086238	XMF	lxpForward "Cannot allocate memory" errors
209822	19086301	ProAlarm	user preferences in ProAlarm Viewer
213654	19086951	NSP	User is logged out from proper panel display several times a day.
216341	19087781	ProPerf	In ProPerf panel the legends are presented in random order.
216671	19088165	XMF	card capacity is often switching between two values
216698	19088198	XMF	eagleMonitor is logging suspicious frame in default log level
217283	19088856	xDR Builders	in H248 the TID field contains time to time some negative values
217397	19088976	xDR Builders	Not matched frames in H248 TDR Reconstitution by Call
217450	19089039	ProAdmin	Warning message during IXP apply "The following streams are used by multiple dataflow processing's" should be removed
217593	19089208	ProTraq	INSTANCE column is not hidden when a statistical session is created by Historical Protraq application
217596	19089210	ProPerf	ProPerf is filling NSP_LOG table space
218132	19089845	XMF	Wrong L2 event forwarded by PMF with Mistral card
218141	19089854	NSP	deprecated should be highlighted in RED color after protocol upgrade
218191	19089909	XMF	wrong alarm TKPIC00004
218610	19090381	xMF	New PMF IP Cards Not Discovered
218610	19090381	XMF	New PMF IP Cards Not Discovered
218701	19090473	IXP	lxpStore is crashing sometimes on external DWH (oracle standard)
218707	19090479	xDR Builders	lxpStore process is stuck because of too small fields
219059	19090880	IXP	bc_adjust_subsystem.sh do not accept GMT, GMT+1, ... time zones
219400	19091330	ProTraq	ProTraq cannot be re-synced

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219408	19091339	NSP	Display xDR builder standards information in NSP
219910	19091981	ProTraq	Automatic row creation should ensure that automatic name matches naming constraints
220312	19092508	ProTraq	Top filter row name tooltip is wrong
220320	19092516	ProAdmin	New DWH window is misnaming "Service name" parameter
220839	19093187	ProAdmin	can delete sessions view despite session view are pointing to it
221036	19098738	xDR Builders	INAP builder DR= collision status issue.
221181	19093606	NSP	No possibility to synchronize/activate/disassociate a ProTraq Configuration
221684	19094227	ProAlarm	Proalarm viewer "raised time" display TZ issue.
221692	19094237	ProAdmin	In Global Backup/Restore the time is not correctly displayed
221694	19094239	ProAdmin	Output stream name modification for Operate DFP in NSP is not applied on IXP
221738	19094288	ProTrace	Extra not expected columns exported to Excel
221740	19094291	ProTrace	Windows are undersized. closely named objects are hard to differentiate
221825	19094414	XMF	duplp_pkt information since PIC 7.5
221843	19094436	xDR Builders	MGCP DR status in decoding
221844	19094437	xDR Builders	SIP - BYE messages are not correlated
221855	19094453	ProAdmin	IXP Cancel change created inconsistency in DB (auto created backup failed).
222155	19094829	ProAdmin	apply error message should be improved
222165	19094843	ProTrace	Import trace is not displaying some fields and decoding correctly
222175	19094858	ProTraq	Label of the scale for cumulative counter
222200	19096163	NSP	syscheck reports a minor occupancy issue on / partition
222200	19096164	IXP	syscheck reports a minor occupancy issue on / partition
222200	19096165	xMF	syscheck reports a minor occupancy issue on / partition
222217	19094913	xDR Builders	buildMonitor information are not accurate for RAN builders
222276	19096023	xMF	platform.csv should be located in another directory than /var/TKLC/upg
222405	19095148	Scheduler	export file issue : missing and/or duplicated export
222651	19095435	ProTrace	zip export on a session view
222679	19095466	xDR Builders	Remove DEPRECATED fields introduced in release 7.1 and 7.5
222732	19095533	IXP	incorrect dates for historical KPIs sessions
222868	19096171	NSP	NTP optimization
222868	19096172	xMF	NTP optimization
222868	19096173	IXP	NTP optimization
222911	19095732	ProTrace	ProTrace query on PC problem
222918	19095740	xDR Builders	luP RAB is missing SCCP Message code and RANAP cause
222922	19095746	ProTraq	Right click show ProTraq menu and browser menu
223055	19095900	ProTraq	after edition of a line, the scrollbar is coming to the top of the window
223121	19095977	xDR Builders	Total active bearer and mobiles field wrong GTPv2c builder
223229	19096113	NSP	we get an error when we disassociate a ProTraq

