



show hnbgw



Important In Release 20 and later, HNBGW is not supported. For more information, contact your Cisco account representative.

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show hnbgw access-control-db

Table 1: show hnbgw access-control-db Command Output Descriptions

| Field | Description |
|---------------------------------------|---|
| Total Number of IMSIs | The total number of IMSIs available in White List of Access Control database on HNB-GW service instance. |
| Number of Registered IMSIs | The total number of IMSIs from Access Control database are registered on HNB-GW service instance. |
| Number of IMSIs undergoing Relocation | The total number of IMSIs from Access Control database are under the process of relocation on HNB-GW service instance. Important From StarOS 14.0 onward, this counter is deprecated. |

| Field | Description |
|------------------------------------|---|
| Number of IMSIs marked for Purging | The total number of IMSIs from Access Control database are marked for purging from database on HNB-GW service instance. |

show hnbgw access-control-db imsi

Table 2: show hnbgw access-control-db imsi Command Output Descriptions

| Field | Description |
|--------------------------------|--|
| IMSI | Indicates the IMSI for which statistics queried in White List of Access Control database on HNB-GW service instance. |
| Owner Location Area Code (LAC) | Indicates the Location Area Code (LAC) of the owner of specific IMSI registered in Access Control database on HNB-GW service instance. |
| Undergoing Relocation | Indicates whether queried IMSI is going through relocation procedure or not. |
| HNBS having IMSI in whitelist | Indicates the total number of HNBS where specific IMSI is in White List in Access Control database on HNB-GW service instance. |
| Core Network Id | Indicates the core Network ID of specific IMSI. |
| IMSI Purge Timer | This group indicates status of IMSI purge timer for Access Control database. |
| State | Indicates the status of Access Control database purge process. |
| Start Time | Indicates the configured time for start of purge process on Access Control database for specific IMSI. |
| End Time | Indicates the configured time for completion of purge process on Access Control database for specific IMSI. |

show hnbgw counters



Note Show command output described in table below is not supported in StarOS Release 14.0 and onward.

Table 3: show hnbgw counters Command Output Descriptions

| Field | Description |
|---|---|
| Number of registered HNBs | The total number of HNB devices (Open and Closed) registered with this HNB-GW service. |
| Number of registered Open HNBs | The total number of Open HNB devices registered with this HNB-GW service. |
| Number of registered Closed HNBs | The total number of Closed HNB devices registered with this HNB-GW service. |
| Number of registered UEs | The total number of User Equipment devices registered with this HNB-GW service through open and closed HNBs. |
| Number of UEs registered from Open HNBs | The total number of User Equipment devices registered with this HNB-GW service through open HNBs. |
| Number of UEs registered from Closed HNBs | The total number of User Equipment devices registered with this HNB-GW service through closed HNBs. |
| Number of UEs with IuPS connection | The total number of User Equipment devices that have established a connection with the Packet Switched network. |
| Number of UEs with IuCS connection | The total number of User Equipment devices that have established a connection with the Circuit Switched network. |
| Number of UEs with IuPS and IuCS connection | The total number of User Equipment devices that have established connections to both the Packet Switched and Circuit Switched networks. |
| Number of Idle UEs | The total number of User Equipment devices that have no active connections to either the Packet Switched or Circuit Switched networks. |

show hnbgw counters



Note Show command output described in table below is supported in StarOS Release 14.0 and onward only.

Table 4: show hnbgw counters Command Output Descriptions 1

| Field | Description |
|-----------------|--|
| Registered HNBs | This group displays the total number of Closed, Hybrid, and Open HNBs registered with HNB-GW services. |
| Closed HNBs | The total number of Closed HNB devices registered with this HNB-GW service. |

| Field | Description |
|--------------------------|--|
| Hybrid HNBs | The total number of Hybrid HNB devices registered with this HNB-GW service. |
| Open HNBs | The total number of Open HNB devices registered with this HNB-GW service. |
| Registered UEs | This group displays the total number of User Equipment devices registered with this HNB-GW service through Closed, Hybrids, and Open HNBs. |
| Closed HNB UEs | The total number of User Equipment devices registered with this HNB-GW service through Closed HNBs. |
| Hybrid HNB UEs | The total number of User Equipment devices registered with this HNB-GW service through Hybrid HNBs. |
| Open HNB UEs | The total number of User Equipment devices registered with this HNB-GW service through Open HNBs. |
| UEs with IuPS connection | This group displays the total number of User Equipment devices that have established a connection with the Packet Switched network through Closed, Hybrid, and Open HNBs. |
| Closed HNB UEs | The total number of User Equipment devices that have established a connection with the Packet Switched network through Closed HNBs. |
| Hybrid HNB UEs | The total number of User Equipment devices that have established a connection with the Packet Switched network through Hybrid HNBs. |
| Open HNB UEs | The total number of User Equipment devices that have established a connection with the Packet Switched network through Open HNBs. |
| UEs with IuCS connection | This group displays the total number of User Equipment devices that have established a connection with the Circuit Switched network through Closed, Hybrid, and Open HNBs. |
| Closed HNB UEs | The total number of User Equipment devices that have established a connection with the Circuit Switched network through Closed HNBs. |
| Hybrid HNB UEs | The total number of User Equipment devices that have established a connection with the Circuit Switched network through Hybrid HNBs. |
| Open HNB UEs | The total number of User Equipment devices that have established a connection with the Circuit Switched network through Open HNBs. |

