

show linkmgr

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This table provides information for counters displayed in the output of the SGSN **show linkmgr { all | instance } [parser statistics]** command.

Table 1: show linkmgr instance <#> parser statistics all Command Output Descriptions

Field	Description
Decode Statistics	For a given link manager instance, the decode statistics includes: • Decode Success • Decode Failure
Decode Success	Total number of messages for which protocols were decoded successfully by the link manager parser to retrieve the de-multiplexing key.
Decode Failures	Total number of messages for which the link manager parser failed to successfully decode the protocols to retrieve the de-multiplexing key.

Field	Description
Demux Key	The link manager parser extracts de-multiplexing key from the incoming Signaling Connection Control Part (SCCP) message or SCCP payload. Following are the categories of demux key: • IMSI • P-TMSI (local) • P-TMSI (non-local) • SSN • HLR Reset • SCCP DLR • TCAP DTID • XUDT LRN & OPC • TLLI (non-local)
IMSI	Total number of instances when the de-multiplexing key that is being used for parsing is International Mobile Subscriber Identity (IMSI).
P-TMSI (Local)	Packet Temporary Mobile Subscriber Identity (P-TMSI) is assigned by the SGSN to UE to avoid transmission of TMSI over the air. Total number of instances where the de-multiplexing key used for parsing is local P-TMSI.
P-TMSI (Non Local)	Total number of instances where the de-multiplexing key used for parsing is non- local P-TMSI.
SSN	A Sub System Number (SSN) identifies a specific user function provided by an Signalling Connection Control Part (SCCP) node. Total number of instances where the de-multiplexing key used for parsing is the Sub System Number (SSN) associated with the message.
HLR Reset	Link manager uses the messenger based communication for all the messages except for HLR Reset. The HLR Reset messages are forwarded using CCPU TAPA driver task. Total number of instances where the de-multiplexing key used for parsing is HLR Rest message.
SSCP DLR	The Destination Local Reference (DLR) used by the SCCP connection oriented service. Total number of instances where the de-multiplexing key used for parsing is SSCP DLR.
TCAP DTID	Transaction Capacities Application Part (TCAP) is a protocol that is used to support Mobile Application Part (MAP). The MAP is used to exchange the control plane traffic between SGSN and HLR. Total number of instances where the de-multiplexing key used for parsing is the Transaction Capability Application Part Destination Id (TCAPDTID).

Field	Description
XUDT, LRN & OPC	eXtended Unit Data Message (XUDT), Local Reference Number (LRN) and Originating Point Code (OPC). These are the components of SSCP and Signaling System 7 architecture. Total number of instances where the de-multiplexing key used for parsing is XUDT, LRN and OPC associated with the message.
TLLI (Non Local)	Temporary Logical Link Identity (TLLI), is an identity used during the PDP session for identifying the MS on Um and Gb interface. Total number of instances where the de-multiplexing key used for parsing is the non-local Temporary Logical Link Identity (TLLI).
TLLI (Local)	Temporary Logical Link Identity (TLLI), is an identity used during the PDP session for identifying the MS on Um and Gb interface. Total number of instances where the de-multiplexing key used for parsing is the non-local Temporary Logical Link Identity (TLLI).
SMGR Instance	Total number of instance s where the de-multiplexing key used for parsing is the session manager instance associated with the message.
Memory (Mem cache usage)	Memory cache or memory buffer usage describes the memory that is being used by link manager parameters. The memory buffer usage comprises: • Block size • Number of blocks • Total • Free • numAlloc Memory cache is being used by following link manager parameters: • LRN OPC table entry • LRN OPC entry • IMSI MGR Pending entry • Iups entry • RNC entry • RAI entry • PLMN entry • TLLI mapping entry • IMSI mapping entry • SGSN-EMPCR entry

Field	Description
LRN OPC table entry	Local Routing Number (LRN) Originating Point Code (OPC), as per memory cache table entry.
LRN OPC entry	Local Routing Number (LRN) Originating Point Code (OPC) entry.
IMSI MGR Pending entry	Memory used by pending IMSI manager application.
Iups entry	Iu is the interface between Radio Network Subsystem (RNS) and core network. This is the memory used by Iups interface.
RNC entry	Memory used by the Radio Network Controller (RNC) entry.
RAI entry	Memory used by Routing Area Identity (RAI) entry.
PLMN entry	Memory used by Public Land Mobile Network (PLMN) entry.
TLLI mapping entry	Memory used by Temporary Logical Link Identity (TLLI) mapping entry.
IMSI mapping entry	Memory used by IMSI mapping entry.
SGSN-EMPCR entry	Memory used by SGSN-EMPCR entry.
Mbuf Counters	Total number of memory buffer counters, such as memory buffer overflows, associated with link manager parser instance.
Buffer Over flow	Total number of memory buffer overflows associated with this instance of link manager.
Messenger Counters	Link manager parser statistics includes message counters, indicating the messages that are being exchanged between link manager application and following manger applications: • IMSI manager • Link manager • Master manager • ALCAP manager • HNB manager • Session manager