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223438	19096373	NSP	Enhancement of KPI to xDR drill down
223493	19096439	PMF/IXP/IXPxDR Builders	The diagram of E1 traffic in session view shows the IP address of network element instead of point code
223539	19096492	ProTrace	error when double click on "All sessions" and on a session name or session view name
223640	19096618	NSP	allow the use of the up and down key in protrace
223700	19096684	xDR Builders	TMSI wrongly filled in some cases
223712	19096702	IXP	can't apply IXP config after upgrade
223801	19096821	ProTraq	spaces are removed in the column names during import of csv file
223930	19096982	ProAlarm	object name is missing when zooming out
223988	19097052	NSP	HTML export of sequence diagram is wrong in Internet Explorer
224049	19097125	IXP	lxpHistory restart does not mark task as failed
224162	19097253	ProAdmin	PDUStorage should be set to 0 for PMF IP
224198	19097303	ProTrace	Drill down issue with NULL value
224241	19097361	ProAdmin	bulk export configuration is failing Error Exporting IMF Associations..null
224276	19097397	xDR Builders	Missing XUDT messages
224337	19097465	CustomerCare	Customer Care application upgrade from PIC 7.1 to 9.0 fails
224514	19097666	IXP	show_process_info.pl return error while querying store DFP
224639	19097810	NSP	Field based validation for Automatic Row Values
224683	19097864	NSP	WebLogic ISO must be available on TPD 5.1.1 64 bits
224739	19097932	DataFeed	period in summary and configured are different
224805	19098004	ProTrace	Ladder diagram has issue after PDU direction is colorized
224809	19098008	xDR Builders	MAP TDR: IMSI contains MSISDN
224827	19098029	IXP	APN value too large to be stored in oracle
224836	19098044	ProTrace	Interactive export do not work for Business user
224852	19098066	NSP	Warning message is logged in case of missing Default Preference for applications
225427	19098804	NSP	EPI Couplet Feature:UT-062 Fail
225618	19108143	IXP	Application column in Protrace detail does not display the Message Type
225694	19099156	ProTrace	PDU's are not displayed when querying an Archive session
225871	19099375	NSP/ProTrace	ProTrace: sort by ms in PDU does not work
225911	19099416	ProTrace	Sorting issue with% in ProTrace
225955	19099474	IXP	ISUP optional part not decoded
225956	19099473	ProTraq	Condition link=* is transformed in a list of links
225958	19099478	NSP	Filters on sessions list are not refreshed automatically in the list
225966	19099486	ProTrace	Zipt export with option stored in database - error with session view
226015	19100932	xDR Builders	GnTDR: Transaction Type is not matching PDU TT
226054	19099591	NSP	Unused Dictionary cannot be deleted from CCM
226210	19099765	xDR Builders	LAC and CI parameter remains uudecoded with IDPSMS type Messages
226260	19100993	xDR Builders	Missing last digit in IMEIsv xdr field of lup GMM.

