# StarOS에서 Bulkstats 스키마 및 권장 해결 방법과 관련된 시나리오 문제 해결

## 목차

## 소개

이 문서에서는 StarOS에서 bulkstat 스키마 추가 및 삭제와 관련된 시나리오와 이러한 문제에 대한 권장 해결 방법에 대해 설명합니다.

## 사전 요구 사항

### 요구 사항

다음 주제에 대한 지식을 보유하고 있으면 유용합니다.

- 리눅스
- 스타오스

Cisco에서는 다음 권한 액세스를 권장합니다.

- linux shell 명령 프롬프트에 액세스하기 위해 **디버그 셸**을 실행하는 숨겨진 모드
- StarOS 노드에 대한 SFTP(Secure File Transfer Protocol) 액세스

### 사용되는 구성 요소

이 문서의 정보는 StarOS 버전 21.16.6.77063을 기반으로 합니다.

이 문서의 정보는 특정 랩 환경의 디바이스를 토대로 작성되었습니다. 이 문서에 사용된 모든 디바이스는 초기화된(기본) 컨피그레이션으로 시작되었습니다. 네트워크가 작동 중인 경우 모든 명령의 잠재적인 영향을 이해해야 합니다.

## 배경 정보

1. bulkstats와 관련된 컨피그레이션을 저장하도록 config-file을 구성합니다.

2. 명령의 형식은 다음과 같습니다.


     configure

          [no] bulkstats config [ schema | supplement ] *&lt;url&gt;*

     end

위치:

- 선택적 **스키마** 키워드를 사용하면 제공된 파일을 사용하여 스키마만 바꾸고 서버 컨피그레이션을 보존할 수 있습니다.
- 선택적 **보충** 키워드를 사용하면 실행 중인 bulkstats 컨피그레이션을 제공된 컨피그레이션 파일의 내용으로 보완할 수 있습니다. 이 키워드는 기존 파일에서만 작동합니다.
- URL은 bulkstats 컨피그레이션 파일의 위치를 지정합니다.

# 문제

CLI 명령 프롬프트를 통해 새 스키마를 추가하거나 현재 스키마(삭제된 경우)를 다시 추가할 수 없습니다.