Field	Description
IMSI Manager	Link manager parser statistics includes following message counters related to IMSI Manager: • Forward requests sent • Forward requests queued • Forward response received • Forward requests d-queued • Forward request bounced • Query requests sent • Query requests queued • Query requests d-queued • Query requests bounced • Query success responses • Query failure responses • Bulk requests sent • Bulk requests received • Pending queue length • Pending queue hardware • Pending attach dropped • Pending RAU dropped • Pending attach / RAU length
Forward Request Sent	Total number of forward requests sent to IMSI manager.
Forward Request Queued	Total number of forward requests queued for sending to IMSI manager.
Forward Response Received	Total number of forward responses received from IMSI manager.
Forward Request De-queued	Total number of forward request removed from the queue of the requests that are being sent to IMSI manager.
Forward Request Bounced	Total number of forward request that were bounced from the IMSI.
Query Request Sent	Total number of query requests sent to IMSI manager.
Query Request Queued	Total number of query requests queued for sending to IMSI manager.
Query success response	Total number of successful query responses received from IMSI manager.
Query request de-queued	Total number of query requests removed from the queue of the requests that are being sent to IMSI manager.

Field	Description
Query failure response	Total number of query failure response messages received from IMSI manager.
Query request bounced	Total number of query requests that were bounced by the IMSI manager.
Bulk request sent	Total number of bulk requests sent to IMSI manger.
Bulk response received	Total number of bulk response messages received from IMSI manger.
Window Size	The size of message window between link manger and IMSI manager instances.
Pending Attach dropped	Total number of pending attach requests dropped by IMSI manager.
Pending RAU dropped	Total number of pending Routing Area Updates (RAUs) dropped by IMSI manger.
Pending Attach/RAU queue length	The queue length of the pending attach and pending RAU messages that is being sent to IMSI manager.
Link Manager	The link manager can handle following categories of signaling traffic: • SIGTRAN • Broadband • Narrow band • Gb over IP • Frame Relay Link manager parser statistics includes following parameters related to messages that are being broadcast using this link manager instance: • Broadcast sent • Broadcast received • Broadcast successful response received • Broadcast response received • Broadcast failure response received.
Broadcast sent	Total number of broadcast messages sent by link manager instance.
Broadcast received	Total number of broadcast messages received by link manager instance.
Broadcast success response sent	Total number of messages sent by the link manager that indicate successful broadcast response.
Broadcast failure response received	Total number of broadcast failure messages received from the link manager.
Master Manager	Link manager parser statistics includes following parameters that are related to master manager. • Messages sent

Field	Description
Messages sent	Total number of messages sent to Master manager.
ALCAP Manager	Link manager parser statistics includes following parameters that are related to ALCAP manager. • Messages sent
Messages sent	Total number of messages sent to ALCAP manager.
HNB Manager	Link manager parser statistics includes following parameters that are related to Home NodeB (HNB) manager. • Messages sent
Messages sent	Total number of messages sent to HNB manager.
Session Manager	Link manager parser statistics includes following parameters that are related to session manager. • Messages sent
Messages sent per instance	Number of active link manger instances depends upon processing capacity of the PSC cards. These are total number of messages sent per each active instance of the link manager.
NPU Flash Counters	Total number of NPU flash counters associated with this instance of link manager parser.
Messages flushed due to tile limit	Total number of link manager messages flushed due to tile limit.
Messages flushed due to max packets	Total number of link manager messages flushed due to maximum number of packets.
SCCP	The Signaling Connection Control Part (SCCP) is a network layer protocol. It is used by Signaling System 7 (SS7) networks, to provide extended routing, flow control, segmentation, connection orientation and correction facilities. Link manager parser statistics includes SCCP message parameters such as: • Connection request (CR) • Connection confirm (CC) • Release Confirm (RLC) • Data Form 1 (DT1) • Unit Data (UDT) • Extended Unit Data (XUDT)

Field	Description
Connection Request (CR)	In SS7 architecture, for a connection based transaction, a connection is requested using the SCCP Connection Request (CR) message. This message is sent by a calling SCCP to the called SCCP. The CR message parameters indicate various signaling characteristics. This message is used during connection establishment phase by connection oriented protocol class 2 or 3. Link manager parser statistics includes following parameters related with Connection Request (CR) message: • rxCount • Empty message • Called party absent • Un supported SSN • IE missing
rxCount	Total number of rx bytes sent by calling to called SCCP.
Empty Message	Total number of empty messages sent by calling to called SCCP.
Called Party Absent	Total number of messages sent from calling to called SSCP. These messages indicate absence of originating signaling point or SCCP node.
Unsupported SSN	A Sub System Number (SSN) identifies specific user function provided by SCCP node. These are total number of messages containing un-supported SSN, that are being sent from calling to called SCCP.
IE Missing	These are total number of messages with missing Information Elements (IEs). These messages are being sent from calling to called SCCP.
Connection Confirm (CC)	The Connection Confirm (CC) message is sent by called SCCP to calling SCCP to indicate that it has performed the set-up for signaling connections. This message is used during connection establishment phase by connection oriented protocol class 2 or 3. Link manager parser statistics includes following parameters related with Connection Confirm (CC) message: • rxCount • IE missing
rxCount	Total number of rx bytes sent by called to calling SCCP.
IE Missing	These are total number of messages with missing Information Elements (IEs). These messages are being sent from called to calling SCCP.

