Session Server Performance Management

What's new in (I)SN08

The following new features are covered in this NTP for the (I)SN08 release:

- Feature A00007270 - This feature provides for Overload Controls on the Session Server SIP Gateway application.
- Feature A00006893 - This feature provides TLS (transport layer security) on the signalling paths (but not the call content) between the Session Server-SIP Gateway application and a similarly configured remote SIP application server or call server. OMs supporting TLS security and security certificate management are covered in this NTP.
- Feature A00007268 - OM enhancement activity is to enhance the existing OM subsystem to support a dynamic number of tuples based on datafill from defined remote SIP links.

Performance management strategy

Like other components in the Carrier VoIP environment, the Session Server records operational measurements (OMs) for various performance-related data items. These OMs are essential information sources for determining preventive and corrective maintenance actions, as well as identifying provisioning problems or capacity limitations. All OMs collected are directly related to the SIP Gateway application running on the Session Server.

OMs are viewed using a Session Server command line interface (CLI), accessed either through a secure shell (SSH) connection or through the Integrated EMS. OMs cannot be viewed directly through the Integrated EMS.

OM data recorded on one unit of a Session Server is completely independent of data recorded on its mate unit. Data is not transferred from one unit to another during synchronization activities.

In addition to OM data, performance measurements contained in a MIB template on the Integrated Element Management System (IEMS) are collected from the Session Server. The table that follows provides a list of the performance measurements collected from the Session Server.

Performance measurements collected from the Session Server

Performance measurement	Type	Description
sysDescr	string	Indicates system information.
snmpInPkts	counter	Indicates the number of SNMP messages received by the SNMP agent on the Session Server.
snmpOutPkts	counter	Indicates the number of SNMP messages sent by the SNMP agent on the Session Server.
snmpInBadVersions	counter	Indicates the total number of SNMP messages received with an error-status field value of `badValue'.
snmpInBadCommunityNames	counter	Indicates the total number of SNMP messages received by the SNMP agent on the Session Server for an unsupported SNMP version.
snmpInBadCommunityUses	counter	Indicates the total number of SNMP messages delivered to the SNMP agent on the Session Server for SNMP operations not allowed by the SNMP community named in the SNMP message.
snmpInASNParseErrs	counter	Indicates the total number of ASN.1 or BER errors encountered by the SNMP agent on the Session Server when decoding received SNMP messages.
snmpInTotalReqVars	counter	Indicates the total number of MIB objects retrieved successfully by the SNMP agent on the Session Server as a result of receiving valid SNMP Get-Request and Get-Next messages.

Performance measurements collected from the Session Server (Continued)

Performance measurement	Type	Description
snmpInTotalSetVars	counter	Indicates the total number of MIB objects that have been altered successfully by the SNMP agent on the Session Server as the result of receiving valid SNMP Set-Request messages.
snmpOutTraps	counter	Indicates the total number of SNMP trap messages generated by the SNMP agent on the Session Server.
snmpSilentDrops	counter	Indicates the total number of GetRequest, GetNextRequest, GetBulkRequest, SetRequest, and InformRequest messages delivered to the SNMP agent on the Session Server which were silently dropped because the size of a reply containing an alternate Response message with an empty variable-bindings field was greater than either a local constraint or the maximum message size associated with the originator of the request.
hrSystemUptime	time ticks	Indicates the amount of time since the Session Server was last initialized.
hrSystemDate	string	Indicates the system time and date.
hrSystemProcesses	unsigned	Indicates the number of process contexts loaded or running on the Session Server.
hrStorageIndex	integer	Identifies a unique storage area on the Session Server. The index starts at 1 and increments for each Filesystem Name entry.
hrStorageType	object identifier	Indicates the type of storage associated with the hrStorageIndex.
hrStorageAllocationUnits	integer	Indicates the block size, in bytes, of the filesystem.

Performance measurements collected from the Session Server (Continued)

Performance measurement	Type	Description
hrStorageSize	integer	Indicates the size of the filesystem represented by the entry, in units of hrStorageAllocationUnits.
hrStorageUsed	integer	Indicates the amount of allocated storage for this entry, in units of hrStorageAllocationUnits.
hrStorageAllocationFailures	counter	Indicates the number of requests for storage on this filesystem that could not be honored due to not enough free storage.

Monitoring SIP-T DPT callp traffic levels

Operational measurements, related to SIP-T DPT call capacity limits and collected on the core, collect information related to current equipment and software load capacities, showing the load process for each SIP-T DPT trunk group.

Service monitoring

Operational measurements can indicate service level degradation for the Session Server when used with alarms indicating that resources are running low. This information helps to determine the corrective action which can include equipment repair.

Operational measurement terminology for Session Server

This section describes operational measurement terms and usage for the Session Server.

Register

A *register* is a peg counter in the Session Server software that stores counts for a variety of events. Each register has a name that contains a maximum of 32 alphanumeric characters. Up to 32 registers are grouped logically into what is called an OM group.