| Field | Description |
|-----------------------------------|---|
| UEs with IuPS and IuCS connection | This group displays the total number of User Equipment devices that have established connections to both the CN; i.e. PS and CS through Closed, Hybrid, and Open HNBs. |
| Closed HNB UEs | The total number of User Equipment devices that have established connections to both the CN; i.e. PS and CS through Closed HNBs. |
| Hybrid HNB UEs | The total number of User Equipment devices that have established connections to both the CN; i.e. PS and CS through Hybrid HNBs. |
| Open HNB UEs | The total number of User Equipment devices that have established connections to both the CN; i.e. PS and CS through Open HNBs. |
| Idle UEs | This group displays the total number of User Equipment devices that have no active connections to either of the Packet Switched or Circuit Switched networks and registered through Closed, Hybrid, and Open HNBs.. |
| Closed HNB UEs | The total number of User Equipment devices that have no active connections to either of the Packet Switched or Circuit Switched networks and registered through Closed HNBs. |
| Hybrid HNB UEs | The total number of User Equipment devices that have no active connections to either of the Packet Switched or Circuit Switched networks and registered through Hybrid HNBs. |
| Open HNB UEs | The total number of User Equipment devices that have no active connections to either of the Packet Switched or Circuit Switched networks and registered through Open HNBs. |
| PS Rab connections | This group displays the total number of RAB connections established with PS network through Closed, Hybrid, and Open HNBs. |
| Closed HNB PS Rabs | The total number of RABs connections established in PS CN through through Closed HNBs. |
| Hybrid HNB PS Rabs | The total number of RABs connections established in PS CN through through Hybrid HNBs. |
| Open HNB PS Rabs | The total number of RABs connections established in PS CN through through Open HNBs. |
| CS Rab connections | This group displays the total number of RAB connections established with CS network through Closed, Hybrid, and Open HNBs. |
| Closed HNB PS Rabs | The total number of RABs connections established in CS CN through through Closed HNBs. |
| Hybrid HNB PS Rabs | The total number of RABs connections established in CS CN through through Hybrid HNBs. |

| Field | Description |
|------------------|--|
| Open HNB PS Rabs | The total number of RABs connections established in CS CN through through Open HNBs. |

show hnbgw counters hnbgw-service

Table 5: show hnbgw counters hnbgw-service Command Output Descriptions

| Field | Description |
|---|---|
| HNBGW Service | The name that identifies this HNB-GW service. |
| Number of registered HNBs | The total number of HNB devices (Open and Closed) registered with this HNB-GW service. |
| Number of registered Open HNBs | The total number of Open HNB devices registered with this HNB-GW service. |
| Number of registered Closed HNBs | The total number of Closed HNB devices registered with this HNB-GW service. |
| Number of registered UEs | The total number of User Equipment devices registered with this HNB-GW service through open and closed HNBs. |
| Number of UEs registered from Open HNBs | The total number of User Equipment devices registered with this HNB-GW service through open HNBs. |
| Number of UEs registered from Closed HNBs | The total number of User Equipment devices registered with this HNB-GW service through closed HNBs. |
| Number of UEs with IuPS connection | The total number of User Equipment devices that have a Packet Switched network connection to a SGSN via this HNB-GW service. |
| Number of UEs with IuCS connection | The total number of User Equipment devices that have established a Circuit Switched network connection to a MSC via this HNB-GW service. |
| Number of UEs with IuPS and IuCS connection | The total number of User Equipment devices that have established Packet Switched (SGSN) and Circuit Switched (MSC) network connections via this HNB-GW service. |
| Number of Idle UEs | The total number of User Equipment devices that do not have an active connection to a Packet Switched (SGSN) or Circuit Switched (MSC) network. |

show hnbgw counters hnbid

Table 6: show hnbgw counters hnbid Command Output Descriptions

| Field | Description |
|---|--|
| HNB Id | The HNB device ID sent to the HNB-GW during registration. |
| Number of registered UEs | The number of User Equipment devices that have registered with this HNB. |
| Number of UEs with IuPS connection | The number of User Equipment devices that have established a connection to a SGSN via the Packet Switched network. |
| Number of UEs with IuCS connection | The number of User Equipment devices that have established a connection to a MSC via the Circuit Switched network. |
| Number of UEs with IuPS and IuCS connection | The number of User Equipment devices that have established connections to an MSC via the Circuit Switched interface and an SGSN via the Packet Switched network. |
| Number of Idle UEs | The number of User Equipment devices that do not have an active connection to Packet Switched (SGSN) or Circuit Switched (MSC) networks. |

show hnbgw disconnect-reasons

Table 7: show hnbgw disconnect-reasons Command Output Descriptions

| Field | Description |
|--|--|
| HNB | This group displays the detailed disconnect reasons at the HNB-GW for particular HNB. |
| HNB Re-Registered over same SCTP Association | Total number of HNBs disconnected on HNB-GW as HNB tried to re-registration over same SCTP association between HNB and HNB-GW. |
| Duplicate HNB Registration | Total number of HNBs disconnected on HNB-GW as duplicate registration was tried for same HNB. |
| Admin Disconnect | Total number of HNBs disconnected on a HNB-GW due to administrative decision like removal of service, subscriber or result of clearing subscriber session through Exec mode. |
| Miscellaneous | Total number of HNBs disconnected on a HNB-GW due to miscellaneous or unknown reasons, the reason not mentioned in this table. |
| HNB Terminated SCTP Association | Total number of HNBs disconnected on a HNB-GW as HNB terminated the SCTP association with HNB-GW. |

| Field | Description |
|------------------------------------|---|
| SCTP Idle Timeout | Total number of HNBs disconnected on a HNB-GW as HNB was idle for long time and timer for SCTP idle duration triggered the termination after timeout duration expired. |
| Access Accept Message had issue | Total number of HNBs disconnected on a HNB-GW due to some error in Access Accept message format or missing value or parameters. |
| Access Reject | Total number of HNBs disconnected on a HNB-GW as HNB access was rejected by HNB-GW. |
| Unauthorised Location | Total number of HNB registration requests rejected on an HNB-GW due to mismatch of Macro LAC configured on the HNB-GW. |
| Open Access Mode disabled | Total number of HNBs disconnected on a HNB-GW as AAA server has sent the Access Accept message with access mode for particular HNB as 2 but Open Access Mode is disabled on HNB-GW. |
| Hybrid Access Mode disabled | Total number of HNBs disconnected on a HNB-GW as HNB requesting registration is of Hybrid mode but Hybrid Access Mode is disabled on HNB-GW. |
| Configuration Issue | Total number of HNBs disconnected on a HNB-GW due to some error or misconfiguration found in configuration on HNB or on HNB-GW for particular HNB. |
| Deregister from HNB | Total number of HNBs disconnected on a HNB-GW as HNB sent de-registration request to HNB-GW. |
| Deregister Radius DM | Total number of HNBs disconnected on a HNB-GW as AAA server sent the Disconnect message to deregister the HNB with HNB-GW. |
| Cleared due to SCTP timeouts | Total number of HNBs disconnected on a HNB-GW as timer for SCTP idle duration triggered the clearing of session after timeout duration expired. |
| Access mode mismatch | Total number of HNBs disconnected on a HNB-GW as there is mismatch in value sent by AAA server in Access-Accept message for access mode and configuration allowed on HNB-GW. |
| UE | This group displays the detailed disconnect reasons at the HNB-GW for particular UE. |
| Duplicate UE Registration | Total number of UEs disconnected on HNB-GW as duplicate registration was tried for same UE. |
| UE Relocated to another HNB | Total number of UEs disconnected on a HNB-GW as same UE relocated to another HNB. |
| UE Register Reject - Miscellaneous | Total number of UEs registration rejected on a HNB-GW due to miscellaneous or unknown reasons, the reason not mentioned in this table. |