# 테스트 시나리오

1. cli bulkstat **config 스키마 &lt;URL&gt;**을 사용하여 이 문제가 **발생했습니다**.
2. 선택적 키워드 **스키마**를 사용하는 경우 디자인당 예상 결과입니다.
3. 동일한 시나리오가 Lab에서 테스트되었습니다. 결과는 다음과 같습니다.
   시나리오 A. 처음에 **bulkstat config &lt;url&gt;** cli가 구성되었습니다.


```
[local]MME# show configuration bulkstats

config

 bulkstats collection

 bulkstats historical collection

 bulkstats config /hd-raid/file1

 bulkstats mode

   file 1

     header format Version-20.0,%ipaddr%,%date%-%time%,%localdate%-
%localtime%,%localtz%,%localtzoffset%,%localdate3%-%localtime3%,%swbuild%

     footer format EndOfFile

     card schema cardSch1 format
PPM,card,cardSch1,%epochtime%,%localdate%,%localtime%,%uptime%,%card%,%cpubusy%,%cpuidle%,%numpr
oc%,%memused%,%memtotal%,%numcpu%,%cpu0-cpubusy%,%cpu0-cpuidle%,%cpu0-numproc%,%cpu0-
memused%,%cpu0-memtotal%,%cpu0-name%,%cpu0-cpuused-user%,%cpu0-cpuused-sys%,%cpu0-cpuused-
io%,%cpu0-cpuused-irq%,%cpu0-cpuused-idle%,%cpu1-cpubusy%,%cpu1-cpuidle%,%cpu1-numproc%,

     card schema cardSch2 format
PPM,card,cardSch2,%epochtime%,%localdate%,%localtime%,%uptime%,%card%,%cpu1-memused%,%cpu1-
```

```
memtotal%,%cpu1-name%,%cpu1-cpuused-user%,%cpu1-cpuused-sys%,%cpu1-cpuused-io%,%cpu1-cpuused-
irq%,%cpu1-cpuused-idle%,%cpu2-cpubusy%,%cpu2-cpuidle%,%cpu2-numproc%,%cpu2-memused%,%cpu2-
memtotal%,%cpu2-name%,%cpu2-cpuused-user%,%cpu2-cpuused-sys%,%cpu2-cpuused-io%,%cpu2-cpuused-
irq%,%cpu2-cpuused-idle%,%cpu3-cpubusy%,%cpu3-cpuidle%,

      card schema cardSch3 format
PPM,card,cardSch3,%epochtime%,%localdate%,%localtime%,%uptime%,%card%,%cpu3-numproc%,%cpu3-
memused%,%cpu3-memtotal%,%cpu3-name%,%cpu3-cpuused-user%,%cpu3-cpuused-sys%,%cpu3-cpuused-
io%,%cpu3-cpuused-irq%,%cpu3-cpuused-idle%,%15avg-cpubusy%,%15peak-cpubusy%,%5avg-
cpubusy%,%5peak-cpubusy%,%1avg-cpubusy%,%15avg-memused%,%15peak-memused%,%5avg-memused%,%5peak-
memused%,%1avg-memused%,%cpu0-15avg-cpubusy%,%cpu0-15peak-cpubusy%,

      port schema portSch1 format
PPM,port,portSch1,%epochtime%,%localdate%,%localtime%,%uptime%,%card%,%port%,%maxrate%,%rxbytes%
,%txbytes%,%ucast_inpackets%,%ucast_outpackets%,%mcast_inpackets%,%mcast_outpackets%,%bcast_inpa
ckets%,%bcast_outpackets%,%rxpackets%,%txpackets%,%rxdiscbytes%,%rxdiscpackets%,%txdiscbytes%,%t
xdiscpackets%,%rxerrorbytes%,%rxerrorpackets%,%txerrorbytes%,%txerrorpackets%,

      port schema portSch2 format
PPM,port,portSch2,%epochtime%,%localdate%,%localtime%,%uptime%,%card%,%port%,%frag-rcvd%,%pkt-
reassembled%,%frag-tokernel%,%util-rx-curr%,%util-tx-curr%,%util-rx-5min%,%util-tx-5min%,%util-
rx-15min%,%util-tx-15min%,%port-5peak-rx-util%,%port-5peak-tx-util%,%port-15peak-rx-util%,%port-
15peak-tx-util%,

      apn-expansion schema apn1 format PPM,apn-expansion,%epochtime%,%localdate%,%localtime%,

      apn-expansion schema apn2 format PPM,apn-expansion,%epochtime%,%localdate%,%localtime%,

      apn-expansion schema apn3 format PPM,apn-expansion,%epochtime%,%localdate%,%localtime%,

   #exit

 #exit

end


[local]MME# show bulkstats schemas

Bulk Statistics Server Configuration:

 Server State:              Enabled

 File Limit:                7500 KB

 Sample Interval:           15 minutes (0D 0H 15M)

 Transfer Interval:         480 minutes (0D 8H 0M)

 Receiver Mode:             Secondary-on-failure

 Historical Data Collection:   Enabled (15 samples stored)



Bulk Statistics Server Statistics:

 Records awaiting transmission: 0

 Bytes awaiting transmission:   0

 Total records collected:       0
```

```
Total bytes collected:          0

Total records transmitted:      0

Total bytes transmitted:        0

Total records discarded:        0

Total bytes discarded:          0

Last collection time required: 0 second(s)

Last transfer time required:    0 second(s)

No successful data transfers

No attempted data transfers




 File 1

    Remote File Format:            %date%-%time%

    File Header:                   Version-20.0,%ipaddr%,%date%-%time%,%localdate%-
%localtime%,%localtz%,%localtzoffset%,%localdate3%-%localtime3%,%swbuild%

    File Footer:              EndOfFile

    No bulkstats receivers

    File Statistics:

      Records awaiting transmission: 0

      Bytes awaiting transmission:   0

      Total records collected:       0

      Total bytes collected:         0

      Total records transmitted:     0

      Total bytes transmitted:       0

      Total records discarded:       0

      Total bytes discarded:         0

      Last transfer time required:   0 second(s)

      No successful data transfers

      No attempted data transfers




 File 2 not configured
```

```
 File 3 not configured



 File 4 not configured




------------------ Schemas for File 1-------------------------------------

Type          Name                    Active-Only Format

----------- ---------------------- ---------- ---------------------------------------

card        cardSch1                No
PPM,card,cardSch1,%epochtime%,%localdate%,%localtime%,%uptime%,%card%,%cpubusy%,%cpuidle%,%numpr
oc%,%memused%,%memtotal%,%numcpu%,%cpu0-cpubusy%,%cpu0-cpuidle%,%cpu0-numproc%,%cpu0-
memused%,%cpu0-memtotal%,%cpu0-name%,%cpu0-cpuused-user%,%cpu0-cpuused-sys%,%cpu0-cpuused-
io%,%cpu0-cpuused-irq%,%cpu0-cpuused-idle%,%cpu1-cpubusy%,%cpu1-cpuidle%,%cpu1-numproc%,

card        cardSch2                No
PPM,card,cardSch2,%epochtime%,%localdate%,%localtime%,%uptime%,%card%,%cpu1-memused%,%cpu1-
memtotal%,%cpu1-name%,%cpu1-cpuused-user%,%cpu1-cpuused-sys%,%cpu1-cpuused-io%,%cpu1-cpuused-
irq%,%cpu1-cpuused-idle%,%cpu2-cpubusy%,%cpu2-cpuidle%,%cpu2-numproc%,%cpu2-memused%,%cpu2-
memtotal%,%cpu2-name%,%cpu2-cpuused-user%,%cpu2-cpuused-sys%,%cpu2-cpuused-io%,%cpu2-cpuused-
irq%,%cpu2-cpuused-idle%,%cpu3-cpubusy%,%cpu3-cpuidle%,

card        cardSch3                No
PPM,card,cardSch3,%epochtime%,%localdate%,%localtime%,%uptime%,%card%,%cpu3-numproc%,%cpu3-
memused%,%cpu3-memtotal%,%cpu3-name%,%cpu3-cpuused-user%,%cpu3-cpuused-sys%,%cpu3-cpuused-
io%,%cpu3-cpuused-irq%,%cpu3-cpuused-idle%,%15avg-cpubusy%,%15peak-cpubusy%,%5avg-
cpubusy%,%5peak-cpubusy%,%1avg-cpubusy%,%15avg-memused%,%15peak-memused%,%5avg-memused%,%5peak-
memused%,%1avg-memused%,%cpu0-15avg-cpubusy%,%cpu0-15peak-cpubusy%,

port        portSch1                No
PPM,port,portSch1,%epochtime%,%localdate%,%localtime%,%uptime%,%card%,%port%,%maxrate%,%rxbytes%
,%txbytes%,%ucast_inpackets%,%ucast_outpackets%,%mcast_inpackets%,%mcast_outpackets%,%bcast_inpa
ckets%,%bcast_outpackets%,%rxpackets%,%txpackets%,%rxdiscbytes%,%rxdiscpackets%,%txdiscbytes%,%t
xdiscpackets%,%rxerrorbytes%,%rxerrorpackets%,%txerrorbytes%,%txerrorpackets%,

port        portSch2                No
PPM,port,portSch2,%epochtime%,%localdate%,%localtime%,%uptime%,%card%,%port%,%frag-rcvd%,%pkt-
reassembled%,%frag-tokernel%,%util-rx-curr%,%util-tx-curr%,%util-rx-5min%,%util-tx-5min%,%util-
rx-15min%,%util-tx-15min%,%port-5peak-rx-util%,%port-5peak-tx-util%,%port-15peak-rx-util%,%port-
15peak-tx-util%,

apn-expansion apn1                   No          PPM,apn-
expansion,%epochtime%,%localdate%,%localtime%,

apn-expansion apn2                   No          PPM,apn-
expansion,%epochtime%,%localdate%,%localtime%,

apn-expansion apn3                   No          PPM,apn-
expansion,%epochtime%,%localdate%,%localtime%,

mon-di-net  mdn1                     No          PPM,%epochtime%,%localdate%,%localtime%,

[local]MME#
```
시나리오 B. 선택적 키워드 **스키마**를 추가하려면 먼저 bulkstats 컨피그레이션 **없이** bulkstat cli를 제거해야 합니다. bulkstats 컨피그레이션을 실행하지 **않는** 순간 노드의 모든 현재 스키마가 삭제됩니다.

```
[local]MME#

[local]MME# configure

[local]MME(config)# bulkstats collection

[local]MME(config)# no bulkstats config

<cr>                    - newline

[local]MME(config)# no bulkstats config

[local]MME(config)# end

[local]MME# show configuration bulkstats

config

 bulkstats collection

 bulkstats historical collection

 bulkstats mode

    file 1

      header format Version-20.0,%ipaddr%,%date%-%time%,%localdate%-
%localtime%,%localtz%,%localtzoffset%,%localdate3%-%localtime3%,%swbuild%

      footer format EndOfFile

    #exit

 #exit

end

[local]MME# show bulkstats schemas

Bulk Statistics Server Configuration:

 Server State:               Enabled

 File Limit:                 7500 KB

 Sample Interval:            15 minutes (0D 0H 15M)

 Transfer Interval:          480 minutes (0D 8H 0M)

 Receiver Mode:              Secondary-on-failure

 Historical Data Collection:  Enabled (15 samples stored)



Bulk Statistics Server Statistics:

 Records awaiting transmission: 0

 Bytes awaiting transmission:   0
```

```
Total records collected:        0

Total bytes collected:          0

Total records transmitted:      0

Total bytes transmitted:        0

Total records discarded:        0

Total bytes discarded:          0

Last collection time required: 0 second(s)

Last transfer time required:    0 second(s)

No successful data transfers

No attempted data transfers



 File 1

    Remote File Format:              %date%-%time%

    File Header:                     Version-20.0,%ipaddr%,%date%-%time%,%localdate%-
%localtime%,%localtz%,%localtzoffset%,%localdate3%-%localtime3%,%swbuild%

    File Footer:                     EndOfFile

    No bulkstats receivers

    File Statistics:

      Records awaiting transmission: 0

      Bytes awaiting transmission:   0

      Total records collected:       0

      Total bytes collected:         0

      Total records transmitted:     0

      Total bytes transmitted:       0

      Total records discarded:       0

      Total bytes discarded:         0

      Last transfer time required:   0 second(s)

      No successful data transfers

      No attempted data transfers



 File 2 not configured
```

```
 File 3 not configured



 File 4 not configured

[local]MME#

[local]MME#
```