Field	Description
Release confirm (RLC)	A Release message is sent in backward as well as forward direction, to indicate that the sending SCCP node, wants to release the signaling connection and associated resources. The Release Confirm or Release Complete (RLC) message is sent in response to such Release message, indicating that the Release message has been received and relevant procedures have been performed. Link manager parser statistics includes following parameters related with Release Confirm (RLC) message: • rxCount • DLR Key • IE Missing
rxCount	Total number of Rx bytes sent by SCCP that are associated with RLC message.
DLR Key	The Destination Local Reference (DLR) associated with the RLC message.
IE Missing	These are total number of messages with missing Information Elements (IEs). These messages are being sent from called to calling SCCP.
Data form 1 (DT1)	A Data Form 1 (DT1) message is sent by any of the two communicating SCCP nodes, to transparently pass the SCCP user data amongst them. The DT1 message is used during the data transfer phase in protocol class 2 only. Link manager parser statistics includes following parameters related with Data form 1(DT1) message: • rxCount • DLR key • IE missing
rxCount	Total number of Rx bytes sent by SCCP that are associated with DT1 message.
DLR Key	The Destination Local Reference (DLR) associated with the DT1 message.
IE Missing	Total number of missing information Elements (IEs) associated with DT1 message.

Field	Description
Unit Data (UDT)	A Unit Data (UDT) message is used by an SCCP node to indicate that it wants to transmit data in connection less mode. UDT messages are mostly used for Transaction Capabilities Application Part (TCAP) communication with Intelligent Network (IN) services. This message is used in connection-less protocol classes 0 and 1. Unit data includes following parameters: • rxCount • Management message • Called party absent • Unsupported SSN • IE Missing • Bssap+ SSN Msg
rxCount	Total number of Rx bytes sent by SCCP that are associated with UDT message.
Management Msg	Management messages are generated by SCCP to maintain the network performance by throttling or re-routing the traffic in case of network congestion or media failure. Total number of management messages associated with the UDT message.
Called Party Absent	The called party absent message implies that not enough information is available to uniquely identify destination signaling point or SCCP access point. Total number of called party absent messages associated with UDT message.
Unsupported SSN	A Sub System Number (SSN) identifies specific user function provided by SCCP. These are total number of messages associated with UDT message and contain un-supported SSN.
IE Missing	Total number of missing information Elements (IEs) associated with UDT message.
Bssap+ SSN Msg	Total number of Base Station Subsystem Application Part + (BSSAP+) SSN messages associated with UDT message.
Management Message Type	Management messages are generated by SCCP to maintain the network performance by throttling or re-routing the traffic in case of network congestion or media failure. Link manager parser statistic s includes following categories of management messages: • SSA • SSP • SST • SOR • SOG • SSC

Field	Description
SSA	A Sub System Allowed (SSA) message to indicate that the sub system that was formerly prohibited or the SCCP node that was formerly not accessible is now available. These are total number of SSA messages associated with the link manager parser instance.
SSP	A Sub System Prohibited (SSP) message is sent to concerned destination to inform SSCP Management (SCMG) about sub system failure. The receiving SCCP can update its translation tables to re-route the traffic. These are total number of SSP messages associated with the link manager parser instance.
SST	A Sub System Test (SST) message is sent to verify the status of the sub system that was previously prohibited or the SCCP node that was previously unavailable. These are total number of SST messages associated with the link manager parser instance.
SOR	A Subsystem Out of service Request (SOR) is used by the sub systems to remain out of service without degrading the network performance. SOR is used to transmit the out of service request of the subsystem between SCCPs at the sub system and duplicate subsystem nodes. These are total number of SOR messages associated with the link manager parser instance.
SOG	A Subsystem Out of service Grant (SOG) message is sent to the requesting SCCP, in response to an SOR message. The SOG message is sent if both the requested SCCP and backup of the affected sub system agree to owner the request. These are total number of SOG messages associated with the link manager parser instance.
SSC	
Extended Unit Data (XUDT)	The SCCP segments an application layer message in into multiple or eXtended UDT messages, when it is not possible to send the application layer message in UDT format. Link manager parser statistics includes following parameters related with eXtended Unit Data (XUDT): • rxCount • Management message • Called party absent • Unsupported SSN • LRN and OPC key • IE missing
rxCount	Total number of Rx bytes sent by SCCP that are associated with XUDT message.
Management Msg	Management messages are generated by SCCP to maintain the network performance by throttling or re-routing the traffic in case of network congestion or media failure. Total number of management messages associated with the XUDT message.