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226269	19099835	IXP	Apply change with following error: DECfgVwPcMapping Data truncation: Out of range value adjusted for column 'Code' at row 1
226269	19099835	ProTrace	Apply change with following error: DECfgVwPcMapping Data truncation: Out of range value adjusted for column 'Code' at row 1
226389	19099987	ProPerf	An Instance column appears in the tables in ProPerf
226440	19100052	NSP	Missing (empty) field decoding in Protrace html export.
226551	19100193	Scheduler	The scheduler html export didn't work when we choose SU+full decoding
226747	19100995	xDR Builders	Implicit TMSI reallocation in MM TMSI-Reallocation procedure not support
226988	19100738	IXP	IxpBuild does not process the last 6 hours of buffer if it's stopped for more than 6 hours
227028	19100792	ProPerf	Add symbol NONE
227227	19101061	XMF	TKPIC02014: Local Inhibition alarm is not cleared properly by IMF
227299	19101198	Core	Error when associating a ProTraq
227332	19101246	IXP	Gn TDR: MSISDN and IMEI are wrong when feed by UP Neptune (APN or IMSI)
227443	19101386	IXP	Performance issue IxpInterface process connected to Neptune probe
227696	19101678	ProAdmin	Unable to modify store: error "Unable to modify 'store session' because xxx KPI) applied on xDR sessions" in case 2 stores.
227814	19101819	NSP	different privileges on statistics sessions
227858	19101878	Security	Error when trying to modify a profile
227872	19101893	ProAdmin	CCM config report does not give the filter information
228088	19102165	ProTraq	automatic lines are inserted as non-exclusive
228280	19102399	NSP	ProAlarm config do not check Maximum allowed aggregates (5000)
228679	19102910	NSP	Dataflow Assistant step 3, not possible to choose an existing dictionary if dictionary loaded before in Dictionary menu.
228680	19102911	ProAdmin	Cannot Delete Uploaded Dictionary
228797	19103052	IXP	Fields are enriched by random values.
228823	19103098	IXP	DWS DR kit supporting all the DWS setup
228833	19103110	xDR Builders	SAC/CellId enrichment inconsistency in RAN_CC.
228955	19103275	ProTrace	Not able to save prompt query
229018	19103348	IXP	Query editor do not take into account data feed query limit.
229382	19103800	NSP	Protrace return an error when reading a scheduled .zip exported file
229384	19103802	NSP	PIC9.0 to 9.02 --> Critical alarm found in ProAlarm corresponding to xDR servers migrated as DWS
229451	19103890	IXP	Dataexport to Oracle can't export to a lower oracle release
229661	19104161	IXP	Some AVP code of 3GPP are not correctly decoded
229689	19104197	IXP	Apply on IXP is restarting process that have not been modified
229741	19104252	IXP	Pool Monitor data incomplete
230043	19104628	NSP	Blocking only configuration application is not included in security levels
230054	19104641	xDR Builders	Digits "19" are added to MSISDN form "Send IMSI" operation in MAP V2
230109	19104730	NSP	Enhancement of HealthCheck

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230110	19104731	NSP	Control weblogic password during install
230111	19104732	NSP	Delete automatically backout file
230271	19104945	NSP	Reference Data tables purged without info
230382	19105076	IXP	bulkconfig content is inconsistent with subsystem configuration
230477	19105212	IXP	UPGRADE: Avoid disconnectable console when upgrading
230687	19105489	xDR Builders	A, B and C-number in Diameter CC contain multiple 0
230737	19105554	NSP	Advanced Parameters of intermediate layers are duplicated when adding a new builder to a DFP
230813	19105649	XMF	PMIA compiler issue, wrong context management
230921	19105788	IXP	Remove builders license check
230934	19105815	NSP	Automatic Raw insertion doesn't supported multiple values
230956	19105843	NSP	Max user token is not set to 50 in NSP 4 boxes config
231078	19105993	NSP	« Could not get full decode of pdu » error for some pdu with USSD string (protocol RAN USSD).
231083	19105998	xDR Builders	Volume of data are different for the same GTP context in the builders Gn CDR
231099	19106024	xDR Builders	BuildMonitor error in calculation
231326	19106323	XMF	PMF with IDM activated crashes and reboot
231364	19106370	IXP	lxpStore crashes during nightly jobs.
231372	19106379	IXP	Message type empty in SIP-I
231417	19106434	XMF	MSU buffering must be erased before upgrade
231419	19106436	XMF	use the bulkconfig for the manufacturing
231456	19106488	NSP	Query: Dictionary load is slow when one server of the pool is down
231654	19111956	xDR Builders	ISUP Crank-back: Wrong IAM association at end of the Call
231655	19111951	xDR Builders	ISUP Crank-back: Cause value of final xDR does not reflect cause value o
231656	19111952	xDR Builders	ISUP Crank-back: Wrong begin time of Final xDR
231657	19111955	xDR Builders	ISUP Crank-back: Setup time keeps increasing for some cases.
231673	19106762	IXP	Protraq do not support column filter on enum like "VALUE:0xFFFFFFFF:Not available:-. "
231678	19106769	xDR Builders	RAN_USSD MSISDN field not enriched properly
231771	19106876	NSP	Rules preventing to display twice the same xDR in the trace is too restrictive in some situations
231905	19108492	xDR Builders	LTE DFP builder crash
231949	19107097	NSP	Issue while accessing to ProAlarm Viewer "All alarms" option
232014	19107178	ProAlarm	Filtering capabilities are not similar for open and terminated alarms
232075	19107260	NSP	copy/paste of alarm in ProTraq from 1 to N cells is not working
232076	19107261	IXP	Upgrade is not complete even if server rebooted automatically
232211	19107438	NSP	Empty zip file shows internal error message
232217	19108014	xDR Builders	Gn, IP User lxpBuild crash (abterm)
232218	19107446	NSP	configuration parameters for CSV streaming are not present in NSP gui
232236	19107478	NSP	IMF application discover during upgrade is failing
232248	19107494	IXP	IP Transport: pcap export option summary display problem