## 시나리오 C. 그런 다음 cli bulkstat 구성 스키마 <url> 이(가) 구성되었습니다. 구성 파일에 있는 모든 구성 및 스키마가 노드에 추가됩니다.

```
[local]MME# configure

[local]MME(config)# bulkstats collection

[local]MME(config)# bulkstats config schema /hd-raid/file2

Info: config

Info: bulkstats mode

Info: file 2

Info: header format Version-20.0,%ipaddr%,%date%-%time%,%localdate%-
%localtime%,%localtz%,%localtzoffset%,%localdate3%-%localtime3%,%swbuild%

Info: footer format EndOfFile

Info: diameter-auth schema diameter-authSch1 format PPM,diameter-auth,diameter-
authSch1,%epochtime%,%localdate%,%localtime%,%uptime%,%vpnid%,%vpnname%,%ipaddr%,%port%,%servert
ype%,%group%,%der-req-id-sent%,%der-req-aka-chal-sent%,%der-req-retried%,%dea-chal-rcvd%,%dea-
acpt-rcvd%,%dea-timeout%,%dea-badauth%,%dea-malformed%,%dea-malformed-avp%,%dea-dropped%,%rar-
req-rcvd%,%raa-ans-accpt-sent%,%aar-req-sent%,%str-req-sent%,%str-req-retried%,

Info: diameter-auth schema diameter-authSch2 format PPM,diameter-auth,diameter-
authSch2,%epochtime%,%localdate%,%localtime%,%uptime%,%vpnid%,%vpnname%,%ipaddr%,%port%,%sta-
ans-accpt-rcvd%,%asr-req-rcvd%,%asa-rsp-accpt-sent%,%asa-rsp-rej-sent%,%req-sock-write-
err%,%rsp-sock-write-err%,%any-sock-read-err%,%rem-disconnect%,%loc-disconnect%,

Info: diameter-auth schema diameter-authSch3 format PPM,diameter-auth,diameter-
authSch3,%epochtime%,%localdate%,%localtime%,%uptime%,%vpnid%,%vpnname%,%ipaddr%,%port%,%peer%,%
diameter-auth-msg-multiround%,%diameter-auth-msg-success%,%diameter-auth-msg-err-
protocol%,%diameter-auth-msg-err-transient%,%diameter-auth-msg-err-permanent%,%diameter-auth-
msg-err-other%,%aaa-req-received%,%aaa-req-timeouts%,%aaa-req-dropped%,

Info: schema systemSch1 format
PPM,system,systemSch1,%epochtime%,%localdate%,%localtime%,%uptime%,%sess-ttlarrived%,%sess-
ttlrejected%,%sess-ttlconnected%,%sess-ttlfailed%,%sess-ttldisconn%,%sess-ttlhandoff%,%sess-
ttlrenewal%,%sess-ttlcallop%,%sess-ttlauthsucc%,%sess-ttlauthfail%,%sess-curaaaactive%,%sess-
curaaadeleting%,%sess-curaaaacctpending%,%sess-curaaaacctitemsused%,%sess-
curaaaacctitemsmax%,%sess-curaaabuffused%,%sess-curaaabuffmax%,%sess-ttlaaacancauth%,%sess-
ttlaaaacctpurged%,%sess-ttlradacctpurged%,%sess-ttllcpup%,

Info: schema systemSch10 format
PPM,system,systemSch10,%epochtime%,%localdate%,%localtime%,%uptime%,%aaa-ttlpseudoauthreq%,%aaa-
curpseudoauthreq%,%aaa-ttlauthnulluser%,%aaa-ttlacctsucc%,%aaa-ttlacctpurged%,%aaa-
ttlacctcancelled%,%aaa-ttlacctkeepalivesuccess%,%aaa-ttlacctkeepalivetimeout%,%aaa-
ttlacctkeepalivepurged%,%aaa-ttlradacctreq%,%aaa-ttlradacctcancelled%,%aaa-
```

ttlradacctpurged%,%aaa-ttlradacctreqretried%,%aaa-ttlradacctrspdropped%,%aaa-
ttlmgrpurgedrequests%,%diamauth-msg-mareq%,%diamauth-msg-maans%,%diamauth-msg-
marretry%,%diamauth-msg-maatimeout%,%diamauth-msg-maadropped%,%diamauth-msg-sareq%,

Info: schema systemSch100 format
PPM,system,systemSch100,%epochtime%,%localdate%,%localtime%,%uptime%,%sess-bearerdur-24hr-
qci6%,%sess-bearerdur-over24hr-qci6%,%sess-bearerdur-2day-qci6%,%sess-bearerdur-4day-
qci6%,%sess-bearerdur-5day-qci6%,%sess-bearerdur-5sec-qci7%,%sess-bearerdur-10sec-qci7%,%sess-
bearerdur-30sec-qci7%,%sess-bearerdur-1min-qci7%,%sess-bearerdur-2min-qci7%,%sess-bearerdur-
5min-qci7%,%sess-bearerdur-15min-qci7%,%sess-bearerdur-30min-qci7%,%sess-bearerdur-1hr-
qci7%,%sess-bearerdur-4hr-qci7%,%sess-bearerdur-12hr-qci7%,%sess-bearerdur-24hr-qci7%,%sess-
bearerdur-over24hr-qci7%,%sess-bearerdur-2day-qci7%,%sess-bearerdur-4day-qci7%,%sess-bearerdur-
5day-qci7%,

Info: sgs schema sgsSch1 format
PPM,sgs,sgsSch1,%epochtime%,%localdate%,%localtime%,%uptime%,%vpnname%,%vpnid%,%servname%,%servi
d%,%pag-req-tx%,%pag-req-retx%,%pag-req-rx%,%pag-rej-tx%,%pag-rej-retx%,%pag-rej-rx%,%service-
req-tx%,%service-req-retx%,%service-req-rx%,%dl-ud-tx%,%dl-ud-retx%,%dl-ud-rx%,%ul-ud-tx%,%ul-
ud-retx%,%ul-ud-rx%,%localupd-req-tx%,%localupd-req-retx%,

Info: sgs schema sgsSch2 format
PPM,sgs,sgsSch2,%epochtime%,%localdate%,%localtime%,%uptime%,%vpnname%,%vpnid%,%servname%,%servi
d%,%localupd-req-rx%,%localupd-accept-tx%,%localupd-accept-retx%,%localupd-accept-rx%,%localupd-
rej-tx%,%localupd-rej-retx%,%localupd-rej-rx%,%tmsi-reloc-tx%,%tmsi-reloc-retx%,%tmsi-reloc-
rx%,%alert-req-tx%,%alert-req-retx%,%alert-req-rx%,%alert-ack-tx%,%alert-ack-retx%,%alert-ack-
rx%,%alert-rej-tx%,%alert-rej-retx%,%alert-rej-rx%,%ue-actind-tx%,%ue-actind-retx%,