OM Group

An OM group is a logical collection that contains a maximum of 32 related OM registers. Each OM register can only be associated with one OM group, but peg counts for OM groups can be sorted into more than one class. OM groups can belong to more than one class. Some

OM groups' peg counts can be queried based on tuples. There are four OM groups supported on the Session Server:

- SIPGW_CALLP
- SIPGW_SERVICES
- SIPGW_MISC
- SIPGW_TLS

The SIP Gateway application software defines the OM groups and the fields. Different software versions and releases may contain different sets of OM groups. OM groups cannot be defined by the user.

OM classes - active and holding

Two OM classes are used: *Active and Holding*. During the collection interval (the same as the holding period), software processes that run within the SIP Gateway application increase or peg the registers in the Active class for all OM groups. For example, calls attempted or calls answered are recorded during the collection interval in the active registers of the SIPGW_CALLP OM group. Once the collection interval has elapsed, a system process moves the active register's collected data into the holding registers, for all OM groups.

In addition to the active and holding registers, the class variable LASTFIVE is defined for holding only the last five minutes of active register peg counts, for all OM groups. When querying OM groups by class, the craftsperson can query the last five minutes of peg count activity for the selected group using LASTFIVE.

Register precision

Registers in the Active and Holding classes are 32-bit, double precision registers. Currently there are no 16-bit, single precision registers used on Session Server. 16-bit, single precision registers have a peg count capacity of 65,535 counts, while 32-bit, double precision registers have a peg count capacity of 4,294,967,296 counts.

Tuple OM group

OM groups can have multiple collections of register counts for each register class (active, holding, lastfive). These collections are referred to as tuples. Each tuple's peg counts are associated with a logical entity. In the case of OM groups SIPGW_CALLP, SIPGW_SERVICE, and SIPGW_MISC, the logical entity that pegs are made against is the SIPLINK (see core table SIPLINK).

OM tuple key name and key number

A key name and key number are associate with each tuple defined for an OM group. On the Session Server, SIP link names, each representing a specific SIP trunk, are used for the tuple key names. Each SIP link name is also assigned a key number. Link names on the Session Server are associated with the SIP trunk names found in Core table SIPLINK.

Available link names can be determined using procedure Add/Manage Access Link Maps in the Session Server Configuration Management NTP, NN10338-511. In general, link names start with prefix LN. Link numbers can range from 0 to 4,294,967,295.

Viewing OM peg counts by tuple key number and tuple key name is supported for the SIPGW_CALLP, SIPGW_SERVICES, and SIPGW_MISC OM groups, but not for the SIPGW_TLS OM group. Viewing OM peg counts for OM group SIPGW_TLS displays only the individual registers.

OM holding period and displaying OM classes

The system collects OM data during a specified time interval (called a *collection period*) and stores the data in the active registers. After this interval elapses, the system transfers the data to the holding registers. The *transfer or holding periods* (synchronized with the collection period) used on Session Server are 15 or 30 minutes, with 15 minutes being the default. The alignment of the holding period is always to the top of the hour and the OM reporting intervals are multiples of the holding period.

At the end of each transfer/collection period, the counts in Active class registers transfer to Holding class registers. The software processes clear (zero) the Active class registers to reset them, so they can begin counting events in the next collection period. The Active class registers always contain counts for the current holding period. The Holding class registers always contain counts from the previous holding period. Data in both the active and holding registers is available for review using the OMSHOW command.

As an example, if the holding period time is 30 minutes and the current time is 4:50 PM. The active registers represent 4:30-4:50 PM and the holding registers represent 4:00-4:30 PM. Finally at 5:00PM the active registers are copied to the holding registers.

In addition to the above example, the values of OM groups and their registers can be output for the current five minute interval. For example, if the current time is 4:04:39 PM, the register values for the last 4 minutes and 39 seconds can be output using the LASTFIVE option.

Limitations of recording and displaying operational measurements

OM registers pegged for an application such as the SIP Gateway application may not reach the OM subsystem for a full minute. This impacts what is displayed when using the OMSHOW command.

OM group register data pegged on one unit of a Session Server is independent of register data on its mate unit. Register data is not transferred from one unit to another.

Initial configuration of performance and operational measurements

By default, the collection/holding period is set to 15 minutes but can be changed to 30 minutes. There are no other OM parameters that can be modified.

Tools and utilities for accessing and reviewing OMs

The OM viewing utility OMSHOW is accessed from the Session Server CLI (command line interface). Similarly, the comma separated value (CSV) history files can be viewed with the CLI using standard unix cat or vi commands.

Current OM groups and the OM history files are viewed either through the Integrated EMS manager or directly using an SSH (secure shell) connection to the active or standby Session Server units.

For more information about using Integrated EMS to access a Session Server CLI, refer to procedure *Access Session Server/NCGL GUIs or CLI using the Integrated EMS*, found in the Session Server Security and Administration NTP, NN10346-611. For more information about accessing OMs using SSH, refer to procedure *Remote login to Session Server using a secure shell (SSH)*, found in the Session Server Security and Administration NTP, NN10346-611.

Operational measurement information output to CSV files

While the OMSHOW function provides near term information, it does not provide access to performance information older than 30 minutes or 60 minutes, depending on the holding period. In certain circumstances, this historical information may prove to be valuable. Therefore, OM information is also saved from the holding registers to comma separated value (CSV) ASCII files on the Session Server hard drives. Two sets of file groups are created for storing OM information: traffic history files and standard history files.