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232251	19107499	XMF	IMF-2X Unable to Monitor Fast Copy Links (ip address issue).
232253	19107497	IXP	IXP upgrade failed
232258	19107511	NSP	Impossible to add more than one DWS to a DWH pool
232286	19107551	IXP	During upgrade, apply on IXP is failing after builder package association
232294	19107562	IXP	temporary compression tables are not dropped when IXP_COMPRESSION job is stopped
232301	19107569	IXP	Expected output of some commands should be added in upgrade doc
232367	19107667	xDR Builders	PDN IP field never populated in xDRs
232418	19117706	IXP	IXP Process do not produce XDRs if one of the input stream never receive
232418	19117706	IXP	IXP Process do not produce XDRs if one of the input stream never receive
232463	19107792	NSP	NSP upgrade stuck when checking "NSP INSTALLED VERSION"
232466	19107797	xDR Builders	MAP TDR: Prepare handover take more than 30 seconds
232535	19107892	XMF	IMF 9.0.3 : SE_HSL_ENABLE flag is disable
232537	19107894	xDR Builders	LTE: Need of NAS level builders for ESM
232539	19107896	xDR Builders	S1-AP and NAS dynamic enrichment
232573	19107941	xDR Builders	LuC TDR not decoded (summary and full decoding) when pcap export enabled
232573	19107941	xDR Builders	LuC TDR not decoded (summary and full decoding) when pcap export enabled
232580	19107947	xDR Builders	Remove access to Builders no more supported
232748	19108182	NSP	"Forwarding Mail From address" settings not taken into account in email sent by Alarm Forwarding.
232804	19108256	xDR Builders	Incorrect decoding when pcap export enabled
232915	19113665	NSP	Upgrade of weblogic shows error
232943	19108434	xDR Builders	SIP T ETSI: builder is crashing on shmat error
232948	19108446	xDR Builders	Decoding and propagation of 3GPP SGSN (1228) and GGSN (847) AVPs
232983	19108489	NSP	optional application management for go forward licensing
232991	19108502	XMF	Fix issue during upgrade of TKLCmf RPM
232995	19108506	xDR Builders	Sip (T) builder do not manage 487 after bye 200 ack.
233000	19108512	NSP	Upgrade failed due to lack of space in / partition
233028	19108549	IXP	IxpForward: deadthread not automatically recovered
233150	19108696	XMF	accept the upgrade automatically
233179	19108732	xDR Builders	XB monitoring counter change
233287	19108864	IXP	Session upgrade Master task is FINISHED with PENDING subtasks
233414	19109022	IXP	oracle-postinstall.pl does not take -debug option
233463	19109095	xDR Builders	LTE GTP v2 Tunnel Management TDR nothing decoding in capture mode
233467	19109101	NSP	Cannot enable Ethereal capture because of pending changes
233615	19109289	XMF	xMF Bulkconfig File Description is not clear enough in 909-2247-01
233648	19109330	NSP	PIC migration of G6/Gen8 from 9.0.3