| Field | Description |
|---|--|
| UE Deregister from HNB | Total number of UEs disconnected on a HNB-GW as UE deregisters it self from associated HNB. |
| RUA Connect after COA | Total number of UEs disconnected on a HNB-GW as RANAP User Adaptation connected after Change of Authorization from AAA server. |
| HNB Removed | Total number of UEs disconnected on a HNB-GW as particular associated HNB is removed from HNB-GW. |
| UE Idle time out | Total number of UEs disconnected on a HNB-GW as UE was idle for long time and timer for idle duration triggered the termination after timeout duration expired. |
| Auth Failure - UE Register Rejected | Total number of UEs disconnected on a HNB-GW as AAA server has sent the Authentication Failure and UE registration is rejected. |
| UE Reg reject - Max UEs per Open HNB Limit | Total number of UEs disconnected on a HNB-GW as number of UEs connected through an Open HNB exceeds the limit of maximum UEs allowed for particular Open HNB on HNB-GW in Open Access mode. |
| UE Reg rej - Max non-access-ctrl UEs per Hybrid HNB | Total number of UEs disconnected on a HNB-GW as number of non-access type UEs connected through a Hybrid HNB exceeds the limit of maximum UEs allowed for particular Hybrid HNB on HNB-GW in Hybrid Access mode. |
| Miscellaneous | Total number of UEs disconnected on a HNB-GW due to miscellaneous or unknown reasons, the reason not mentioned in this table. |
| Stale UE Session cleared on Relocation arrival | Total number of stale UEs sessions cleared on a HNB-GW due to relocation arrival with particular HNB. |
| IuCS | This group displays the detailed disconnect reasons at the HNB-GW for particular IuCS connection. |
| UE Deregistered | Total number of IuCS association disconnected on HNB-GW as de-registration procedure was initiated for UE. |
| Miscellaneous | Total number of IuCS association disconnected on a HNB-GW and CN due to miscellaneous or unknown reasons, the reason not mentioned in this table. |
| Relocation Failure from HNB | Total number of IuCS association disconnected due to relocation failure message received from HNB. |
| Connect over Connect | Total number of IuCS association disconnected on a HNB-GW as same connection tried over the same association. |
| RUA Disconnect | Total number of IuCS association disconnected on a HNB-GW due to RANAP User Adaptation disconnected. |
| SCCP Released | Total number of IuCS association disconnected on a HNB-GW as SCCP association is release between HNB-GW and associated CN. |

| Field | Description |
|-----------------------------|--|
| HNB Reset | Total number of IuCS association disconnected on a HNB-GW due to trigger of RESET procedure from HNB. |
| Admin Disconnect | Total number of IuCS disconnected on a HNB-GW due to administrative decision like removal of service, subscriber or result of clearing subscriber session through Exec mode. |
| Iar Expiry | Total number of IuCS disconnected on a HNB-GW due to expiry of Iar timer. |
| Common-ID IMSI check failed | Total number of IuCS disconnected on a HNB-GW due to failure in IMSI and common id check of UE. |
| MSC Reset/Unreachable | Total number of IuCS association disconnected on a HNB-GW due to trigger of RESET procedure from MSC or MSC is not reachable in CN. |
| IuPS | This group displays the detailed disconnect reasons at the HNB-GW for particular IuPS connection. |
| UE Deregistered | Total number of IuPS association disconnected on HNB-GW as de-registration procedure was initiated for UE. |
| Miscellaneous | Total number of IuPS association disconnected on a HNB-GW and CN due to miscellaneous or unknown reasons, the reason not mentioned in this table. |
| Relocation Failure from HNB | Total number of IuPS association disconnected due to relocation failure message received from HNB. |
| Connect over Connect | Total number of IuPS association disconnected on a HNB-GW as same connection tried over the same association. |
| RUA Disconnect | Total number of IuPS association disconnected on a HNB-GW due to RANAP User Adaptation disconnected. |
| SCCP Released | Total number of IuPS association disconnected on a HNB-GW as SCCP association is release between HNB-GW and associated CN. |
| HNB Reset | Total number of IuPS association disconnected on a HNB-GW due to trigger of RESET procedure from HNB. |
| Admin Disconnect | Total number of IuPS disconnected on a HNB-GW due to administrative decision like removal of service or any entity, subscriber or result of clearing subscriber session through Exec mode. |
| Iar Expiry | Total number of IuPS disconnected on a HNB-GW due to expiry of Iar timer. |
| Common-ID IMSI check failed | Total number of IuPS disconnected on a HNB-GW due to failure in IMSI and common id check of UE. |

| Field | Description |
|---|---|
| SGSN Reset/Unreachable | Total number of IuPS association disconnected on a HNB-GW due to trigger of RESET procedure from SGSN or SGSN is not reachable in CN. |
| GTPU Path Failure towards HNB | Total number of IuPS association disconnected on a HNB-GW due to failure of GTP-U path towards HNB. |
| CS-RAB | This group displays the detailed disconnect reasons at the HNB-GW for particular RAB in CS domain. |
| Issue in RAB Asst Req Message | Total number of RABs disconnected on HNB-GW due to issue in RAB AssignmentRequest message from MSC to HNB-GW. |
| Issue in Reloc Req Message | Total number of RABs disconnected on HNB-GW due to issue in RAB RelocationRequest message. |
| Config Issue | Total number of RABs disconnected on a HNB-GW due to some error or misconfiguration found in configuration in CS domain or on HNB-GW for particular CN. |
| AAL2 Channel Establish failure | Total number of RABs disconnected on a HNB-GW due to failure in AAL2 channel establishment between MSC and HNB-GW in particular CS domain. |
| Issue in RAB Assgt Resp Message | Total number of RABs disconnected on a HNB-GW due to issues in RAB Assignment Response message from HNB-GW to MSC in particular CS domain. |
| HNB Failed RAB in RAB Assgt Resp Message | Total number of RABs disconnected on a HNB-GW as RAB establishment failed between HNB and HNB-GW and response received in RAB Assignment Response message from HNB-GW to MSC in particular CS domain. |
| HNB Failed RAB in Reloc Request Ack Message | Total number of RABs disconnected on a HNB-GW as RAB Relocation failed between HNB and HNB-GW and response received in RAB Relocation Request Ack message from HNB-GW to MSC in particular CS domain. |
| Issue in Reloc Req Ack Message | Total number of RABs disconnected on a HNB-GW due to issues in RAB Relocation Request Ack message from HNB-GW to MSC in particular CS domain. |
| CN Initiated RAB Release | Total number of RABs disconnected on a HNB-GW as CN node (MSC) initiated the RAB release procedure in particular CS domain. |
| RAB Assignment Timer Expiry | Total number of RABs disconnected on a HNB-GW due to expiry of RAB Assignment timer duration. |
| RAB Release Timer Expiry | Total number of RABs disconnected on a HNB-GW due to expiry of RAB Release Timer duration. |
| AAL2 Connection Released | Total number of RABs disconnected on a HNB-GW due to release of AAL2 connections. |