Info: sgs schema sgsSch3 format
PPM,sgs,sgsSch3,%epochtime%,%localdate%,%localtime%,%uptime%,%vpnname%,%vpnid%,%servname%,%servi
d%,%ue-actind-rx%,%eps-detind-tx%,%eps-detind-retx%,%eps-detind-rx%,%eps-detack-tx%,%eps-detack-
retx%,%eps-detack-rx%,%imsi-detind-tx%,%imsi-detind-retx%,%imsi-detind-rx%,%imsi-detack-
tx%,%imsi-detack-retx%,%imsi-detack-rx%,,,,,,,%mm-inforeq-tx%,%mm-inforeq-retx%,

Info: exit

[local]MME(config)# end

[local]MME#

[local]MME# show configuration bulkstats

config

 bulkstats collection

 bulkstats historical collection

 bulkstats config schema /hd-raid/file2

 bulkstats mode

   file 1

     header format Version-20.0,%ipaddr%,%date%-%time%,%localdate%-
%localtime%,%localtz%,%localtzoffset%,%localdate3%-%localtime3%,%swbuild%

     footer format EndOfFile

   #exit

   file 2

     header format Version-20.0,%ipaddr%,%date%-%time%,%localdate%-
%localtime%,%localtz%,%localtzoffset%,%localdate3%-%localtime3%,%swbuild%

footer format EndOfFile

        schema systemSch1 format
PPM,system,systemSch1,%epochtime%,%localdate%,%localtime%,%uptime%,%sess-ttlarrived%,%sess-
ttlrejected%,%sess-ttlconnected%,%sess-ttlfailed%,%sess-ttldisconn%,%sess-ttlhandoff%,%sess-
ttlrenewal%,%sess-ttlcallop%,%sess-ttlauthsucc%,%sess-ttlauthfail%,%sess-curaaaactive%,%sess-
curaaadeleting%,%sess-curaaaacctpending%,%sess-curaaaacctitemsused%,%sess-
curaaaacctitemsmax%,%sess-curaaabuffused%,%sess-curaaabuffmax%,%sess-ttlaaacancauth%,%sess-
ttlaaaacctpurged%,%sess-ttlradacctpurged%,%sess-ttllcpup%,

        schema systemSch10 format
PPM,system,systemSch10,%epochtime%,%localdate%,%localtime%,%uptime%,%aaa-ttlpseudoauthreq%,%aaa-
curpseudoauthreq%,%aaa-ttlauthnulluser%,%aaa-ttlacctsucc%,%aaa-ttlacctpurged%,%aaa-
ttlacctcancelled%,%aaa-ttlacctkeepalivesuccess%,%aaa-ttlacctkeepalivetimeout%,%aaa-
ttlacctkeepalivepurged%,%aaa-ttlradacctreq%,%aaa-ttlradacctcancelled%,%aaa-
ttlradacctpurged%,%aaa-ttlradacctreqretried%,%aaa-ttlradacctrspdropped%,%aaa-
ttlmgrpurgedrequests%,%diamauth-msg-mareq%,%diamauth-msg-maans%,%diamauth-msg-
marretry%,%diamauth-msg-maatimeout%,%diamauth-msg-maadropped%,%diamauth-msg-sareq%,

        schema systemSch100 format
PPM,system,systemSch100,%epochtime%,%localdate%,%localtime%,%uptime%,%sess-bearerdur-24hr-
qci6%,%sess-bearerdur-over24hr-qci6%,%sess-bearerdur-2day-qci6%,%sess-bearerdur-4day-
qci6%,%sess-bearerdur-5day-qci6%,%sess-bearerdur-5sec-qci7%,%sess-bearerdur-10sec-qci7%,%sess-
bearerdur-30sec-qci7%,%sess-bearerdur-1min-qci7%,%sess-bearerdur-2min-qci7%,%sess-bearerdur-
5min-qci7%,%sess-bearerdur-15min-qci7%,%sess-bearerdur-30min-qci7%,%sess-bearerdur-1hr-
qci7%,%sess-bearerdur-4hr-qci7%,%sess-bearerdur-12hr-qci7%,%sess-bearerdur-24hr-qci7%,%sess-
bearerdur-over24hr-qci7%,%sess-bearerdur-2day-qci7%,%sess-bearerdur-4day-qci7%,%sess-bearerdur-
5day-qci7%,

        diameter-auth schema diameter-authSch1 format PPM,diameter-auth,diameter-
authSch1,%epochtime%,%localdate%,%localtime%,%uptime%,%vpnid%,%vpnname%,%ipaddr%,%port%,%servert
ype%,%group%,%der-req-id-sent%,%der-req-aka-chal-sent%,%der-req-retried%,%dea-chal-rcvd%,%dea-
acpt-rcvd%,%dea-timeout%,%dea-badauth%,%dea-malformed%,%dea-malformed-avp%,%dea-dropped%,%rar-
req-rcvd%,%raa-ans-accpt-sent%,%aar-req-sent%,%str-req-sent%,%str-req-retried%,

        diameter-auth schema diameter-authSch2 format PPM,diameter-auth,diameter-
authSch2,%epochtime%,%localdate%,%localtime%,%uptime%,%vpnid%,%vpnname%,%ipaddr%,%port%,%sta-
ans-accpt-rcvd%,%asr-req-rcvd%,%asa-rsp-accpt-sent%,%asa-rsp-rej-sent%,%req-sock-write-
err%,%rsp-sock-write-err%,%any-sock-read-err%,%rem-disconnect%,%loc-disconnect%,

        diameter-auth schema diameter-authSch3 format PPM,diameter-auth,diameter-
authSch3,%epochtime%,%localdate%,%localtime%,%uptime%,%vpnid%,%vpnname%,%ipaddr%,%port%,%peer%,%
diameter-auth-msg-multiround%,%diameter-auth-msg-success%,%diameter-auth-msg-err-
protocol%,%diameter-auth-msg-err-transient%,%diameter-auth-msg-err-permanent%,%diameter-auth-
msg-err-other%,%aaa-req-received%,%aaa-req-timeouts%,%aaa-req-dropped%,

        sgs schema sgsSch1 format
PPM,sgs,sgsSch1,%epochtime%,%localdate%,%localtime%,%uptime%,%vpnname%,%vpnid%,%servname%,%servi
d%,%pag-req-tx%,%pag-req-retx%,%pag-req-rx%,%pag-rej-tx%,%pag-rej-retx%,%pag-rej-rx%,%service-
req-tx%,%service-req-retx%,%service-req-rx%,%dl-ud-tx%,%dl-ud-retx%,%dl-ud-rx%,%ul-ud-tx%,%ul-
ud-retx%,%ul-ud-rx%,%localupd-req-tx%,%localupd-req-retx%,

        sgs schema sgsSch2 format
PPM,sgs,sgsSch2,%epochtime%,%localdate%,%localtime%,%uptime%,%vpnname%,%vpnid%,%servname%,%servi
d%,%localupd-req-rx%,%localupd-accept-tx%,%localupd-accept-retx%,%localupd-accept-rx%,%localupd-
rej-tx%,%localupd-rej-retx%,%localupd-rej-rx%,%tmsi-reloc-tx%,%tmsi-reloc-retx%,%tmsi-reloc-
rx%,%alert-req-tx%,%alert-req-retx%,%alert-req-rx%,%alert-ack-tx%,%alert-ack-retx%,%alert-ack-
rx%,%alert-rej-tx%,%alert-rej-retx%,%alert-rej-rx%,%ue-actind-tx%,%ue-actind-retx%,