- Traffic history files contain the last 30 minutes of generated OM information. Each of six traffic files consists of a particular five minute interval within the thirty minute time frame. Traffic history files are located at the following path: /opt/apps/ngsspm/trafhist. Traffic history files are named using the following format: NGSS.TRAF_OMs.QoS.<year>.<month>.<hour>_<minute>.<seconds>_<timezone>.csv
- Standard history files represent the last 24 hours of all OM information generated. If the OM collection holding period is 15 minutes, then a total of 96 files are kept, representing the last 24 hours of generated OM information. However if the collection interval is 30 minutes, then only 48 files are kept. Standard history files are located at the following path: /opt/apps/ngsspm/stdhist. Standard history files are named using the following format: NGSS.STD_OMs.QoS.<year>.<month>.<hour>_<minute>.<seconds>_<timezone>.csv

Sample CSV file contents

```
PMFile=Begin
MeasurementCategoryFileCreationTimeEarliestStartTimeLatestCaptureTime
RegisterTypeDefaultValueTypeDefault
pm       2005.2.22_14.15_EDTunknownunknowncounterinteger
System=Begin
SystemId
SessionServer
Entity=Begin
EntityId
47.142.97.115
SubEntity=Begin
SubEntityId
Unit0
Table=Begin
TableId  MeasurementKindIntervalDurationCaptureTimeRealiability
SIPGW_CALLPPeriodBased15unknownValid
Labels=Begin
TupleKey KeyName
Key      KeyName
Reg1Name Reg2NameReg3NameReg4Name
IC_CALL_ATTEMPTSOG_CALL_ATTEMPTSCALLS_ABANDONEDCALLS_ANSWERED
Reg5Name Reg6NameReg7Name
CALLS_REJECTEDCALLS_REDIRECTEDOVRLD_CALLS_REJECTED
Labels=End
RowOfValues=Begin
TupleKey KeyName
0        SIPLINKNAME1
Reg1ValueReg2ValueReg3ValueReg4ValueReg5ValueReg6ValueReg7Value
0        0       00000
TupleKey KeyName
1        SIPLINKNAME2
Reg1ValueReg2ValueReg3ValueReg4ValueReg5ValueReg6ValueReg7Value
0        0       00000
TupleKey KeyName
2049     SIPLINK_UNKNOWN
Reg1ValueReg2ValueReg3ValueReg4ValueReg5ValueReg6ValueReg7Value
0        0       00000
RowOfValues=End
Table=End
         .
         .
         .
         .
GroupVals=End
SubEntity=End
Entity=End
System=End
PMFile=End
```

Session Server OM groups and register descriptions

This section describes the following Session Server OM groups:

- SIPGW_CALLP on page 21 - records call processing events
- SIPGW_SERVICES on page 27 - records call type events

- SIPGW_MISC on page 33 - records miscellaneous call events
- SIPGW_TLS on page 37 - records TLS callp security events

Session Server callp OMs generated on the core

There are OMs on the Core used for Session Server callp measurements. Core OM group, NGSSOM provides information on the maximum number of simultaneous calls that utilize the Session Server platform, and provides an indication of the number of times the CS2B0008 and CS2B0009 SOC limit settings have been exceeded.

The registers included in OM group NGSSOM are as follows:

- register CS2CSHW - holds the value of the highest number of simultaneous SIPT calls that utilize the Session Server platform to handle a call to or from another CS 2000 (CS2CSHW2 is the overflow register)
- register CS2ASHW - holds the value of the highest number of simultaneous SIPT calls that utilize the Session Server platform to reach a far-end SIP application server (CS2ASHW is the overflow register)
- register CS2CSOV - holds the number of times a SIPT call did one of the following (CS2CSOV2 is the overflow register):
  - — attempted to utilize the Session Server platform to reach a far-end CS 2000 and was not allowed to complete because it would have exceeded the limit set by the usage SOC CS2B0008
  - — was received from a far-end CS 2000 through the Session Server platform and was not allowed to complete because it would have exceeded the limit set by the usage SOC CS2B0008
- register CS2ASOV - holds the number of times a SIPT call did one of the following (CS2ASOV2 is the overflow register):
  - — attempted to utilize the Session Server platform to reach a far-end SIP application server and was not allowed to complete because it would have exceeded the limit set by the usage SOC CS2B0009
  - — was received from a far-end SIP application server through the Session Server platform and was not allowed to complete because it would have exceeded the limit set by the usage SOC CS2B0008

To view callp OMs generated on the core, refer to the CS 2000 Performance Management NTP applicable to your solution.

Monitoring the Session Server resources for optimal performance

Currently there are no procedures or practices for altering the performance of the Session Server or its applications.

Session Server platform resources such as memory, CPU and disk drive file system usage use preset thresholds for generating alarms. You can monitor these parameters using procedures in the Session Server Fault Management NTP, NN10332-911. You can change performance monitoring thresholds for file systems only using the Session Server Configuration Management NTP, NN103387-511.

Generating performance reports

For SN08 you cannot generate performance reports for Session Server.

Procedures for viewing operational measurements

The following table lists the available performance management procedures.