Field	Description
Called Party Absent	The called party absent message implies that not enough information is available to uniquely identify destination signaling point or SCCP access point. Total number of called party absent messages associated with unit data message.
Unsupported SSN	A Sub System Number (SSN) identifies specific user function provided by SCCP. These are total number of messages associated with XUDT message and contain un-supported SSN.
LRN & OPC Key	Total number of Local Reference Number (LRN) and Originating Point Code (OPC) keys associated with XUDT message.
IE Missing	Total number of missing information Elements (IEs) associated with XUDT message.
RANAP	Radio Access Network Application Part (RANAP) is a network layer protocol used for UMTS signaling between the core network such as MSC or SGSN and UTRN. It resides in control plane. Link manager parser statistics includes RNAP parameters such as: • rxCount • Initial UE message • Reset • Overload control message • Unsupported connection oriented message • Unsupported connection less message • Pegging message • Relocation request message.
rxCount	Total number of rxCount messages transmitted between core Network (CN) and Universal Terrestrial Radio Access Network (UTRAN).
Initial UE Message	Total number of initial User Equipment messages transmitted between CN and UTRAN.
Reset	Total number of reset messages transmitted between CN and UTRAN.
Overload Control Message	Total number of overload control messages transmitted between CN and UTRAN.
Unsupported Connection Oriented Message	Total number of un supported connection oriented messages transmitted between CN and UTRAN.
Unsupported Connection-less Message	Total number of un supported connection less messages transmitted between CN and UTRAN.
Paging Message	Total number of paging messages transmitted between CN and UTRAN.
Relocation Request Message	Total number of paging messages transmitted between CN and UTRAN.
RAN information management message	Total number of RAN information management messages transmitted between CN and UTRAN.

Field	Description
GMM	Mobility Management (MM) is a means by which a mobile network such as GPRS can keep track of mobile subscriber's location while they are connected to the network. Gprs Mobility Management (GMM) provides mobility management functionality such as GPRS attach, GPRS detach, security, routing area update and location update. The link manager parser statistics includes GMM parameters such as: • rxCount • Attach Req • Detach Req • RAU Req • Service Req • Unexpected Msg • IMSI Key • P-TMSI Key
rxCount	Total number of bytes received count associated with the link manager parser instance.
Attach Req	Total numbers of MS attach requests associated with the link manager parser instance.
Detach Req	Total number of MS detaches requests associated with the link manager parser instance.
RAU Req	Total number of Routing Area Update (RAU) requests associated with the link manager parser instance.
Service Req	Total number of point to point or point to multi-point service requests associated with the link manager parser instance.
Unexpected Msg	Total number of un-expected messages associated with the link manager parser instance.
IMSI Key	International Mobile Subscriber Identity (IMSI) is unique identification of a registered subscriber. Mobile Country Code (MCC) Mobile Network Code (MNC) and Mobile Subscriber Identification Number (MSIN) are the IMSI components. Total number of IMSI key associated with this instance of link manager parser.
TMSI Key	Temporary International Mobile Subscriber Identity (TMSI) is the identity that is exchanged between MS and network. It is assigned by the VLR when a mobile in its area is switched on.
Add P-TMSI Key	Packet Temporary Mobile Subscriber Identity (P-TMSI) is assigned by the SGSN to UE to avoid transmission of TMSI over the air. Total number of additional P-TMSI keys associated with this instance of link manager parser.

Field	Description
TCAP	Transaction Capacity Application Part (TCAP) is a protocol that allows the deployment of Intelligent Network (IN) services. This is done by exchanging non-circuit related information between the signaling points using SCCP connection-less service. The TCAP is used for dialog between to sub system components. Link manager parser statistics includes following parameters related with TCAP: • rxCount • Unit tag • Begin tag • End tag • Abort tag • Continue tag • HLR reset • Empty begin • Unexpected tag • IMSI key • DTID key • Decode failure • Free dlg count • Forward count • Forward count error
rxCount	Total number of Rx bytes transmitted by the signaling point that is associated with a TCAP message.
Unit Tag	Unit tag is included in all messages associated with a transaction. Total number of messages with Unit tag that are associated with this instance of link manager.
Begin Tag	Begin tag is included in all messages associated with a transaction. A TCAP user can respond with End or Continue message. The begin tag initiates the dialog. Total number of messages with Begin tag those are associated with this instance of link manager parser.
End Tag	The End tag ends an existing transaction, transaction Id is released when end message is received. The End tag indicates last primitive of an existing dialog. Total number of messages with End tag those are associated with this instance of link manager parser.