        sgs schema sgsSch3 format
PPM,sgs,sgsSch3,%epochtime%,%localdate%,%localtime%,%uptime%,%vpnname%,%vpnid%,%servname%,%servi
d%,%ue-actind-rx%,%eps-detind-tx%,%eps-detind-retx%,%eps-detind-rx%,%eps-detack-tx%,%eps-detack-
retx%,%eps-detack-rx%,%imsi-detind-tx%,%imsi-detind-retx%,%imsi-detind-rx%,%imsi-detack-

tx%,%imsi-detack-retx%,%imsi-detack-rx%,,,,,,,%mm-inforeq-tx%,%mm-inforeq-retx%,

    #exit

 #exit

end

[local]MME#
시나리오 D. 그런 다음 새 스키마를 추가할 수 없습니다. 현재 스키마를 제거하고 다시 추가하려고 하면 스키마가 삭제되지만 다시 추가할 수는 없습니다. 그러나 현재 스키마가 구성 파일(URL에 있는 구성 파일)에 여전히 있습니다.


[local]MME# configure

[local]MME(config)# bulkstats mode


mode                  - Enters bulk statistics configuration mode, where you can define what statistics to collect

[local]MME(config)# bulkstats mode

[local]MME(config-bulkstats)# file 1

[local]MME(config-bulkstats-file-1)# mon-di-net schema mdn1 format PPM,%epochti

me%,%localdate%,%localtime%,

[local]MME(config-bulkstats-file-1)# exit

[local]MME(config-bulkstats)# file 2

[local]MME(config-bulkstats-file-2)# mon-di-net schema mdn2 format PPM,%epochti

me%,

[local]MME(config-bulkstats-file-2)# end

[local]MME# show bulkstats schemas

Bulk Statistics Server Configuration:

 Server State:               Enabled

 File Limit:                 7500 KB

 Sample Interval:            15 minutes (0D 0H 15M)

 Transfer Interval:          480 minutes (0D 8H 0M)

 Receiver Mode:              Secondary-on-failure

 Historical Data Collection: Enabled (15 samples stored)


Bulk Statistics Server Statistics:

Records awaiting transmission: 0

Bytes awaiting transmission:    0

Total records collected:        0

Total bytes collected:          0

Total records transmitted:      0

Total bytes transmitted:        0

Total records discarded:        0

Total bytes discarded:          0

Last collection time required: 0 second(s)

Last transfer time required:    0 second(s)

No successful data transfers

No attempted data transfers


File 1

  Remote File Format:            %date%-%time%

  File Header:                   Version-20.0,%ipaddr%,%date%-%time%,%localdate%-%localtime%,%localtz%,%localtzoffset%,%localdate3%-%localtime3%,%swbuild%

  File Footer:                   EndOfFile

  No bulkstats receivers

  File Statistics:

    Records awaiting transmission: 0

    Bytes awaiting transmission:   0

    Total records collected:       0

    Total bytes collected:         0

    Total records transmitted:     0

    Total bytes transmitted:       0

    Total records discarded:       0

    Total bytes discarded:         0

    Last transfer time required:   0 second(s)

    No successful data transfers

    No attempted data transfers

File 2

   Remote File Format:              %date%-%time%

   File Header:                   Version-20.0,%ipaddr%,%date%-%time%,%localdate%-%localtime%,%localtz%,%localtzoffset%,%localdate3%-%localtime3%,%swbuild%

   File Footer:                   EndOfFile

  No bulkstats receivers

  File Statistics:

    Records awaiting transmission: 0

    Bytes awaiting transmission:  0

    Total records collected:      0

    Total bytes collected:        0

    Total records transmitted:    0

    Total bytes transmitted:      0

    Total records discarded:      0

    Total bytes discarded:        0

    Last transfer time required:  0 second(s)

    No successful data transfers

    No attempted data transfers

File 3 not configured

File 4 not configured

------------------- Schemas for File 2---------------------------------------

Type          Name                    Active-Only Format

------------ ----------------------- ----------- --------------------------------------

system      systemSch1              No
PPM,system,systemSch1,%epochtime%,%localdate%,%localtime%,%uptime%,%sess-ttlarrived%,%sess-ttlrejected%,%sess-ttlconnected%,%sess-ttlfailed%,%sess-ttldisconn%,%sess-ttlhandoff%,%sess-ttlrenewal%,%sess-ttlcallop%,%sess-ttlauthsucc%,%sess-ttlauthfail%,%sess-curaaaactive%,%sess-curaaadeleting%,%sess-curaaaacctpending%,%sess-curaaaacctitemsused%,%sess-curaaaacctitemsmax%,%sess-curaaabuffused%,%sess-curaaabuffmax%,%sess-ttlaaacancauth%,%sess-ttlaaaacctpurged%,%sess-ttlradacctpurged%,%sess-ttllcpup%,