Session Server performance management procedures

Procedure
View Session Server operational measurements by OM group on page 12 To view the status of platform resources such as memory and disk usage, refer to procedure *View the operational status of a Session Server NCGL platform* found in the Session Server Security and Administration NTP, NN10346-611. To change the parameters for file system monitoring, refer to the Session Server Configuration Management NTP, NN10338-511.

View Session Server operational measurements by OM group

Purpose of this procedure

Use this procedure to display operational measurement (OM) information for the following OM groups:

- SIPGW_CALLP
- SIPGW_SERVICES
- SIPGW_MISC
- SIPGW_TLS

Limitations and restrictions

The following restrictions and limitations apply to this procedure:

- This procedure cannot be used to access long-term OM information or information that is older than 24 hours.
- The SIPGW_TLS group does not have dynamic OMs based on variable SIPLINK.
- Starting in SN08, OM group parameter ALL is no longer a supported when using the omshow command.

Prerequisites

OMs cannot be viewed directly by the Integrate EMS. To view OMs through the Integrated EMS for element management activities, refer to procedure *Access Session Server/NCGL GUIs or CLI using the Integrated EMS*, found in the Session Server Security and Administration NTP, NN10346-611, to access a command line interface (CLI).

Refer to procedure *Remote login to Session Server using a secure shell (SSH)*, also found in the Session Server Security and Administration NTP, NN10346-611, to access a command line interface (CLI) using an available client workstation.

Refer to section Session Server OM groups and register descriptions on page 9 for details about using the OMSHOW command to display all or parts of the OM groups and to change settings related to OM registers and OM holding periods.

Action

At a Session Server CLI

1 Log in to the Session Server as *mtc* user.

2 To view registers for a specific OM group, at the prompt type:

$ **omshow <omgroup> <class> <tuple_info>**

and press Enter.

where

omgroup
a required value, is one of the following OM groups

- SIPGW_CALLP
- SIPGW_SERVICES
- SIPGW_MISC
- SIPGW_TLS

class
a required value, is a class of OM group:

- holding (for the holding registers)
- active (for the active registers)
- lastfive (for the last five minutes of active register peg counts)
- zero (zeros out both the active and lastfive registers)

tuple_info
an optional value, is a tuple information parameter:

- tuple key number: enter a tuple key number from 0 to 2050.
- tuple key range: enter a range of tuple values from 0 to 4,294,967,295, separated by a space. For instance, 0 10 will display tuples 0 through 10.
- tuple key name: enter a valid tuple key name. Refer to procedure *Add/Manage Access Link Maps* in the Session Server Configuration Management NTP, NN10338-511, to determine valid SIP link names used for tuple key names.
- tuple key name range: enter a valid range of SIP link names, in the order shown by using the tuple key range. Refer to procedure *Add/Manage Access Link Maps* in the Session Server Configuration

Management NTP, NN10338-511, to determine valid link names.

3 Refer to section Additional information - alternate syntax for OMSHOW command on page 14 to review example of other command details.

4 You have completed this procedure.

Additional information - alternate syntax for OMSHOW command

Use the commands in the following table to view different kinds of OM data view tuple and link peg counts, to zero out registers and to set the holding period value.

> ***Note:*** Viewing OM peg counts by tuple key number and tuple key name is supported for the SIPGW_CALLP, SIPGW_SERVICES, and SIPGW_MISC OM groups, but not for the SIPGW_TLS OM group. Viewing OM peg counts for OM group SIPGW_TLS displays only the individual registers.

OMSHOW command variations

omshow command syntax	Description
omshow omshow help	Displays a list of the required command syntax along with a complete list of available OM groups. Several simple command syntax examples are also shown.
omshow <omgroup> active	Displays the "active" class registers for the SIPGW_TLS OM group only. or Displays the "active" class register peg counts for all tuples in the selected OM group.
omshow <omgroup> holding	Displays the "holding" class registers for a SIPGW_TLS OM group only. or Displays the "holding" class register peg counts for all tuples in the selected OM group.

OMSHOW command variations

omshow command syntax	Description
omshow <omgroup> lastfive	Displays all the OM groups and their register values for the past five minutes for the SIPGW_TLS OM group only. or Displays the last 5 minutes of active register peg counts for all tuples in the selected OM group.
omshow <omgroup> zero	Zeros the active and lastfive registers for a selected OM group.
omshow holdingperiod 30	Sets the holding period to 30 minutes.
omshow holdingperiod 15	Sets the holding period to 15 minutes (default).
omshow <omgroup> lastfive 0	Displays all the register counts from the last five minutes for tuple number 0 in the selected OM group.
omshow <omgroup> active LN2RTPF_IT1	Displays all the active register counts for the tuple key name ln2rtpf_it1, for the selected OM group.
omshow <omgroup> active 0 20	Displays all the active register counts for the range of tuple numbers 0 through 20, for the selected OM group.
omshow <omgroup> active LN_NGSS_TEST LNIT_LOOP1	Displays all the active register counts for the range of tuple key names from LN_NGSS_TEST through LNIT_LOOP1, for the selected OM group. Note: The range order of the tuple key names can be obtained by first using the tuple number option to view a range of tuple numbers and associated tuple names (SIP link names).