Field	Description
Abort Tag	The Abort tag indicates that an abnormal condition has occurred ending the transaction and releasing all transaction ids. Total number of messages with Abort tag those are associated with this instance of link manager parser.
Continue Tag	Continue tag indicates that a TCAP transaction is established and further information exchange is required. A transaction id is allocated and used in all message related to this transaction. Total number of messages with Continue tag those are associated with this instance of link manager parser.
HLR Reset	Total number of messages with the radio system re-start indication, that are associated with this instance of link manager parser.
Empty Begin	Begin tag is included in all messages associated with a transaction. A TCAP user can respond with End or Continue message. Total number of messages with an empty begins tag that are associated with this instance of link manager parser.
Unexpected Tag	Total number of messages exchanged between signaling points that are associated with a tag other than begin and end. Total number of messages with an empty begins tag that are associated with this instance of link manager parser.
IMSI Key	International Mobile Subscriber Identity (IMSI) is unique identification of a registered subscriber. Mobile Country Code (MCC) Mobile Network Code (MNC) and Mobile Subscriber Identification Number (MSIN) are the IMSI components. Total number of messages exchanged between the signaling points and associated with IMSI key.
T-IMSI key	Temporary Mobile Subscriber Identity (TMSI) is the identity that is most commonly sent between the MS and network. Total number of messages exchanged between the signaling points and associated with Temporary IMSI key.
Add P-TMSI Key	The Packet Temporary Mobile Subscriber IDentity (P-TMSI) is a temporary identity issued to the GPRS enabled mobile and is unique within a Routing Area (RA). Total number of messages with additional p-TMSI key.
DTID Key	Total number of messages associated with TCAP transaction Destination Identifier (DTID).
Decode Failure	Total number of messages transmitted between the signaling points that were not decoded.
Free Dlg Count	Total number of messages indicating number of free dialog sessions between the subsystem components of TCAP.

Field	Description
FWD Count	Total number of messages indicating forwarded dialogues between the subsystem components of TCAP.
RCD Count	Total number of messages indicating the received dialogs between the subsystem components of TCAP.
FWD Count Error	Total number of messages indicating the errors in the forwarded dialogs between the subsystem components of TCAP.
Bssap+	Base Station System Application Part Plus (Bssap+) protocol. It defines usage of mobile resources when the MS is using GSM Packet Switched (PS) as well as Circuit Switched (CS) services. Link manager parser statistics includes following BSSAP+ parameters: • rxCount • Paging request • Down link Tunnel Request • Updated Location Accept • Updated Location Reject • Alert Request • Gprs Detach Indication • Imsi Detach Indication • MS Information Request • Reset Indication • Reset Acknowledgement • MM Information Request • Unknown Message • UnExpected Message • Decode Failure
rxCount	Total number of rxCount messages transmitted between SGSN and MS.
Paging request	Total number of paging requests transmitted between SGSN and MS.
Down link Tunnel Request	Total number of down link tunnel requests transmitted between SGSN and MS.
Updated Location Accept	Total number of updated location messages accepted by SGSN.
Updated Location Reject	Total number of updated location requests rejected by SGSN.
Alert Request	Total number of alert requests transmitted between SGSN and MS.

Field	Description
Gprs Detach Indication	Total number of Gprs detach indication messages transmitted between SGSN and MS.
Imsi Detach Indication	Total number of IMSI detach indication messages transmitted between MS and SGSN.
MS Information Request	Total number of Mobile Station information request messages transmitted between MS and SGSN.
Reset Indication	Total number of reset indication messages transmitted between MS and SGSN.
Reset Acknowledgement	Total number of reset acknowledgment messages transmitted between MS and SGSN.
MM Info Req	Total number of Mobility Management (MM) information request messages transmitted between MS and SGSN.
Unknown Message	Total number of unknown category of messages transmitted between MS and SGSN.
UnExpected Message	Total number of un expected message i.e. messages not related to mobility management procedures and protocol, transmitted between MS and SGSN.
Decode Failure	Total number of decode failure messages transmitted between MS and SGSN.
GPRS-NS	The Network Service (NS) transports the NS Service Delivery Units (SDUs) between SGSN and BSS. It also provides network condition as well as status indications. Link manager parser statistics includes following categories of statistics related to GPRS-NS messages: • GPRS-NS message forwarding statistics • GPRS-NS message receiving statistics
GPRS-NS Message Forwarding Stats	GPRS-NS message forwarding statistics includes: • Number of messages forwarded to master link manager. • Number of messages forwarded to session manager.
Number of messages forwarded to master link Manager	Total number of GPRS-NS messages forwarded to master link manager by this link manager parser instance.
Number of messages forwarded to sessmgr	Total number of GPRS-NS messages forwarded to session manager by this link manager parser instance.
Number of messages forwarded to imsimgr	Total number of GPRS-NS messages forwarded to IMSI manager by this link manager parser instance.
Number of messages forwarded to stack	Total number of GPRS-NS messages forwarded to messaging event stack by this link manager parser instance.

Field	Description
GPRS-NS Message Rx Count Stats	GPRS- NS messages reception count statistics includes following messages: • NS Unit Data • NS Alive • NS Alive Acknowledgement
NS Unit Data	Total number of data units transmitted between SGSN and BSS.
NS Alive	Total number of Network System (NS) alive layer messages transmitted between SGSN and BSS.
NS Alive Ack	Total number of acknowledgements for NS layer alive message transmitted between BSS and SGSN.
BSSGP	The Base Station Subsystem GPRS Protocol (BSSGP) provides radio related QoS and routing information that is required to transmit data between BSS and SGSN.