system      systemSch10             No

```
PPM,system,systemSch10,%epochtime%,%localdate%,%localtime%,%uptime%,%aaa-ttlpseudoauthreq%,%aaa-
curpseudoauthreq%,%aaa-ttlauthnulluser%,%aaa-ttlacctsucc%,%aaa-ttlacctpurged%,%aaa-
ttlacctcancelled%,%aaa-ttlacctkeepalivesuccess%,%aaa-ttlacctkeepalivetimeout%,%aaa-
ttlacctkeepalivepurged%,%aaa-ttlradacctreq%,%aaa-ttlradacctcancelled%,%aaa-
ttlradacctpurged%,%aaa-ttlradacctreqretried%,%aaa-ttlradacctrspdropped%,%aaa-
ttlmgrpurgedrequests%,%diamauth-msg-mareq%,%diamauth-msg-maans%,%diamauth-msg-
marretry%,%diamauth-msg-maatimeout%,%diamauth-msg-maadropped%,%diamauth-msg-sareq%,

system        systemSch100               No
PPM,system,systemSch100,%epochtime%,%localdate%,%localtime%,%uptime%,%sess-bearerdur-24hr-
qci6%,%sess-bearerdur-over24hr-qci6%,%sess-bearerdur-2day-qci6%,%sess-bearerdur-4day-
qci6%,%sess-bearerdur-5day-qci6%,%sess-bearerdur-5sec-qci7%,%sess-bearerdur-10sec-qci7%,%sess-
bearerdur-30sec-qci7%,%sess-bearerdur-1min-qci7%,%sess-bearerdur-2min-qci7%,%sess-bearerdur-
5min-qci7%,%sess-bearerdur-15min-qci7%,%sess-bearerdur-30min-qci7%,%sess-bearerdur-1hr-
qci7%,%sess-bearerdur-4hr-qci7%,%sess-bearerdur-12hr-qci7%,%sess-bearerdur-24hr-qci7%,%sess-
bearerdur-over24hr-qci7%,%sess-bearerdur-2day-qci7%,%sess-bearerdur-4day-qci7%,%sess-bearerdur-
5day-qci7%,

diameter-auth diameter-authSch1        No        PPM,diameter-auth,diameter-
authSch1,%epochtime%,%localdate%,%localtime%,%uptime%,%vpnid%,%vpnname%,%ipaddr%,%port%,%servert
ype%,%group%,%der-req-id-sent%,%der-req-aka-chal-sent%,%der-req-retried%,%dea-chal-rcvd%,%dea-
acpt-rcvd%,%dea-timeout%,%dea-badauth%,%dea-malformed%,%dea-malformed-avp%,%dea-dropped%,%rar-
req-rcvd%,%raa-ans-accpt-sent%,%aar-req-sent%,%str-req-sent%,%str-req-retried%,

diameter-auth diameter-authSch2        No        PPM,diameter-auth,diameter-
authSch2,%epochtime%,%localdate%,%localtime%,%uptime%,%vpnid%,%vpnname%,%ipaddr%,%port%,%sta-
ans-accpt-rcvd%,%asr-req-rcvd%,%asa-rsp-accpt-sent%,%asa-rsp-rej-sent%,%req-sock-write-
err%,%rsp-sock-write-err%,%any-sock-read-err%,%rem-disconnect%,%loc-disconnect%,

diameter-auth diameter-authSch3        No        PPM,diameter-auth,diameter-
authSch3,%epochtime%,%localdate%,%localtime%,%uptime%,%vpnid%,%vpnname%,%ipaddr%,%port%,%peer%,%
diameter-auth-msg-multiround%,%diameter-auth-msg-success%,%diameter-auth-msg-err-
protocol%,%diameter-auth-msg-err-transient%,%diameter-auth-msg-err-permanent%,%diameter-auth-
msg-err-other%,%aaa-req-received%,%aaa-req-timeouts%,%aaa-req-dropped%,

sgs           sgsSch1                    No
PPM,sgs,sgsSch1,%epochtime%,%localdate%,%localtime%,%uptime%,%vpnname%,%vpnid%,%servname%,%servi
d%,%pag-req-tx%,%pag-req-retx%,%pag-req-rx%,%pag-rej-tx%,%pag-rej-retx%,%pag-rej-rx%,%service-
req-tx%,%service-req-retx%,%service-req-rx%,%dl-ud-tx%,%dl-ud-retx%,%dl-ud-rx%,%ul-ud-tx%,%ul-
ud-retx%,%ul-ud-rx%,%localupd-req-tx%,%localupd-req-retx%,

sgs           sgsSch2                    No
PPM,sgs,sgsSch2,%epochtime%,%localdate%,%localtime%,%uptime%,%vpnname%,%vpnid%,%servname%,%servi
d%,%localupd-req-rx%,%localupd-accept-tx%,%localupd-accept-retx%,%localupd-accept-rx%,%localupd-
rej-tx%,%localupd-rej-retx%,%localupd-rej-rx%,%tmsi-reloc-tx%,%tmsi-reloc-retx%,%tmsi-reloc-
rx%,%alert-req-tx%,%alert-req-retx%,%alert-req-rx%,%alert-ack-tx%,%alert-ack-retx%,%alert-ack-
rx%,%alert-rej-tx%,%alert-rej-retx%,%alert-rej-rx%,%ue-actind-tx%,%ue-actind-retx%,

sgs           sgsSch3                    No
PPM,sgs,sgsSch3,%epochtime%,%localdate%,%localtime%,%uptime%,%vpnname%,%vpnid%,%servname%,%servi
d%,%ue-actind-rx%,%eps-detind-tx%,%eps-detind-retx%,%eps-detind-rx%,%eps-detack-tx%,%eps-detack-
retx%,%eps-detack-rx%,%imsi-detind-tx%,%imsi-detind-retx%,%imsi-detind-rx%,%imsi-detack-
tx%,%imsi-detack-retx%,%imsi-detack-rx%,,,,,,,%mm-inforeq-tx%,%mm-inforeq-retx%,

[local]MME# configure

[local]MME(config)# bulkstats mode

[local]MME(config-bulkstats)# file 2

[local]MME(config-bulkstats-file-2)# no sgs

sgs                    - Removes sgs bulk statistics schema
```

```
[local]MME(config-bulkstats-file-2)# no sgs schema sgsSch1

[local]MME(config-bulkstats-file-2)# end

[local]MME# show bulkstats schemas

Bulk Statistics Server Configuration:

 Server State:              Enabled

 File Limit:                7500 KB

 Sample Interval:           15 minutes (0D 0H 15M)

 Transfer Interval:         480 minutes (0D 8H 0M)

 Receiver Mode:             Secondary-on-failure

 Historical Data Collection:   Enabled (15 samples stored)



Bulk Statistics Server Statistics:

 Records awaiting transmission: 0

 Bytes awaiting transmission:   0

 Total records collected:       0

 Total bytes collected:         0

 Total records transmitted:     0

 Total bytes transmitted:       0

 Total records discarded:       0

 Total bytes discarded:         0

 Last collection time required: 0 second(s)

 Last transfer time required:   0 second(s)

 No successful data transfers

 No attempted data transfers



 File 1

   Remote File Format:          %date%-%time%

   File Header:                 Version-20.0,%ipaddr%,%date%-%time%,%localdate%-
%localtime%,%localtz%,%localtzoffset%,%localdate3%-%localtime3%,%swbuild%

   File Footer:                 EndOfFile

   No bulkstats receivers

   File Statistics:
```

Records awaiting transmission: 0

Bytes awaiting transmission:   0

Total records collected:       0

Total bytes collected:         0

Total records transmitted:     0

Total bytes transmitted:       0

Total records discarded:       0

Total bytes discarded:         0

Last transfer time required:   0 second(s)

No successful data transfers

No attempted data transfers


File 2

  Remote File Format:            %date%-%time%

  File Header:                   Version-20.0,%ipaddr%,%date%-%time%,%localdate%-%localtime%,%localtz%,%localtzoffset%,%localdate3%-%localtime3%,%swbuild%

  File Footer:                   EndOfFile

  No bulkstats receivers

  File Statistics:

    Records awaiting transmission: 0

    Bytes awaiting transmission:   0

    Total records collected:       0

    Total bytes collected:         0

    Total records transmitted:     0

    Total bytes transmitted:       0

    Total records discarded:       0

    Total bytes discarded:         0

    Last transfer time required:   0 second(s)