OMSHOW query command examples

The following views show examples of using the omshow command and the system responses:

Querying SIPGW_TLS OM group registers (multiple tuples not supported and not based on SIPLINK)

```
[mtc]$ omshow sipgw_tls lastfive
==================================================================
Lastfivemin Register Count
START Tue Feb 15 16:45:00 2005   STOP Tue Feb 15 16:49:12 2005

OMGROUP: SIPGW_TLS
******************************************************************

TUPLE KEY: 0            TUPLE KEY NAME:

Register Name                             Value
--------------------------------       ----------
TLS_CALLS                                        0
TLS_CONNECTION_REQUESTS                          0
TLS_CONNECTION_REQUESTS_PASSED                   0
TLS_CONNECTION_REQUESTS_DROPPED                  0
TLS_CONNECTION_REQUESTS_FAILED                   0
TLS_HANDSHAKE_AUTHENTICATED                      0
TLS_HANDSHAKE_AUTHENTICATION_FAILED              0
TLS_CONNECTION_CLOSE                             0
TLS_CONNECTION_DROPPED                           0
TLS_EXTERNAL_SESSION_CACHE_HIT                   0
TLS_EXTERNAL_SESSION_CACHE_MISS                  0
TLS_EXTERNAL_SESSION_CACHE_EXPIRED               0
TLS_EXTERNAL_SESSION_REMOVED_FULL                0
******************************************************************

[mtc]$
```

Querying OM group tuples based on key name and key number

```
[mtc]$ omshow sipgw_callp active ln2rtpf_it1
==================================================================
Active Register Counts
START Mon Feb 14 22:00:00 2005   STOP Mon Feb 14 22:00:24 2005

OMGROUP: SIPGW_CALLP
******************************************************************

TUPLE KEY: 0     TUPLE KEY NAME: LN2RTPF_IT1

Register Name                              Value
--------------------------------       ----------
IC_CALL_ATTEMPTS                                0
OG_CALL_ATTEMPTS                                0
CALLS_ABANDONED                                 0
CALLS_ANSWERED                                  0
CALLS_REJECTED                                  0
CALLS_REDIRECTED                                0
OVRLD_CALLS_REJECTED                            0
******************************************************************

[mtc]$




[mtc]$ omshow sipgw_callp active 50
==================================================================
Active Register Counts
START Mon Feb 14 21:45:00 2005   STOP Mon Feb 14 21:55:46 2005

TUPLE KEY: 50           TUPLE KEY NAME: LNSS2SSD_IT_2

Register Name                              Value
--------------------------------       ----------
IC_CALL_ATTEMPTS                                0
OG_CALL_ATTEMPTS                                0
CALLS_ABANDONED                                 0
CALLS_ANSWERED                                  0
CALLS_REJECTED                                  0
CALLS_REDIRECTED                                0
OVRLD_CALLS_REJECTED                            0
******************************************************************


[mtc]$
```

Querying OM group tuples based on a range of key numbers

```
[mtc]$ omshow sipgw_callp active 0 2
==================================================================
Active Register Counts
START Tue Feb 15 16:30:00 2005   STOP Tue Feb 15 16:38:37 2005

OMGROUP: SIPGW_CALLP
******************************************************************

TUPLE KEY: 0            TUPLE KEY NAME: LN2RTPF_IT1

Register Name                             Value
--------------------------------       ----------
IC_CALL_ATTEMPTS                                0
OG_CALL_ATTEMPTS                                0
CALLS_ABANDONED                                 0
CALLS_ANSWERED                                  0
CALLS_REJECTED                                  0
CALLS_REDIRECTED                                0
OVRLD_CALLS_REJECTED                            0
******************************************************************

TUPLE KEY: 1            TUPLE KEY NAME: LN2RTPF_IT2

Register Name                             Value
--------------------------------       ----------
IC_CALL_ATTEMPTS                                0
OG_CALL_ATTEMPTS                                0
CALLS_ABANDONED                                 0
CALLS_ANSWERED                                  0
CALLS_REJECTED                                  0
CALLS_REDIRECTED                                0
OVRLD_CALLS_REJECTED                            0
******************************************************************

TUPLE KEY: 2            TUPLE KEY NAME: LN2RTPF_ATC1

Register Name                             Value
--------------------------------       ----------
IC_CALL_ATTEMPTS                                0
OG_CALL_ATTEMPTS                                0
CALLS_ABANDONED                                 0
CALLS_ANSWERED                                  0
CALLS_REJECTED                                  0
CALLS_REDIRECTED                                0
OVRLD_CALLS_REJECTED                            0
******************************************************************

==================================================================

[mtc]$
```