Field	Description
BSSGP Statistics	The link manager parser statistics related to BSSGP includes following parameters: • Count • decode failure • Unknown Msg • Unsupported Msg • Bssgp Msg with non llc payload • Bssgp bvc flow control aggregate bounces • Bssgp bvc flow control aggregate before expiry • Bssgp bvc flow control aggregate max count • Bssgp bvc flow control aggregate send count • Bssgp Udata with local Tlli • Bssgp Udata with non-local Tlli • Bssgp ra-cap-updt with Local Tlli • Bssgp ra-cap-updt with non-Local Tlli • Bssgp rad-status with Local Tlli • Bssgp rad-status with non-Local Tlli • Bssgp suspend with Local Tlli • Bssgp suspend with non-Local Tlli • Bssgp resume with Local Tlli • Bssgp resume with non-Local Tlli • Bssgp flc_ms with Local Tlli • Bssgp flc_ms with non-Local Tlli • Bssgp flush-ack with Local Tlli
Count	Total number of BSSGP related messages transmitted between BSS and SGSN and are associated with this instance of link manager.
Decode Failure	Total number of BSSGP related messages transmitted between BSS and SGSN that were not decoded.
Unknown Msg	Total number of unknown BSSGP messages transmitted between BSS and SGSN that are associated with this instance of link manager.
Unsupported Msg	Total number of BSSGP messages transmitted between BSS and SGSN and are associated with this instance of link manager, but not supported by it.

Field	Description
Bssgp Msg with non llc payload	Total number of BSSGP messages with a payload not related to Logical Link Control (LLC), that are transmitted between BSS and SGSN.
Bssgp bvc flow control aggregate bounces	The BSSGP Virtual Connection (BVC) identifies an end to end communication path between BSS and SGSN at the BSSGP layer. A BVC is identified by the BVC Identifier (BVCI). A flow control procedure between BSS and SGSN manages the BSS buffers. In most deployments BSS provisions at least one buffer for each BVC and in some case a buffer for each MS. The flow control procedure avoids down link LLC PDU packet loss. Total number of BSSGP messages related to BSSGP Virtual connection (BVC) flow control, and were bounced during transmission.
Bssgp bvc flow control aggregate before expiry	Total number of BSSGP messages related to BVC flow control that are yet to be expired and are being transmitted between BSS and SGSN.
Bssgp bvc flow control aggregate max count	This is the maximum number of aggregated BVC flow control messages associated with this instance of link manager.
Bssgp bvc flow control aggregate send count	This is the number of aggregated BVC flow control messages sent and were associated with this instance of link manager.
Bssgp Udata with local Tlli	Total number of BSSGP unit data messages with local Temporary Logical Link Identity (TLLI), that were associated with this instance of link manager.
Bssgp Udata with non-local Tlli	Total number of BSSGP unit data messages with non-local Temporary Logical Link Identity (TLLI), that were associated with this instance of link manager.
Bssgp ra-cap-updt with Local Tlli	Total number of Radio Access Capability Update procedure messages with local TLLI, which were associated with this instance of link manager.
Bssgp ra-cap-updt with non-Local Tlli	Total number of Radio Access Capability Update procedure messages with non-local TLLI, which were associated with this instance of link manager.
Bssgp rad-status with Local Tlli	Total number of messages indicating status of radio communication between the BSS and MS with local TLLI, those were associated with this instance of link manager.
Bssgp rad-status with non-Local Tlli	Total number of messages indicating status of radio communication between the BSS and MS with non-local TLLI, those were associated with this instance of link manager.
Bssgp suspend with Local Tlli	Total number of messages sent by MS with local TLLI, to BSS requesting to suspend the GPRS service.
Bssgp suspend with non-Local Tlli	Total number of messages sent by MS with non- local TLLI, to BSS requesting to suspend the GPRS service.
Bssgp resume with Local Tlli	Total number of messages sent by MS with local TLLI, to BSS requesting to resume the GPRS service.
Bssgp resume with non-Local Tlli	Total number of messages sent by MS with non-local TLLI, to BSS requesting to resume the GPRS service.