| Field | Description |
|---|--|
| IU went down | Total number of RABs disconnected on a HNB-GW due failure of IuCS interface. |
| Admin Disconnect | Total number of RABs disconnected on a HNB-GW due to administrative decision like removal of service or any entity, subscriber or result of clearing subscriber session through Exec mode. |
| Dropped - RAB Assgt Req Decoding failed | Total number of RABs disconnected on a HNB-GW due to failure in decoding of RAB Assignment Request message from HNB-GW to MSC in particular CS domain. |
| Miscellaneous | Total number of RABs disconnected on a HNB-GW and CN due to miscellaneous or unknown reasons, the reason not mentioned in this table. |
| PS-RAB | This group displays the detailed disconnect reasons at the HNB-GW for particular RAB in PS domain. |
| Issue in RAB Asst Req Message | Total number of RABs disconnected on HNB-GW due to issue in RAB AssignmentRequest message from SGSN to HNB-GW. |
| Issue in Reloc Req Message | Total number of RABs disconnected on HNB-GW due to issue in RAB RelocationRequest message. |
| Config Issue | Total number of RABs disconnected on a HNB-GW due to some error or misconfiguration found in configuration in PS domain or on HNB-GW for particular CN. |
| Issue in RAB Assgt Resp Message | Total number of RABs disconnected on a HNB-GW due to issues in RAB Assignment Response message from HNB-GW to SGSN in particular PS domain. |
| HNB Failed the RAB in RAB Assgt Resp Message | Total number of RABs disconnected on a HNB-GW as RAB establishment failed between HNB and HNB-GW and response received in RAB Assignment Response message from HNB-GW to SGSN in particular PS domain. |
| HNB Failed the RAB in Reloc Request Ack Message | Total number of RABs disconnected on a HNB-GW as RAB Relocation failed between HNB and HNB-GW and response received in RAB Relocation Request Ack message from HNB-GW to SGSN in particular PS domain. |
| Issue in Reloc Req Ack Message | Total number of RABs disconnected on a HNB-GW due to issues in RAB Relocation Request Ack message from HNB-GW to SGSN in particular PS domain. |
| CN Initiated RAB Release | Total number of RABs disconnected on a HNB-GW as CN node (SGSN) initiated the RAB release procedure in particular PS domain. |
| RAB Assignment Timer Expiry | Total number of RABs disconnected on a HNB-GW due to expiry of RAB Assignment timer duration. |

| Field | Description |
|---|--|
| IU went down | Total number of RABs disconnected on a HNB-GW due failure of IuPS interface. |
| Admin Disconnect | Total number of RABs disconnected on a HNB-GW due to administrative decision like removal of service or any entity, subscriber or result of clearing subscriber session through Exec mode. |
| Dropped - RAB Assgt Req Decoding failed | Total number of RABs disconnected on a HNB-GW due to failure in decoding of RAB Assignment Request message from HNB-GW to SGSN in particular PS domain. |
| Miscellaneous | Total number of RABs disconnected on a HNB-GW and CN due to miscellaneous or unknown reasons, the reason not mentioned in this table. |
| GTPU CN Error Indication | Total number of RABs disconnected on a HNB-GW and CN due to CN Error Indication in GTP-U message. |
| GTPU CN Path Failure | Total number of RABs disconnected on a HNB-GW and CN due to CN Path Failure in GTP-U message. |
| GTPU HNB Error Indication | Total number of RABs disconnected on a HNB-GW and CN due to HNB Error Indication GTP-U message. |
| GTPU HNB Path Failure | Total number of RABs disconnected on a HNB-GW and CN due to HNB Path Failure in GTP-U message. |

show hnbgw-global

Table 8: show hnbgw-global Command Output Descriptions

| Field | Description |
|---------------------------------|--|
| NNSF TIMER for Paging in IuFlex | Indicates the duration set in seconds for NAS Node Selection Function (NNSF) timer (T-NNSF) which is used by the HNB-GW to store the IMSI and the relevant <i>CN Global-ID</i> in the short term after Paging. This timer is used for IuFlex feature support. Default timer value is 30 seconds. |
| IMSI Purge Timeout | Indicates the timeout duration set in minutes for to store the IMSI and the relevant information after which IMSI information will be purged from HNB-GW db. This timer is used for IuFlex feature support. Default timeout value is 1440 minutes. |
| SCTP ALPHA-RTO | The retransmission timeout attempt set for initial phase for SCTP heartbeat retransmission between HNB and HNB-GW. Default value is 5 attempts. |