    No successful data transfers

    No attempted data transfers

```
  File 3 not configured




  File 4 not configured




------------------ Schemas for File 2-------------------------------------

Type          Name                   Active-Only Format

------------ ---------------------- ---------- ---------------------------------------

system        systemSch1             No
PPM,system,systemSch1,%epochtime%,%localdate%,%localtime%,%uptime%,%sess-ttlarrived%,%sess-
ttlrejected%,%sess-ttlconnected%,%sess-ttlfailed%,%sess-ttldisconn%,%sess-ttlhandoff%,%sess-
ttlrenewal%,%sess-ttlcallop%,%sess-ttlauthsucc%,%sess-ttlauthfail%,%sess-curaaaactive%,%sess-
curaaadeleting%,%sess-curaaaacctpending%,%sess-curaaaacctitemsused%,%sess-
curaaaacctitemsmax%,%sess-curaaabuffused%,%sess-curaaabuffmax%,%sess-ttlaaacancauth%,%sess-
ttlaaaacctpurged%,%sess-ttlradacctpurged%,%sess-ttllcpup%,

system        systemSch10            No
PPM,system,systemSch10,%epochtime%,%localdate%,%localtime%,%uptime%,%aaa-ttlpseudoauthreq%,%aaa-
curpseudoauthreq%,%aaa-ttlauthnulluser%,%aaa-ttlacctsucc%,%aaa-ttlacctpurged%,%aaa-
ttlacctcancelled%,%aaa-ttlacctkeepalivesuccess%,%aaa-ttlacctkeepalivetimeout%,%aaa-
ttlacctkeepalivepurged%,%aaa-ttlradacctreq%,%aaa-ttlradacctcancelled%,%aaa-
ttlradacctpurged%,%aaa-ttlradacctreqretried%,%aaa-ttlradacctrspdropped%,%aaa-
ttlmgrpurgedrequests%,%diamauth-msg-mareq%,%diamauth-msg-maans%,%diamauth-msg-
marretry%,%diamauth-msg-maatimeout%,%diamauth-msg-maadropped%,%diamauth-msg-sareq%,

system        systemSch100           No
PPM,system,systemSch100,%epochtime%,%localdate%,%localtime%,%uptime%,%sess-bearerdur-24hr-
qci6%,%sess-bearerdur-over24hr-qci6%,%sess-bearerdur-2day-qci6%,%sess-bearerdur-4day-
qci6%,%sess-bearerdur-5day-qci6%,%sess-bearerdur-5sec-qci7%,%sess-bearerdur-10sec-qci7%,%sess-
bearerdur-30sec-qci7%,%sess-bearerdur-1min-qci7%,%sess-bearerdur-2min-qci7%,%sess-bearerdur-
5min-qci7%,%sess-bearerdur-15min-qci7%,%sess-bearerdur-30min-qci7%,%sess-bearerdur-1hr-
qci7%,%sess-bearerdur-4hr-qci7%,%sess-bearerdur-12hr-qci7%,%sess-bearerdur-24hr-qci7%,%sess-
bearerdur-over24hr-qci7%,%sess-bearerdur-2day-qci7%,%sess-bearerdur-4day-qci7%,%sess-bearerdur-
5day-qci7%,

diameter-auth diameter-authSch1      No         PPM,diameter-auth,diameter-
authSch1,%epochtime%,%localdate%,%localtime%,%uptime%,%vpnid%,%vpnname%,%ipaddr%,%port%,%servert
ype%,%group%,%der-req-id-sent%,%der-req-aka-chal-sent%,%der-req-retried%,%dea-chal-rcvd%,%dea-
acpt-rcvd%,%dea-timeout%,%dea-badauth%,%dea-malformed%,%dea-malformed-avp%,%dea-dropped%,%rar-
req-rcvd%,%raa-ans-accpt-sent%,%aar-req-sent%,%str-req-sent%,%str-req-retried%,

diameter-auth diameter-authSch2      No         PPM,diameter-auth,diameter-
authSch2,%epochtime%,%localdate%,%localtime%,%uptime%,%vpnid%,%vpnname%,%ipaddr%,%port%,%sta-
ans-accpt-rcvd%,%asr-req-rcvd%,%asa-rsp-accpt-sent%,%asa-rsp-rej-sent%,%req-sock-write-
err%,%rsp-sock-write-err%,%any-sock-read-err%,%rem-disconnect%,%loc-disconnect%,

diameter-auth diameter-authSch3      No         PPM,diameter-auth,diameter-
authSch3,%epochtime%,%localdate%,%localtime%,%uptime%,%vpnid%,%vpnname%,%ipaddr%,%port%,%peer%,%
diameter-auth-msg-multiround%,%diameter-auth-msg-success%,%diameter-auth-msg-err-
protocol%,%diameter-auth-msg-err-transient%,%diameter-auth-msg-err-permanent%,%diameter-auth-
msg-err-other%,%aaa-req-received%,%aaa-req-timeouts%,%aaa-req-dropped%,

sgs           sgsSch2                No
PPM,sgs,sgsSch2,%epochtime%,%localdate%,%localtime%,%uptime%,%vpnname%,%vpnid%,%servname%,%servi
d%,%localupd-req-rx%,%localupd-accept-tx%,%localupd-accept-retx%,%localupd-accept-rx%,%localupd-
rej-tx%,%localupd-rej-retx%,%localupd-rej-rx%,%tmsi-reloc-tx%,%tmsi-reloc-retx%,%tmsi-reloc-
```

```
rx%,%alert-req-tx%,%alert-req-retx%,%alert-req-rx%,%alert-ack-tx%,%alert-ack-retx%,%alert-ack-
rx%,%alert-rej-tx%,%alert-rej-retx%,%alert-rej-rx%,%ue-actind-tx%,%ue-actind-retx%,

sgs          sgsSch3                       No
PPM,sgs,sgsSch3,%epochtime%,%localdate%,%localtime%,%uptime%,%vpnname%,%vpnid%,%servname%,%servi
d%,%ue-actind-rx%,%eps-detind-tx%,%eps-detind-retx%,%eps-detind-rx%,%eps-detack-tx%,%eps-detack-
retx%,%eps-detack-rx%,%imsi-detind-tx%,%imsi-detind-retx%,%imsi-detind-rx%,%imsi-detack-
tx%,%imsi-detack-retx%,%imsi-detack-rx%,,,,,,,%mm-inforeq-tx%,%mm-inforeq-retx%,

[local]MME# configure

[local]MME(config)# bulkstats mode

[local]MME(config-bulkstats)# file 2

[local]MME(config-bulkstats-file-2)# sgs schema sgsSch1 format PPM,sgs,sgsSch1,

%epochtime%,%localdate%,%localtime%,%uptime%,%vpnname%,%vpnid%,%servname%,%serv

id%,%pag-req-tx%,%pag-req-retx%,%pag-req-rx%,%pag-rej-tx%,%pag-rej-retx%,%pag-r

ej-rx%,%service-req-tx%,%service-req-retx%,%service-req-rx%,%dl-ud-tx%,%dl-ud-r

etx%,%dl-ud-rx%,%ul-ud-tx%,%ul-ud-retx%,%ul-ud-rx%,%localupd-req-tx%,%localupd-

req-retx%,

[local]MME(config-bulkstats-file-2)# end

[local]MME# show bulkstats schemas

Bulk Statistics Server Configuration:

 Server State:               Enabled

  File Limit:                 7500 KB

 Sample Interval:            15 minutes (0D 0H 15M)

 Transfer Interval:          480 minutes (0D 8H 0M)

 Receiver Mode:              Secondary-on-failure

 Historical Data Collection: Enabled (15 samples stored)



Bulk Statistics Server Statistics:

 Records awaiting transmission: 0

 Bytes awaiting transmission:   0

 Total records collected:       0

 Total bytes collected:         0

 Total records transmitted:     0

 Total bytes transmitted:       0

 Total records discarded:       0
```

```
Total bytes discarded:          0

Last collection time required: 0 second(s)

Last transfer time required:   0 second(s)

No successful data transfers

No attempted data transfers




File 1

   Remote File Format:           %date%-%time%

   File Header:                  Version-20.0,%ipaddr%,%date%-%time%,%localdate%-
%localtime%,%localtz%,%localtzoffset%,%localdate3%-%localtime3%,%swbuild%

   File Footer:                  EndOfFile

   No bulkstats receivers

   File Statistics:

     Records awaiting transmission: 0

     Bytes awaiting transmission:   0

     Total records collected:       0

     Total bytes collected:         0

     Total records transmitted:     0

     Total bytes transmitted:       0

     Total records discarded:       0

     Total bytes discarded:         0

     Last transfer time required:   0 second(s)

     No successful data transfers

     No attempted data transfers




File 2

   Remote File Format:           %date%-%time%

   File Header:                  Version-20.0,%ipaddr%,%date%-%time%,%localdate%-
%localtime%,%localtz%,%localtzoffset%,%localdate3%-%localtime3%,%swbuild%

   File Footer:                  EndOfFile

   No bulkstats receivers

   File Statistics:
```