Querying OM group tuples based on a range of key names

```
[mtc]$ omshow sipgw_callp active ln2rtpf_it1 ln2rtpf_atc1
==================================================================
Active Register Counts
START Tue Feb 15 16:30:00 2005   STOP Tue Feb 15 16:42:39 2005

OMGROUP: SIPGW_CALLP
******************************************************************

TUPLE KEY: 0            TUPLE KEY NAME: LN2RTPF_IT1

Register Name                             Value
--------------------------------       ----------
IC_CALL_ATTEMPTS                                0
OG_CALL_ATTEMPTS                                0
CALLS_ABANDONED                                 0
CALLS_ANSWERED                                  0
CALLS_REJECTED                                  0
CALLS_REDIRECTED                                0
OVRLD_CALLS_REJECTED                            0
******************************************************************

TUPLE KEY: 1            TUPLE KEY NAME: LN2RTPF_IT2

Register Name                             Value
--------------------------------       ----------
IC_CALL_ATTEMPTS                                0
OG_CALL_ATTEMPTS                                0
CALLS_ABANDONED                                 0
CALLS_ANSWERED                                  0
CALLS_REJECTED                                  0
CALLS_REDIRECTED                                0
OVRLD_CALLS_REJECTED                            0
******************************************************************

TUPLE KEY: 2            TUPLE KEY NAME: LN2RTPF_ATC1

Register Name                             Value
--------------------------------       ----------
IC_CALL_ATTEMPTS                                0
OG_CALL_ATTEMPTS                                0
CALLS_ABANDONED                                 0
CALLS_ANSWERED                                  0
CALLS_REJECTED                                  0
CALLS_REDIRECTED                                0
OVRLD_CALLS_REJECTED                            0
******************************************************************


[mtc]$
```

SIPGW_CALLP

Description

OM group SIPGW_CALLP provides registers for recording incoming and outgoing call processing events related to the SIP Gateway application on the Session Server.

The following table lists the key and info fields associated with OM group SIPGW_CALLP.

Key field	Info field
None	None

Related functional groups

All registers in OM group SIPGW_CALLP are associated with dynamically allocated tuple, based on assigned tuple key numbers and tuple key names. Tuple key names are related to SIP link names and associated with SIP trunk IDs found in Core table SIPLINK.

A tuple with a key number of 2049 and a key name of SIPLINK_UNKNOWN is always available to collect register peg counts that cannot be associated with a specific SIPLINK.

Registers

The following table lists the registers associated with OM group SIPGW_CALLP and what they measure.

Registers for OM group SIPGW_CALLP

Register name	Measures
IC_CALL_ATTEMPTS	Total number of incoming call attempts
OG_CALL_ATTEMPTS	Total number of outgoing call attempts
CALLS_ABANDONED	Total number of calls abandoned
CALLS_ANSWERED	Total number of calls answered

Registers for OM group SIPGW_CALLP

Register name	Measures
CALLS_REJECTED	Total number of calls rejected
CALLS_REDIRECTED	Total number of calls redirected
IC_CALL_ATTEMPTS	Total number of incoming SIP call attempts
OVRLD_CALLS_REJECTED	Total number of calls rejected due to overload conditions

IC_CALL_ATTEMPTS

Register type

Peg type, double precision, up to 4,294,967,296 counts

Description

This register counts the total number of incoming SIP call attempts.

Associated registers

None

Extension register

None

Associated logs

None

OG_CALL_ATTEMPTS

Register type

Peg type, double precision, up to 4,294,967,296 counts

Description

This register counts the total number of outgoing SIP call attempts.

Associated registers

None

Extension register

None

Associated logs

None

CALLS_ABANDONED

Register type
Peg type, double precision, up to 4,294,967,296 counts

Description
This register counts the total number of SIP calls abandoned.

Associated registers
None

Extension register
None

Associated logs
None

CALLS_ANSWERED

Register type
Peg type, double precision, up to 4,294,967,296 counts

Description
This register counts the total number of SIP calls answered.

Associated registers
None

Extension register
None

Associated logs
None

CALLS_REJECTED

Register type
Peg type, double precision, up to 4,294,967,296 counts

Description
This register counts the total number of SIP calls rejected.

Associated registers
None

Extension register
None

Associated logs
SIPC310

CALLS_REDIRECTED

Register type
Peg type, double precision, up to 4,294,967,296 counts

Description
This register counts the total number of SIP calls redirected.

Associated registers
None

Extension register
None

Associated logs
None

IC_CALL_ATTEMPTS

Register type
Peg type, double precision, up to 4,294,967,296 counts

Description
This register counts the total number of incoming SIP call attempts.

Associated registers
None

Extension register
None

Associated logs
None

OVRLD_CALLS_REJECTED

Register type
Peg type, double precision, up to 4,294,967,296 counts

Description
This register counts the total number of SIP calls rejected due to overload conditions.

Associated registers
None

Extension register
None

Associated logs

None

SIPGW_SERVICES

Description

OM group SIPGW_SERVICES provides registers for recording incoming and outgoing call device subscription and referral events related to the SIP Gateway application on the Session Server.

The following table lists the key and info fields associated with OM group SIPGW_SERVICES.

Key field	Info field
None	None

Related functional groups

All registers in OM group SIPGW_SERVICES are associated with dynamically allocated tuple, based on assigned tuple key numbers and tuple key names. Tuple key names are related to SIP link names and associated with SIP trunk IDs found in Core table SIPLINK.

A tuple with a key number of 2049 and a key name of SIPLINK_UNKNOWN is always available to collect register peg counts that cannot be associated with a specific SIPLINK.

Registers

The following table lists the registers associated with OM group SIPGW_SERVICES and what they measure.