| Field | Description |
|-----------------------------------|---|
| SCTP BETA-RTO | The retransmission timeout attempt set for second phase for SCTP heartbeat retransmission between HNB and HNB-GW. Default value is 10 attempts. |
| SCTP MAX-RETX-INIT | Indicates the maximum number of SCTP INIT messages retransmitted for SCTP communication between HNB and HNB-GW. |
| SCTP MAX-RETX-PATH | Indicates the maximum number of SCTP PATH messages retransmitted for SCTP communication between HNB and HNB-GW. |
| SCTP MAX-RETX-ASSOC | Indicates the maximum number of SCTP ASSOC messages retransmitted for SCTP communication between HNB and HNB-GW. |
| SCTP MAX-IN-STRMS | Indicates the maximum number of incoming SCTP streams allowed on HNB-GW for SCTP communication between HNB and HNB-GW |
| SCTP MAX-OUT-STRMS | Indicates the maximum number of outgoing SCTP streams allowed from HNB-GW for SCTP communication between HNB and HNB-GW Important From StarOS 14.0 onward, this counter is moved to show hnbgw-global command outputs. |
| Paging Optimization Policy | Displays configuration of the Paging Optimization policy for Open Access support on an HNB-GW service instance. |
| Page Open HNBs | Indicates the status of paging optimization configuration for open HNBs, with and without paging-area, in an HNB-GW service instance. Possible configuration is: <ul style="list-style-type: none"> • Always • Never |
| Page Open HNB Where UE Registered | Indicates the status of paging optimization configuration for open HNBs, with and without paging-area, and UEs registered in an HNB-GW service instance. Possible settings are: <ul style="list-style-type: none"> • Disabled • Enabled |

show hnbgw-service

Table 9: show hnbgw-service all Command Output Descriptions

| Field | Description |
|----------------------|--|
| Service name | The name used to identify the HNB-GW service to the system. |
| Context name | The name of the system context in which the HNB-GW service is defined. |
| SCTP IP Address | The IP address used to transmit SCTP messages from HNBs to the HNB-GW. |
| SCTP Port | The HNB-GW uses this port to listen for SCTP messages from HNBs. |
| GTP-U Service | The defined GTP-U service name(s) associated with the HNB-GW service in a Packet Switched network instance. The GTP-U service(s) are used for GTP-U tunneling towards the HNB-GW access network. |
| CBS Service | The defined CBS service name(s) associated with the HNB-GW service. Cell broadcasting services are used for simultaneous delivery of messages to multiple users in a specified area, primarily for emergencies and alerting services. |
| RTP MUX | Indicates if RTP multiplexing is enabled or disabled. If enabled, multiple subscriber voice packets can be multiplexed and sent as one RTP packet towards the HNB-GW. This is explicitly negotiated between the HNB and the HNB-GW during HNB Registration. |
| RTP MUX Port | This is the RTP multiplexing port number used for used in the binding-id in the RAB request sent to the HNB by the HNB-GW during voice call setup. The HNB will send RTP data (packetized voice) to this MUX port number. |
| RTP Pool | This is the IP pool used to allocate IP address to subscriber in the RAB request by the HNB-GW as the transport layer endpoint. The HNB will send RTP data (packetized voice) to IP address allocated from this pool. |
| RTCP report interval | Indicates if the RTCP (Real time Transport Control Protocol) report interval is enabled or not. RTCP enables the receiver to detect if there is any packet loss and to compensate for any delay jitter. RTP and RTCP protocols work independently of the underlying Transport layer and Network layer protocols. |

| Field | Description |
|-------------------------------------|---|
| HNBGW Initiated Ranap Reset | <p>Indicates if the HNB-GW Initiated RANAP Reset function is enabled or disabled.</p> <p>Important From StarOS 14.0 onward, this counter is moved to show cs-network and show ps-network command outputs.</p> |
| Ranap Reset Ack Timer | <p>The timer value, in seconds, that defines how long the HNB-GW waits for a RESET ACK message from the SGSN or MSC after transmitting a RESET message. This setting is used only if the HNB-GW Initiated RANAP Reset function is enabled.</p> <p>Important From StarOS 14.0 onward, this counter is moved to show cs-network and show ps-network command outputs.</p> |
| Ranap Reset Maximum Retransmissions | <p>Sets the maximum number of retries allowed for the HNB-GW to transmit a RANAP RESET message to the SGSN or MSC if the RESET ACK timer expires. This setting is used only if the HNB-GW Initiated RANAP Reset function is enabled.</p> <p>Important From StarOS 14.0 onward, this counter is moved to show cs-network and show ps-network command outputs.</p> |
| Ranap Reset Guard Timer | <p>The timer that the HNB-GW starts after receiving a RESET message from the core network. While this timer is running, the HNB-GW discards any new RESET messages that it receives.</p> <p>Important From StarOS 14.0 onward, this counter is moved to show cs-network and show ps-network command outputs.</p> |
| SCTP HEARTBEAT Timeout | <p>The timeout duration set in milliseconds for SCTP heartbeat transmission between HNB and HNB-GW. Default value is 3000 milliseconds. After this duration retransmission will start.</p> |
| SCTP RTO-MIN Timeout | <p>The minimum retransmission timeout duration set in milliseconds for SCTP heartbeat retransmission between HNB and HNB-GW. Default value is 1000 milliseconds.</p> |
| SCTP RTO-MAX Timeout | <p>The maximum retransmission timeout duration set in milliseconds for SCTP heartbeat retransmission between HNB and HNB-GW. Default value is 10000 milliseconds.</p> |
| SCTP RTO-INITIAL Timeout | <p>The initial retransmission timeout duration set in milliseconds for SCTP heartbeat retransmission between HNB and HNB-GW. Default value is 10000 milliseconds.</p> |

| Field | Description |
|---------------------|--|
| SCTP ALPHA-RTO | The retransmission timeout attempt set for initial phase for SCTP heartbeat retransmission between HNB and HNB-GW. Default value is 5 attempts. Important From StarOS 14.0 onward, this counter is moved to show hnbgw-global command outputs. |
| SCTP BETA-RTO | The retransmission timeout attempt set for second phase for SCTP heartbeat retransmission between HNB and HNB-GW. Default value is 10 attempts. Important From StarOS 14.0 onward, this counter is moved to show hnbgw-global command outputs. |
| SCTP CHECKSUM-TYPE | Indicates the checksum type set for SCTP communication between HNB and HNB-GW. Default checksum type is CRC32 . |
| SCTP COOKIE-LIFE | Indicates the life duration set for SCTP Cookies for SCTP communication between HNB and HNB-GW. Default value is 60000 msec. |
| SCTP MAX-RETX-INIT | Indicates the maximum number of SCTP INIT messages retransmitted for SCTP communication between HNB and HNB-GW. Important From StarOS 14.0 onward, this counter is moved to show hnbgw-global command outputs. |
| SCTP MAX-RETX-PATH | Indicates the maximum number of SCTP PATH messages retransmitted for SCTP communication between HNB and HNB-GW. Important From StarOS 14.0 onward, this counter is moved to show hnbgw-global command outputs. |
| SCTP MAX-RETX-ASSOC | Indicates the maximum number of SCTP ASSOC messages retransmitted for SCTP communication between HNB and HNB-GW. Important From StarOS 14.0 onward, this counter is moved to show hnbgw-global command outputs. |
| SCTP MTU-SIZE-MIN | Indicates the minimum transmission unit size set for MTU for SCTP communication between HNB and HNB-GW. Default value is 508 bytes. |
| SCTP MTU-SIZE-MAX | Indicates the minimum transmission unit size set for MTU for SCTP communication between HNB and HNB-GW. Default value is 1500 bytes. |