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233684	19109372	NSP	Could not load the query in Protraq->create new row- >define filter screen
233726	19109426	XMF	oom_killer is triggered by OS on IMF 32bits for HP Gen8
233858	19109582	XMF	Eagle-IMF interface troubleshooting - step 2
233975	19109768	NSP	wrong spelling in alarm acknowledgement message
234172	19110025	xDR Builders	RAN CC: A-Number field is always empty for lu CS
234296	19110166	NSP	Security Objects: Object Type and User Combo box filter values not sorted
234308	19110178	NSP	trace or ladder diagram pdf export is showing error
234358	19110648	xDR Builders	IMS DIAMETER TDR: Destination Realm field is empty even if present in fr
234611	19111242	xDR Builders	luC TDR: ALCAP fields are empty
234731	19110706	IXP	Switch 4948 outage detection not working
234778	19110756	NSP	Stream limit in CCM must be controlled when 128 streams are configured for a subsystem
234779	19110757	NSP	there are no control on the streams created by protraq
234788	19110768	IXP	Oracle shared memory on DWS 64bits
234840	19110831	xDR Builders	LTE Diameter Gx: both request and response have DR status Out of Sequence
234866	19110873	IXP	makeDWH.sh ambiguous message
234867	19110874	NSP	lrm synchronize error weblogic.ejb20.cache.CacheFullException
234932	19110962	NSP	Automatic email sent when user account is created does provide correct NSP url
234933	19110963	XMF	xMF stop sending traffic and does not respond to any command
234942	19110972	IXP	Step 29. Configure zones in Brocade switches in 909-2240-01 should be optional
235012	19111059	IXP	placfg menu to edit PDU mounts is not working
235288	19111399	NSP	Sorting in any column replace "date/hour" format by "unix timestamp" format
235705	19111895	xDR Builders	lu CS TDR: SAC field enrichment low
236012	19112304	xDR Builders	"#" number not correctly recorded in ISDN XDR
236046	19112345	NSP	Automatic row insertion of ProTraq restricts spaces in rows names
236285	19112652	NSP	ProTraq with filter on hexa field cannot be reopened after upgrade
236294	19112922	xDR Builders	B-MSISDN is not present in FSM when Dynamic Mobile DataBase Enrichment i
236440	19112836	xDR Builders	ISUP INR pdu not attached to correlated xdr.
236632	19113124	XMF	PMF is crashing when receiving non IP protocol on a TC with Transport protocol set to ALL
236690	19113199	NSP	Unable to delete store because KPIs. (or edit)
236771	19113713	xDR Builders	INAP TDR: Bad decoding of B-Number information
236772	19113288	XMF	pmia crash on duplicated fragmented packets
236812	19113332	xDR Builders	Addition of B-Number in UMTS luC TDR dictionary.
236846	19113380	NSP	NSP log populated with error regarding CALCULATE_SESSION_SIZE
236885	19113439	XMF	PMF stop sending traffic due to memory leak (oom-killer) on 64 bits OS
236940	19113523	XMF	Complex gt pmia filter problem

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237064	19113674	NSP	Alarm forwarding with null value for Additional text
237128	19113764	XMF	MTU is wrongly set on bond0.200 after TEK2 fresh install
237148	19113786	XMF	SIGTRAN Filter enhant. and qualification (FD review addition)
237253	19113916	NSP	scheduled protraq activation/deactivation sometimes not done
237349	19114037	NSP	Modify schedule reset privacy and ownership.
237357	19114047	xDR Builders	INAP TDR: some xDR are not correlated in TransactionID+routing info mode
237441	19114171	IXP	Decoding error in ISUP-ANSI CVR messages
237496	19114232	NSP	Cannot create new XDR filter for DFP
237672	19114451	NSP	Error message during filter creation
237964	19114820	NSP	Concurrent user support for go forward licensing
237976	19114837	xDR Builders	wrong SIPI ring field calculation
238134	19115047	IXP	M&A remediation: use standard downloads of Weblogic and Oracle11 for installation
238183	19116411	xMF	TC capture not creating file when dechunking option is active
238251	19115195	IXP	PDU are not display or prevent NSP export to finish
238659	19116458	ProAdmin	Error on IMF synchronize
239152	19116702	ProAlarm	ProAlarm viewer drilldown failing
239212	19116903	xMF	pmiaMonitor loops on GTP frames
239365	19118508	IXP	Only one set of pdu mount server is removed from fstab each time you run

Table RN-2. PIC Release 10.1 Resolved Bugs (sorted in ascending order by Bug#).