Registers for OM group SIPGW_SERVICES

Register name	Measures
REFER_ATTEMPTS	Total number of refer attempts
REFER_SUCCESS	Total number of successful refers
IC_DTMF_SUBSCRIBES	Total number of incoming DTMF subscribes
OG_DTMF_SUBSCRIBES	Total number of outgoing DTMF subscribes

Registers for OM group SIPGW_SERVICES

Register name	Measures
IC_DTMF_NOTIFYS	Total number of incoming DTMF notifies
OG_DTMF_NOTIFYS	Total number of outgoing DTMF notifies
IC_FAX_SUBSCRIBES	Total number of incoming fax subscribes
OG_FAX_SUBSCRIBES	Total number of outgoing fax subscribes
IC_FAX_NOTIFYS	Total number of incoming fax notifies
OG_FAX_NOTIFYS	Total number of outgoing fax notifies

REFER_ATTEMPTS

Register type

Peg type, double precision, up to 4,294,967,296 counts

Description

This register counts the total number of refer attempts.

Associated registers

None

Extension register

None

Associated logs

None

REFER_SUCCESS

Register type

Peg type, double precision, up to 4,294,967,296 counts

Description

This register counts the total number of successful refers.

Associated registers

None

Extension register
None

Associated logs
None

IC_DTMF_SUBSCRIBES

Register type
Peg type, double precision, up to 4,294,967,296 counts

Description
This register counts the total number of incoming DTMF subscribes.

Associated registers
None

Extension register
None

Associated logs
None

OG_DTMF_SUBSCRIBES

Register type
Peg type, double precision, up to 4,294,967,296 counts

Description
This register counts the total number of outgoing DTMF subscribes.

Associated registers
None

Extension register
None

Associated logs
None

IC_DTMF_NOTIFYS

Register type
Peg type, double precision, up to 4,294,967,296 counts

Description
This register counts the total number of incoming DTMF notifies.

Associated registers

None

Extension register

None

Associated logs

None

OG_DTMF_NOTIFYS

Register type

Peg type, double precision, up to 4,294,967,296 counts

Description

This register counts the total number of outgoing DTMF notifies.

Associated registers

None

Extension register

None

Associated logs

None

IC_FAX_SUBSCRIBES

Register type

Peg type, double precision, up to 4,294,967,296 counts

Description

This register counts the total number of incoming fax subscribes.

Associated registers

None

Extension register

None

Associated logs

None

OG_FAX_SUBSCRIBES

Register type

Peg type, double precision, up to 4,294,967,296 counts

Description

This register counts the total number of outgoing fax subscribes.

Associated registers

None

Extension register

None

Associated logs

None

IC_FAX_NOTIFYS

Register type

Peg type, double precision, up to 4,294,967,296 counts

Description

This register counts the total number of incoming fax notifies.

Associated registers

None

Extension register

None

Associated logs

None

OG_FAX_NOTIFYS

Register type

Peg type, double precision, up to 4,294,967,296 counts

Description

This register counts the total number of outgoing fax notifies.

Associated registers

None

Extension register

None

Associated logs

None

SIPGW_MISC

Description

OM group SIPGW_MISC provides registers for recording miscellaneous call events, including calls using different transport types, SIP messaging failures and SDP (session description protocol) compatibility for the SIP Gateway application on the Session Server.

The following table lists the key and info fields associated with OM group SIPGW_MISC.

Key field	Info field
None	None

Related functional groups

All registers in OM group SIPGW_MISC are associated with dynamically allocated tuple, based on assigned tuple key numbers and tuple key names. Tuple key names are related to SIP link names and associated with SIP trunk IDs found in Core table SIPLINK.

A tuple with a key number of 2049 and a key name of SIPLINK_UNKNOWN is always available to collect register peg counts that cannot be associated with a specific SIPLINK.

Registers

The following table lists the registers associated with OM group SIPGW_MISC and what they measure.

Registers for OM group SIPGW_MISC

Register name	Measures
TCP_CALLS	Total number of TCP Calls
UDP_CALLS	Total number of UDP calls
SIP_MSG_SEND_FAILURES [1]	Total number of SIP Msg Send Failures
INCOMING_SDP_INCOMPATIBLE	Total number of incompatible SDPs received from remote SIP servers
OUTGOING_SDP_INCOMPATIBLE	Total number of incompatible SDPs received from local gateways.

1.Register SIP_MSG_SEND_FAILURES is displayed but is not supported in SN07 and SN08 releases.

TCP_CALLS

Register type

Peg type, double precision, up to 4,294,967,296 counts

Description

This register counts the total number of TCP Calls.

Associated registers

None

Extension register

None

Associated logs

None

UDP_CALLS

Register type

Peg type, double precision, up to 4,294,967,296 counts

Description

This register counts the total number of UDP calls.

Associated registers

None

Extension register

None

Associated logs

None

SIP_MSG_SEND_FAILURES

Register type

Peg type, double precision, up to 4,294,967,296 counts

Description

This register counts the total number of SIP Msg Send Failures. This register is displayed but is not supported in SN07 and SN08 releases.

Associated registers

None

Extension register

None

Associated logs

None

INCOMING_SDP_INCOMPATIBLE

Register type

Peg type, double precision, up to 4,294,967,296 counts

Description

This register counts the total number of incompatible SDPs (session description protocols) received from remote SIP servers.

Associated registers

None

Extension register

None

Associated logs

None

OUTGOING_SDP_INCOMPATIBLE

Register type

Peg type, double precision, up to 4,294,967,296 counts

Description

This register counts the total number of incompatible SDPs received from local gateways.