| Field | Description |
|---------------------------------|---|
| SCTP MTU-SIZE-INITIAL | Indicates the initial transmission unit size set for MTU for SCTP communication between HNB and HNB-GW. Default value is 508 bytes. |
| SCTP SACK-FREQUENCY | Indicates the frequency of set for Selective Acknowledgement (SACK) messages for SCTP communication between HNB and HNB-GW |
| SCTP SACK-PERIOD | Indicates the Selective Acknowledgement (SACK) period between two SACK messages set for SCTP communication between HNB and HNB-GW |
| SCTP MAX-IN-STRMS | Indicates the maximum number of incoming SCTP streams allowed on HNB-GW for SCTP communication between HNB and HNB-GW Important From StarOS 14.0 onward, this counter is moved to show hnbgw-global command outputs. |
| SCTP MAX-OUT-STRMS | Indicates the maximum number of outgoing SCTP streams allowed from HNB-GW for SCTP communication between HNB and HNB-GW Important From StarOS 14.0 onward, this counter is moved to show hnbgw-global command outputs. |
| SCTP Connection Timeout | Indicates the timeout duration set for SCTP communication between HNB and HNB-GW after which reconnection procedure will start. Default value is 10 secs. |
| UE Registration Timeout | Indicates the timeout duration set for UE registration between UE and HNB-GW after which re-registration procedure will start. Default value is 120 secs. |
| NNSF TIMER for Paging in IuFlex | Indicates the duration set in seconds for NAS Node Selection Function (NNSF) timer (T-NNSF) which is used by the HNB-GW to store the IMSI and the relevant <i>CN Global-ID</i> in the short term after Paging. This timer is used for IuFlex feature support. Default timer value is 30 seconds. Important From StarOS 14.0 onward, this counter is moved to show hnbgw-global command outputs. |
| IMSI Purge Timeout | Indicates the timeout duration set in minutes for to store the IMSI and the relevant information after which IMSI information will be purged from HNB-GW db. This timer is used for IuFlex feature support. Default timeout value is 1440 minutes. Important From StarOS 14.0 onward, this counter is moved to show hnbgw-global command outputs. |

| Field | Description |
|-----------------------------------|---|
| Incoming handover for CS domain | Indicates the status of incoming handover permission/restriction set in HNB-GW service instance for incoming handover of an MS via SRNS Relocation procedure for CS core network domain. Possible values are: <ul style="list-style-type: none"> • Disabled • Enabled |
| Incoming handover for PS domain | Indicates the status of incoming handover permission/restriction set in HNB-GW service instance for incoming handover of an MS via SRNS Relocation procedure for PS core network domain. Possible values are: <ul style="list-style-type: none"> • Disabled • Enabled |
| HNB Access-Mode mismatch handling | Access mode received in HNB Reg request and access mode received in access accept can be different. If there is mismatch based on this flag, HNB is rejected or accepted with access mode received from AAA. ♦ |
| HNB-id Leading Character Discard | |
| Open HNB Support | Indicates the status of Open Access support on an HNB-GW service instance. Possible values are: <ul style="list-style-type: none"> • Disabled • Enabled |
| Maximum UEs Allowed Per Open HNB | Indicates the total number of UEs allowed to register through an open HNB when Open Access support is enabled on an HNB-GW service instance. Possible range is between 1 through 32 where default value is 16. |
| Paging Optimization Policy | Displays configuration of the Paging Optimization policy for Open Access support on an HNB-GW service instance. <p>Important From StarOS 14.0 onward, this counter is moved to show hnbgw-global command outputs.</p> |
| Page Open HNBs | Indicates the status of paging optimization configuration for open HNBs, with and without paging-area, in an HNB-GW service instance. Possible configuration is: <ul style="list-style-type: none"> • Always • Never <p>Important From StarOS 14.0 onward, this counter is moved to show hnbgw-global command outputs.</p> |

| Field | Description |
|--|---|
| Page Open HNB Where UE Registered | <p>Indicates the status of paging optimization configuration for open HNBs, with and without paging-area, and UEs registered in an HNB-GW service instance. Possible settings are:</p> <ul style="list-style-type: none"> • Disabled • Enabled <p>Important From StarOS 14.0 onward, this counter is moved to show hnbgw-global command outputs.</p> |
| Hybrid HNB support | <p>Indicates the status of Hybrid Access support on an HNB-GW service instance. Possible values are:</p> <ul style="list-style-type: none"> • Disabled • Enabled |
| Maximum non-access-controlled UEs allowed per Hybrid HNB | <p>Indicates the total number of non access controlled UEs allowed to register through a hybrid HNB on an HNB-GW service instance. Maximum allowed number is 1000.</p> |
| Available Radio Network PLMN | <p>The Public Land Mobile Network ID configured for this HNB-GW service. It consists of the MCC and MNC (see below).</p> |
| MCC | <p>The Mobile Country Code defined for use with this HNB-GW service. It consists of the first 3 digits of the Available Radio Network PLMN ID.</p> |
| MNC | <p>The Mobile Network Code defined for use with this HNB-GW service. It consists of the last 3 digits of the Available Radio Network PLMN ID.</p> |
| RNC-Id | <p>The Radio Network Controller ID provided to HNBs for use by the core network for this HNB-GW service. It is configured under the PLMN-ID.</p> |
| Macro Coverage IE Absent Action | <p>The action, accept or reject, to be taken if macro coverage information IE is absent in HNB location information.</p> |
| Authorised Macro LAI | <p>The information pertaining to following parameters for macro LAC authorization:</p> <ul style="list-style-type: none"> • MCC • MNC • LAC Range |
| Lac | <p>The defined Location Area Identifier provided to HNBs during registration with this HNB-GW service. The LAC signifies which location area this HNB-GW service belongs to, and is configured under the PLMN-ID.</p> <p>Important From StarOS 14.0 onward, this counter is deprecated.</p> |