Field	Description
Bssgp flc_ms with Local Tlli	Total number of messages sent by MS with local TLLI, to BSS that are related to flow control of the GPRS service.
Bssgp flc_ms with non-Local Tlli	Total number of messages sent by MS with non-local TLLI, to BSS that are related to flow control of the GPRS service.
Bssgp flush-ack with Local Tlli	Total number of flush acknowledgement messages sent by MS with local TLLI, to the BSS.
Bssgp flush-ack with non-Local Tlli	Total number of flush acknowledgement messages sent by MS with local non-local TLLI, to the BSS.
Bssgp llc-discarded with Local Tlli	Total number of Logical Link Control (LLC) discarded messages sent by MS with local TLLI to the BSS.
Bssgp llc-discarded with non-Local Tlli	Total number of Logical Link Control (LLC) discarded messages sent by MS with non-local TLLI to the BSS.
Bssgp RAN Information Management (RIM) messages	Total number of BSSGP Radio Access Network (RAN) information management (RIM) messages associated with this instance of link manager.
LLC	The Logical Link Control (LLC) protocol provides a logical link between the MS and SGSN. The LLC provides services to maintain a ciphered data link.
LLC Statistics	The link manager parser statistics includes following LLC related parameters: • Count • Decode Failure • LLC Msg with non gmm payload • LLC Msg with unknown sapi payload
Count	Total number of LLC messages associated with this instance of link manager parser.
Decode Failure	Total number of LLC related messages that the link manager parser failed to decode.
LLC messages with non gmm payload	Total number of LLC messages with the payload not related to Gprs Mobility Management.
LLC messages with unknown sapi payload	A Network layer Service Access Pointer Identifier (NSAPI) is used to identify the PDP context between MS and SGSN. Total number of LLC messages with the payload related to unknown (NSAPI).
SGSN Empty-CR Statistics	SGSN empty Connection Request (CR) statistics includes following parameters: • Empty Cr sent to Imsimgr
Empty-CR sent to Imsimgr	Total number of empty connection requests sent to IMIS manager by this instance of link manager.

Field	Description
Msg from Peer	Messages from peer SCCP node include following parameters: • Release complete received • Released received • Error received • Inactivity received • DT1 received • DT1 decode attempt
Released Complete Received	A Release Complete message is sent by receiving SCCP to indicate that Release message is received and appropriate procedures are being performed. Total number of Release Complete messages received by the receiving SSCP.
Released Received	A Released message is sent, in the forward or backward direction, to indicate that the sending SCCP wants to release a signalling connection. Resources associated with this connection at the sending SCCP have been brought into the disconnect pending condition. Total number of release received messages associated with this instance of link manager parser.
Error Received	Total number SCCP error messages associated with this instance of link manager parser.
Inactivity Received	Total number of inactivity messages associated with this instance of link manager parser.
DT1 Received	A Data Form 1 (DT1) message is sent by any of the two communicating SCCP nodes, to transparently pass the SCCP user data amongst them. Total number of DT1 messages received that are associated with this link manger parser.
DT1 Decode attempt	Total number of attempts performed by the link manager parser to decode the received DT1 messages.
Ranap Decode	The Radio Access Network Application Part (RANAP) is a radio network layer signaling protocol for Iu interface, residing in UTRAN and core network. RANAP decode statistics include following parameters: • Init –UE received • Other received
Init –UE Received	RANAP can be used to separate each UE on protocol level for mobile related signal management. These are total number of initialized UE received messages related to the link manger parser instance.
Other Received	Total number of other RANAP messages such as UTRAN radio access bearers or paging related messages that are associated with this instance of link manager parser.

Field	Description
Gmm Decode	Following GPERS Mobility Management (GMM) statistics can be used to decode the GMM associated with this instance of link manager: • Gmm received
Gmm Rcvd	GPERS Mobility Management (GMM) statistics includes following parameters: • Attach received • RAU received • Detach received • Service request received
Attach Rcvd	Total number of received MS attach requests that are associated with this instance of link manager.
RAU Rcvd	Total number of Routing Area Update (RAU) requests received that are associated with this instance of link manager.
Detach Rcvd	Total number of Routing Area Update (RAU) requests associated with the link manager parser instance.
Service Req Rcvd	Total number of point to point or point to multi-point service request messages associated with the link manager parser instance.
Decoded DT1 msg	Decoded DT1 message statistics included following parameters: • RAU (non-local old) RAI • RAU (local old) RAI • RAU (LOR) different instance • RAU (LOR) same instance • Service/detach request • Service/detach same instance
RAU (Non-Local Old RAI)	A Routing Area (RA) is a subset of location area. It is used by GPRS-attached MS for bursty data communication services. When an MS moves from one RA to another and identifies the difference in the RA code then it performs another update. Each RA is defined by a Routing Area Identifier (RAI). An RAI includes Location Area Identifier (LAI) and Routing Area Code (RAC). These are total number of RAU messages for non-local and old RAI, that are associated with link manager parser instance.
RAU (Local Old RAI)	Total number of RAU messages for local and old RAI that are associated with link manager parser instance.

Field	Description
RAU(LOR) diff Instance	Total number of RAU messages related to Loss of Radio coverage (LOR) that is associated with different link manager parser instance.
RAU (LOR) Same Instance	Total number of RAU messages related to Loss of Radio coverage (LOR) that is associated with same link manager parser instance.
Service/Detach Request	Total number of GRPS service request or service detach request messages associated with the link manager.
Serv/Detach Same Instance	Total number of GRPS service request or service detach request messages associated with the same instance of link manager.
Serv/Detach diff Instance	Total number of GRPS service request or service detach request messages associated with different instances of link manager.
DT1 to be Fwd on Host cc	Total number of DT1 messages that need to be forwarded depending upon their host SCCP Connection Confirm (CC) message.
Msg to Donor session manager	Donor session manager message statistics includes following messages received by the donor: • Frizzed sent
Frizzed Sent	Total number of frizzed messages that were sent to donor session manager.
Msg to Host session manager	Host session manager message statistics include following messages: • CR sent
CR Sent	Total number of Connection Request (CR) messages sent to host session manager that are associates with this link manger instance.
Msg from Donor session manager	Donor session manager message statistics includes following messages transmitted by the donor session manager: • CC received • CREF received • Released received • Release complete received • Inactivity received • Error received • DT1 received • Others
CC Rcvd	Total number of messages sent from the donor session managers that indicate reception of SCCP Connection Confirm (CC) message.