Associated registers

None

Extension register

None

Associated logs

None

SIPGW_TLS

Description

OM group SIPGW_TLS provides registers for recording TLS (transport layer security) callp security events, including various connection counts and authentication records related to the SIP Gateway application on the Session Server.

The following table lists the key and info fields associated with OM group SIPGW_TLS.

Key field	Info field
None	None

Related functional groups

There are no functional groups associated with OM group SIPGW_TLS.

This OM group is made up of a simple default OM tuple with a key number of 0.

Registers

The following table lists the registers associated with OM group SIPGW_TLS and what they measure.

Registers for OM group SIPGW_TLS

Register name	Measures
TLS_CALLS	Number of calls carried over TLS connections
TLS_CONNECTION_REQUESTS	Number of new TLS connection requests
TLS_CONNECTION_REQUESTS_PASSED	Number of TLS connection requests passed
TLS_CONNECTION_REQUESTS_DROPPED	Number of TLS connection requests dropped (throttled)
TLS_CONNECTION_REQUESTS_FAILED	Number of TLS connection requests failed

Registers for OM group SIPGW_TLS

Register name	Measures
TLS_HANDSHAKE_AUTHENTICATED	Number of certificates authenticated
TLS_HANDSHAKE_AUTHENTICATION_FAILED	Number of certificates that have failed authentication
TLS_CONNECTION_CLOSE	Number of TLS connections closed
TLS_CONNECTION_DROPPED	Number of TLS connections dropped
TLS_EXTERNAL_SESSION_CACHE_HIT	Number of external session cache hits during TLS connection setup.
TLS_EXTERNAL_SESSION_CACHE_MISS	Number of external session cache misses during TLS connection setup.
TLS_EXTERNAL_SESSION_CACHE_EXPIRED	Number of external session cache entries expired during TLS connection setup.
TLS_EXTERNAL_SESSION_REMOVED_FULL	Number of external session cache remove requests due to cache being full.

TLS_CALLS

Register type
Peg type, double precision, up to 4,294,967,296 counts

Description
This register counts the total number of calls carried over TLS-enabled connections.

Associated registers
None

Extension register
None

Associated logs
None

TLS_CONNECTION_REQUESTS

Register type

Peg type, double precision, up to 4,294,967,296 counts

Description

This register counts the total number of new TLS connection requests.

Associated registers

None

Extension register

None

Associated logs

None

TLS_CONNECTION_REQUESTS_PASSED

Register type

Peg type, double precision, up to 4,294,967,296 counts

Description

This register counts the total number of TLS connection requests passed.

Associated registers

None

Extension register

None

Associated logs

None

TLS_CONNECTION_REQUESTS_DROPPED

Register type

Peg type, double precision, up to 4,294,967,296 counts

Description

This register counts the total number of TLS connection requests dropped (throttled).

Associated registers

None

Extension register

None

Associated logs
SIPS300, SIPS600

TLS_CONNECTION_REQUESTS_FAILED

Register type
Peg type, double precision, up to 4,294,967,296 counts

Description
This register counts the total number of TLS connection requests failed.

Associated registers
None

Extension register
None

Associated logs
SIPS301, SIPS601

TLS_HANDSHAKE_AUTHENTICATED

Register type
Peg type, double precision, up to 4,294,967,296 counts

Description
This register counts the total number of certificates authenticated.

Associated registers
None

Extension register
None

Associated logs
None

TLS_HANDSHAKE_AUTHENTICATION_FAILED

Register type
Peg type, double precision, up to 4,294,967,296 counts

Description
This register counts the total number of certificates that have failed authentication.

Associated registers
None

Extension register
None

Associated logs
SIPS301, SIPS601

TLS_CONNECTION_CLOSE

Register type
Peg type, double precision, up to 4,294,967,296 counts

Description
This register counts the total number of TLS connections closed.

Associated registers
None

Extension register
None

Associated logs
None

TLS_CONNECTION_DROPPED

Register type
Peg type, double precision, up to 4,294,967,296 counts

Description
This register counts the total number of TLS connections dropped.

Associated registers
None

Extension register
None

Associated logs
None

TLS_EXTERNAL_SESSION_CACHE_HIT

Register type
Peg type, double precision, up to 4,294,967,296 counts

Description
This register counts the total number of external session cache hits during TLS connection setup.

Associated registers

None

Extension register

None

Associated logs

None

TLS_EXTERNAL_SESSION_CACHE_MISS

Register type

Peg type, double precision, up to 4,294,967,296 counts

Description

This register counts the total number of external session cache misses during TLS connection setup.

Associated registers

None

Extension register

None

Associated logs

None

TLS_EXTERNAL_SESSION_CACHE_EXPIRED

Register type

Peg type, double precision, up to 4,294,967,296 counts

Description

This register counts the total number of external session cache entries expired during TLS connection setup.

Associated registers

None

Extension register

None

Associated logs

None

TLS_EXTERNAL_SESSION_REMOVED_FULL

Register type

Peg type, double precision, up to 4,294,967,296 counts

Description

This register counts the total number of external session cache remove requests due to cache being full.

Associated registers

None

Extension register

None

Associated logs

None