Tekelec PR#	Oracle Bug#	Component	Title
	18965144	MGMT	Impossible to scroll in the Java ProTrace with FireFox
	19063344	MGMT	There is no EPI define by default for the new builder in PIC 10
200083	19085998	MGMT	[200083]PIC7.1:Not able to select required field from the drop downlist of any f
200083	19085998	MGMT	[200083]PIC7.1:Not able to select required field from the drop downlist of any f
222470	19095226	PROBED	[222470]Link alarms are sent too many times
238339	19115553	MEDSRV	[238339]PDU cannot be displayed in proTrace, DSAPI is crashing when the pdu is l
238339	19115553	MEDSRV	[238339]PDU cannot be displayed in proTrace, DSAPI is crashing when the pdu is l
241103	19118827	MGMT	[241103]The script to set the number of concurrent user does not respect the spec
	19136061	PROBED	pduServer0 abterm
	19169725	MEDSRV	IP raw PDU are rejected when microsecond time stamping is enable on the PMF
	19171859	MGMT	right click do not display the quick filtering window.
	19187182	MEDSRV	Comcol Lock
	19235021	MGMT	NSP pre-upgrade fails because /usr free space
	19471788	MEDPROT	RFF00004142 - SIP builder evolution required for D & E Number

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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	SS7BtNupCdr
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
SS7	ISUP Colombian Variant	Ministerio des Comunicaciones	Norma Nacional de Señalizacion por Canal Comun N.°7 - SCC7	Norma Nacional Apr-98	see ISUP V3

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Family	Protocol	Organization	Complete Reference	PIC 10.1 standards	Final builder
SS7	ISUP Mexican Variant	Telmex	E-801.04 Sepcification - Integrated Services Degital 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>	
		ITU-T	Distributed functional plane for intelligent network CS-1	ITU-T Q.1214 <i>Oct-95</i>	

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Family	Protocol	Organization	Complete Reference	PIC 10.1 standards	Final builder
		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>	Ss7HLRVTdr 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 intersystem 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
	Iu-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 VoipSiptIcuCdr
		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 01/10/2003	
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 Jul-03	VoipQ931Cdr
		ITU-T	ISDN user-network interface layer 3 specification for basic call control	Q.931 Dec-99	
VoIP	VoIP H.225/RAS	ITU-T	Call Signalling protocols and media stream packetisation for packet-based multimedia communication systems	H.225.1 Jul-03	VoipRasTdr
VoIP	VoIP H.245	ITU-T	Control Protocol for multimedia communication	H.245 Jul-03	VoipH245Tdr
VoIP	VoIP RTCP	IETF	RTP: A Transport Protocol for Real-Time Application	RFC 3550, Jul-03 RFC3551 Jul-03 Not relevant or supported: RFC5506, RFC5761, RFC6051, RFC6222	VoipRtcpStats
VoIP	MGCP	IETF	Media Gateway Control Protocol (MGCP) version 1.0	RFC 3435 Jan-03 Not relevant or supported: RFC3661	VoipMgcpCdr VoipMgcpTdr
		IETF	Media Gateway Control Protocol (MGCP) Return Code Usage	RFC 3661 Dec-03	
		IETF	Media Gateway Control Protocol (MGCP) Packages	RFC 3660 Dec-03	
VoIP	MEGACO	IETF	Gateway Control Protocol Version 1.0	RFC 3525 Jun-03	VoipMEGACOTdr
VoIP	H.248	ITU-T	Gateway Control Protocol: Version 2	H.248.1 May-02 Supported packages H.248.2 until H.248.31	VoipH248Tdr
IMS	Diameter	IETF	Diameter Base Protocol	RFC 3588 Sep-03	ImDiameterCcTdr ImDiameterCxTdr ImDiameterGqTdr ImDiameterShTdr ImDiameterTdr
	Diameter Credit-Control (Cc, Ro,	IETF	Diameter Credit-Control Application	RFC 4006 Aug-05	

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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 Applications, click the link for Communications.

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.