Field	Description
CREF Rcvd	Total number of messages sent from the donor session managers that indicate reception of SCCP Connection Refused (CREF) message.
Released Rcvd	Total number of messages sent from the donor session managers that indicate reception of SCCP Released message.
Rel Complete Rcvd	Total number of messages sent from the donor session managers that indicate reception of SCCP Release Complete (RLC) message.
Inactivity Rcvd	Total number of messages sent from the donor session managers that indicate reception of SCCP Inactivity messages.
Error Rcvd	Total number of messages sent from the donor session managers that indicate reception of SCCP Protocol Data Unit (PDU) error messages.
DT1 Rcvd	A Data Form 1 (DT1) message is sent by the communicating SCCP nodes to transparently pass the SCCP user data. Total number of messages sent from the donor session managers that indicate reception of SCCP DT1 message.
Others	Total number of messages sent from the donor session managers that indicate reception of any other category of message.
Msg from Host Smgr	Host session manager message statistics includes following messages transmitted by the host session manager: • CC received • CREF received • Released received • Release complete received • Inactivity received • Error received • DT1 received • Others
CC Rcvd	Total number of messages sent from the host session managers that indicate reception of SCCP Connection Confirm (CC) message.
CREF Rcvd	Total number of messages sent from the host session managers that indicate reception of SCCP Connection Refused (CREF) message.
Released Rcvd	Total number of messages sent from the host session managers that indicate reception of SCCP Released message.
Release Complete (RCL) Rcvd	Total number of messages sent from the host session managers that indicate reception of SCCP Release Complete (RLC) message.

Field	Description
Inactivity Rcvd	Total number of messages sent from the host session managers that indicate reception of SCCP Inactivity messages.
Error Rcvd	Total number of messages sent from the host session managers that indicate reception of SCCP Protocol Data Unit (PDU) error messages.
DT1 Rcvd	A Data Form 1 (DT1) message is sent by the communicating SCCP nodes to transparently pass the SCCP user data. Total number of messages sent from the host session managers that indicate reception of SCCP DT1 message.
Others	Total number of messages sent from the host session managers that indicate reception of any other category of message.
Misc. Statistics	Miscellaneous statistics include following messages: • CR excess length (> 24) • Memory allocation failed Cb • Cb list interest failed • Duplicate connection • DLR modify buffer removal failed • DLR modify buffer addition failed
CR Excess Len (>24)	Total number of messages where connection request length is more than twenty four characters.
Memory allocation fail Cb	Total number of messages indicating memory allocation failure for call barring or blocking.
Cb List insert fail	Total number of messages indicating failure to insert the call barring or call blocking list while transferring data from the SCCP.
Duplicate connection	Total number of messages indicating duplicate connection.
DLR modify Buffer Rem Fail	Total number of messages indicating the failure to remove the Destination Local Reference (DLR) modify buffer while data is being transferred by the SSCP.
DLR modify Buff Add Fail	Total number of messages indicating the failure to add the DLR buffer while data is being transferred by the SCCP.
Link Manager UDatInd Fail	Total number of messages indicating failure of link manager Udata.

Field	Description
Link Manager Empty-cr Cb release reason	ink manager empty- cr Cb release reason statistics includes following parameters: • Attach request • RAU(non-local old RAI) • RAU (LOR) same instance • Service detach same instance • Release complete from peer • Release complete local • Local purge • CREF from donor manager
Attach Request	Total number of attach request messages with empty Connection Requests (CR) and empty Call barring (Cb) release reason.
RAU (Non local Old RAI)	Total number of messages with Routing Area Updates (RAU) from non-local Routing Area Indicators (RAIs).
RAU (LOR)Same Instance	Total number of messages with Routing Area Updates (RAUs) due to Loss of Radio Coverage (LOR) from the same instance of the link manager.
Service/Detach Same Instance	Total number of GPRS service attach or GPRS service detach messages, from same instance of the link manager.
Release Complete (RCL) from Peer	Total number of release complete messages from peer link manager instance.
Release Complete (RCL) Local	Total number of release complete messages from local link manager instance.
Local Purge	Total number of local purge messages.
CREF from Donor session manager	Total number of Connection Refused (CREF) messages sent by the donor session manager.
CREF from Host session manager	Total number of Connection Refused (CREF) messages sent by the host session manager.
Guard timer Exp	Total number of messages with expired guard timer.
Recovery	Total number of recovery messages that are associated with this instance of link manager parser.
Others	Total number of messages of any other category, that are associated with this instance of link manger parser.

show linkmgr