| Field | Description |
|--|---|
| Rac | The Routing Area Identifier provided to HNBs during registration with this HNB-GW service. The RAC signifies the routing area that this HNB-GW service belongs to and is configured under the PLMN-ID Important From StarOS 14.0 onward, this counter is deprecated. |
| PS Network Name | The PS-network to be used for selecting the packet-switched core-network (i.e., SGSN) and its point-code. Important From StarOS 14.0 onward, this counter is deprecated. |
| CS Network Name | The CS-network to be used for selecting circuit-switched core-network (i.e., MSC) and its point-code. Important From StarOS 14.0 onward, this counter is deprecated. |
| Service Status | The current operating status of this HNB-GW service. If the status does not read 'enabled' HNB-GW functionality is not available. |
| Security GW service Address | The IP address of the HNB-Security Gateway associated with this HNB-GW service. Security Gateway configurations are used when the IPsec GW is co-located with the HNB-GW service on the chassis. If the services are co-located, the SeGW IP address will be used as the IPsec tunnel endpoint by HNBs. |
| Security Gateway Context | Specifies the context name in which Security Gateway service is configured. |
| Crypto-template | Specifies the Crypto-Map template being used by the HNB-GW service for secure IPsec IKEv2 tunneling for the configured Iuh (HNB to HNB-GW) interface. The Crypto-Map template is used only if the HNB-GW and SeGW are co-located on the chassis. |
| Service in IPsec | Specifies whether specific HNB-GW service is started in secure IPsec IKEv2 tunneling for the configured Iuh (HNB to HNB-GW) interface. |
| Newcall Policy | Indicates the policy for action on new calls coming on this HNB-GW service instance. Possible actions are: <ul style="list-style-type: none"> • Accept • Reject |
| Paging | |
| CS Domain: Handle unknown IMSI | Indicates that the configuration for "Handle unknown IMSI" has been provided or not in the Paging Manager in CS domain. |
| CS Domain: Page last known HNB timeout | Indicates the timeout configured for paging the last know HNB in the CS doamin. Default timeout value for CS domain is 3 seconds. |

| Field | Description |
|--|---|
| CS Domain: Fanout Paging timeout | Indicates the timeout configured for fanout paging in CS doamin. Default timeout value for CS doamin is 5 seconds. |
| PS Domain: Handle unknown IMSI | Indicates that the configuration for "Handle unknown IMSI" has been provided or not in the Paging Manager in PS domain. |
| PS Domain: Page last known HNB timeout | Indicates the timeout configured for paging the last know HNB in the PS doamin. Default timeout value for CS domain is 6 seconds |
| PS Domain: Fanout Paging timeout | Indicates the timeout configured for fanout paging in CS doamin. Default timeout value for CS doamin is 10 seconds. |
| IP QoS DSCP marking | This group indicates the DSCP marking used for egress traffic for various protocols used on IuH and Iu interface in a HNB-GW service instance. |
| Traffic egress on Iuh | Indicates the DSCP marking used for egress traffic for various protocols used on IuH interface in a HNB-GW service instance. |
| Traffic egress on Iu | Indicates the DSCP marking used for egress traffic towards CN for various protocols used on Iu-CS/Iu-PS interface in a HNB-GW service instance. |

show hnbgw sessions all

Table 10: show hnbgw sessions all Command Output Descriptions

| Field | Description |
|---|---|
| vvvv | <p>Displays service and session state information. This column displays a code consisting of six characters.</p> <p>From left-to-right, the first character represents the Access Technology that the subscriber is using. The possible access technologies are:</p> <ul style="list-style-type: none"> • F: FEMTO UTRAN • .: Other/Unknown <p>From left-to-right, the second character represents the Session Type. The possible HNB Session types are:</p> <ul style="list-style-type: none"> • H: HNB • U: UE <p>From left-to-right, the third character represents the HNB State. The possible HNB states are:</p> <ul style="list-style-type: none"> • R: Registered • D: Deregistered • I: Idle • d: Disconnecting • u: Unknown <p>From left-to-right, the fourth character represents the session Network Type. The possible network types are:</p> <ul style="list-style-type: none"> • I: IP • S: IPSEC • u: Unknown |
| HNBBID | The HNB identification (HNBBID) number used for this session. |
| USERNAME | The subscriber's user name. |
| IP | The IP address assigned to the subscriber. |
| TIME-IDLE | The amount of time that the subscriber session has been idle either in an active or dormant state. |
| Total subscribers matching specified criteria | The total number of subscribers using HNB sessions. |

show hnbgw sessions full

Table 11: show hnbgw sessions full Command Output Descriptions

| Field | Description |
|------------------|---|
| | This is the first row which indicates the name of the HNB(s) registered for this HNB-GW session. |
| Card/Cpu | Indicates the card and CPU ID used for this session. |
| Sessmgr Instance | The session manager instances for this HNB-GW session used. |
| Access Tech | Indicates the accessing technology. Possible access technologies are: <ul style="list-style-type: none"> • F: FEMTO UTRAN • .: Other/Unknown |
| Network Type | Indicates the network service used for the subscriber session. The possible network types are: <ul style="list-style-type: none"> • I: IP • S: IPSEC • u: Unknown |
| Status | Indicates the session status. Possible HNB status are: <ul style="list-style-type: none"> • Online/Active • Offline/Inactive |
| Access Type | Indicates the session type for this subscriber. The possible access types are: <ul style="list-style-type: none"> • hnbgw • Unknown |
| HNB Id | The HNB identification (HNBID) number used for this session in Femto UTRAN network. |
| state | Indicates the state of the HNBs. Possible HNB states are: <ul style="list-style-type: none"> • Registered • Deregistered |
| Service Name | Indicates the name of the HNB-GW service which is used by this session instance to display the information. |

| Field | Description |
|-------------------|---|
| HNB Local Id | The HNB identification (HNBID) number used locally for this session on HNB-GW. |
| HNB IP address | Indicates the primary IP address of the HNB in the session. In HNB-GW session this is the primary IP address of Femto CPE. |
| idle time | The time period that the subscriber session has been idle, either in an active or dormant state. |
| source context | The name of a configured source context from which the subscriber initiates a session. |
| callid | Indicates the identity number of call used by this instance of HNB-GW service. |
| PLMN-ID | The Public Land Mobile Network ID configured for this HNB-GW service. It consists of the MCC and MNC. |
| LAC | The defined Location Area Identifier provided to HNBs during registration with this HNB-GW service. The LAC signifies which location area this HNB-GW service belongs to, and is configured under the PLMN-ID. |
| RAC | The Routing Area Identifier provided to HNBs during registration with this HNB-GW service. The RAC signifies the routing area that this HNB-GW service belongs to and is configured under the PLMN-ID |
| RNC-ID | Indicates the Radio Network Controller ID provided to HNBs for use by the core network for this HNB-GW service. It is configured under the PLMN-ID |
| Cell ID | The cell identifier provided to HNBs during registration with this HNB-GW service. The cell id signifies the geographical location of HNB-GW session user belongs to. |
| Service Area Code | This identify a SA (Service Area) within a LA (Location Area) used during this HNB-GW session. |
| Access Mode | <p>Indicates the access mode used by HNBs for this HNB-GW session.</p> <p>Possible access modes are:</p> <ul style="list-style-type: none"> • Closed: Indicates that HNB is connected to HNB-GW using Closed Access mode in this session. • Hybrid: Indicates that HNB is connected to HNB-GW using Hybrid Access mode in this session. • Open: Indicates that HNB is connected to HNB-GW using Open Access mode in this session. <p>This counter is applicable for HNB access mode.</p> |

| Field | Description |
|----------------------|--|
| IMSI White List | This group displays the White List IMSI database on HNB-GW. |
| IMSI # | Indicates the IMSI number entered in White List and have clear access to HNB-GW. |
| Registered IMSI List | This group displays the list of IMSIs registered on HNB-GW. This group is not supported in StarOs 14.0 and onward. |
| IMSI # | Indicates the IMSI number which is currently registered with HNB-GW service session instance. |
| Context Id | Indicates the identity number of the context used by specific IMSI. |
| Registration | Indicates the status of registration of IMSI on HNB-GW. |
| IuPS connection | Indicates the availability of Iu-PS connection for specific registered IMSI on HNB-GW. |
| Sessmgr Instance | Indicates the SessManager instance used by specific IMSI for Iu-PS or Iu-CS connection. |
| callid | Indicates the identity number of call used by specific IMSI for Iu-PS or Iu-CS connection on this instance of SessManager. |
| IuCS connection | Indicates the availability of Iu-CS connection for specific registered IMSI on HNB-GW. |
| IuPS connection | Indicates the availability of Iu-PS connection for specific registered IMSI on HNB-GW. |
| Registered UE List | This group displays the list of IMSIs registered on HNB-GW. This group is supported in StarOs 14.0 and onward. |
| UE # | Indicates the UE identifier which is currently registered with HNB-GW service session instance. |
| IMSI # | Indicates the IMSI number which is currently registered with HNB-GW service session instance. |
| Context Id | Indicates the identity number of the context used by specific IMSI. |
| Registration | Indicates the status of registration of IMSI on HNB-GW. |
| Type | Indicates the type of UE which is registered in this UE list having specific IMSI on HNB-GW. Possible type of UEs are: <ul style="list-style-type: none"> • Access-Controlled • Non-Access Controlled |
| IuCS connection | Indicates the availability of Iu-CS connection for specific registered IMSI on HNB-GW. |

| Field | Description |
|-----------------------|--|
| IuPS connection | Indicates the availability of Iu-PS connection for specific registered IMSI on HNB-GW. |
| Registered UE Summary | This group displays the summary of Registered UE based on access control type on HNB-GW. |
| Access-Controlled | Indicates the total number of Access-Controlled UEs currently registered with HNB-GW service session instance. |
| Non-Access-Controlled | Indicates the total number of Non-Access-Controlled UEs currently registered with HNB-GW service session instance. |

show hnbgw statistics paging-only

Table 12: show hnbgw statistics paging-only Command Output Descriptions

| Field | Description |
|--|--|
| CS Domain Paging | |
| Total paging RX | Number of total paging messages received in CS domain. |
| Paging for unknown IMSI - Received | Number of paging messages received for unknown IMSI. |
| Paging for unknown IMSI - Handled | Number of paging messages handled for unknown IMSI. |
| Paging for unknown IMSI - Dropped | Number of paging messages dropped for unknown IMSI. |
| Paging for unknown IMSI - Success | Number of successful paging messages for unknown IMSI. |
| Paging for unknown IMSI - Failure | Number of failed paging messages for unknown IMSI. |
| Paging for last-registered-hnb - Attempted | Number of paging messages attempted for last registered HNB. |
| Paging for last-registered-hnb - Success | Number of successful paging messages for last registered HNB. |
| Paging for last-registered-hnb - Failure | Number of failed paging messages for last registered HNB. |
| Paging for last-registered-hnb - Skipped | Number of skipped paging messages for last registered HNB. |
| Paging for last-known-LA - Attempted | Number of attempted paging messages for last known location area.. |
| Paging for last-known-LA - Success | Number of successful paging messages for last known location area. |
| Paging for last-known-LA - Failure | Number of failed paging messages for last known location area. |
| Paging for last-known-LA - Dropped | Number of dropped paging messages for last known location area. |
| PS Doamin Paging | |
| Total paging RX | Number of total paging messages received in PS domain. |
| Paging for unknown IMSI - Received | Number of paging messages received for unknown IMSI. |

| Field | Description |
|--|--|
| Paging for unknown IMSI - Handled | Number of paging messages handled for unknown IMSI. |
| Paging for unknown IMSI - Dropped | Number of paging messages dropped for unknown IMSI. |
| Paging for unknown IMSI - Success | Number of successful paging messages for unknown IMSI. |
| Paging for unknown IMSI - Failure | Number of failed paging messages for unknown IMSI. |
| Paging for last-registered-hnb - Attempted | Number of paging messages attempted for last registered HNB. |
| Paging for last-registered-hnb - Success | Number of successful paging messages for last registered HNB. |
| Paging for last-registered-hnb - Failure | Number of failed paging messages for last registered HNB. |
| Paging for last-registered-hnb - Skipped | Number of skipped paging messages for last registered HNB. |
| Paging for last-known-LA - Attempted | Number of attempted paging messages for last known location area.. |
| Paging for last-known-LA - Success | Number of successful paging messages for last known location area. |
| Paging for last-known-LA - Failure | Number of failed paging messages for last known location area. |
| Paging for last-known-LA - Dropped | Number of dropped paging messages for last known location area. |