Records awaiting transmission: 0

        Bytes awaiting transmission:   0

        Total records collected:       0

        Total bytes collected:         0

        Total records transmitted:     0

        Total bytes transmitted:       0

        Total records discarded:       0

        Total bytes discarded:         0

        Last transfer time required:   0 second(s)

        No successful data transfers

        No attempted data transfers



  File 3 not configured




  File 4 not configured




------------------ Schemas for File 2--------------------------------------

Type          Name                    Active-Only Format

------------ ---------------------- ----------- --------------------------------------

system     systemSch1              No
PPM,system,systemSch1,%epochtime%,%localdate%,%localtime%,%uptime%,%sess-ttlarrived%,%sess-
ttlrejected%,%sess-ttlconnected%,%sess-ttlfailed%,%sess-ttldisconn%,%sess-ttlhandoff%,%sess-
ttlrenewal%,%sess-ttlcallop%,%sess-ttlauthsucc%,%sess-ttlauthfail%,%sess-curaaaactive%,%sess-
curaaadeleting%,%sess-curaaaacctpending%,%sess-curaaaacctitemsused%,%sess-
curaaaacctitemsmax%,%sess-curaaabuffused%,%sess-curaaabuffmax%,%sess-ttlaaacancauth%,%sess-
ttlaaaacctpurged%,%sess-ttlradacctpurged%,%sess-ttllcpup%,

system     systemSch10             No
PPM,system,systemSch10,%epochtime%,%localdate%,%localtime%,%uptime%,%aaa-ttlpseudoauthreq%,%aaa-
curpseudoauthreq%,%aaa-ttlauthnulluser%,%aaa-ttlacctsucc%,%aaa-ttlacctpurged%,%aaa-
ttlacctcancelled%,%aaa-ttlacctkeepalivesuccess%,%aaa-ttlacctkeepalivetimeout%,%aaa-
ttlacctkeepalivepurged%,%aaa-ttlradacctreq%,%aaa-ttlradacctcancelled%,%aaa-
ttlradacctpurged%,%aaa-ttlradacctreqretried%,%aaa-ttlradacctrspdropped%,%aaa-
ttlmgrpurgedrequests%,%diamauth-msg-mareq%,%diamauth-msg-maans%,%diamauth-msg-
marretry%,%diamauth-msg-maatimeout%,%diamauth-msg-maadropped%,%diamauth-msg-sareq%,

system     systemSch100            No
PPM,system,systemSch100,%epochtime%,%localdate%,%localtime%,%uptime%,%sess-bearerdur-24hr-
qci6%,%sess-bearerdur-over24hr-qci6%,%sess-bearerdur-2day-qci6%,%sess-bearerdur-4day-
qci6%,%sess-bearerdur-5day-qci6%,%sess-bearerdur-5sec-qci7%,%sess-bearerdur-10sec-qci7%,%sess-
bearerdur-30sec-qci7%,%sess-bearerdur-1min-qci7%,%sess-bearerdur-2min-qci7%,%sess-bearerdur-
5min-qci7%,%sess-bearerdur-15min-qci7%,%sess-bearerdur-30min-qci7%,%sess-bearerdur-1hr-

```
qci7%,%sess-bearerdur-4hr-qci7%,%sess-bearerdur-12hr-qci7%,%sess-bearerdur-24hr-qci7%,%sess-
bearerdur-over24hr-qci7%,%sess-bearerdur-2day-qci7%,%sess-bearerdur-4day-qci7%,%sess-bearerdur-
5day-qci7%,

diameter-auth  diameter-authSch1      No          PPM,diameter-auth,diameter-
authSch1,%epochtime%,%localdate%,%localtime%,%uptime%,%vpnid%,%vpnname%,%ipaddr%,%port%,%servert
ype%,%group%,%der-req-id-sent%,%der-req-aka-chal-sent%,%der-req-retried%,%dea-chal-rcvd%,%dea-
acpt-rcvd%,%dea-timeout%,%dea-badauth%,%dea-malformed%,%dea-malformed-avp%,%dea-dropped%,%rar-
req-rcvd%,%raa-ans-accpt-sent%,%aar-req-sent%,%str-req-sent%,%str-req-retried%,

diameter-auth  diameter-authSch2      No          PPM,diameter-auth,diameter-
authSch2,%epochtime%,%localdate%,%localtime%,%uptime%,%vpnid%,%vpnname%,%ipaddr%,%port%,%sta-
ans-accpt-rcvd%,%asr-req-rcvd%,%asa-rsp-accpt-sent%,%asa-rsp-rej-sent%,%req-sock-write-
err%,%rsp-sock-write-err%,%any-sock-read-err%,%rem-disconnect%,%loc-disconnect%,

diameter-auth  diameter-authSch3      No          PPM,diameter-auth,diameter-
authSch3,%epochtime%,%localdate%,%localtime%,%uptime%,%vpnid%,%vpnname%,%ipaddr%,%port%,%peer%,%
diameter-auth-msg-multiround%,%diameter-auth-msg-success%,%diameter-auth-msg-err-
protocol%,%diameter-auth-msg-err-transient%,%diameter-auth-msg-err-permanent%,%diameter-auth-
msg-err-other%,%aaa-req-received%,%aaa-req-timeouts%,%aaa-req-dropped%,

sgs         sgsSch2              No
PPM,sgs,sgsSch2,%epochtime%,%localdate%,%localtime%,%uptime%,%vpnname%,%vpnid%,%servname%,%servi
d%,%localupd-req-rx%,%localupd-accept-tx%,%localupd-accept-retx%,%localupd-accept-rx%,%localupd-
rej-tx%,%localupd-rej-retx%,%localupd-rej-rx%,%tmsi-reloc-tx%,%tmsi-reloc-retx%,%tmsi-reloc-
rx%,%alert-req-tx%,%alert-req-retx%,%alert-req-rx%,%alert-ack-tx%,%alert-ack-retx%,%alert-ack-
rx%,%alert-rej-tx%,%alert-rej-retx%,%alert-rej-rx%,%ue-actind-tx%,%ue-actind-retx%,

sgs         sgsSch3              No
PPM,sgs,sgsSch3,%epochtime%,%localdate%,%localtime%,%uptime%,%vpnname%,%vpnid%,%servname%,%servi
d%,%ue-actind-rx%,%eps-detind-tx%,%eps-detind-retx%,%eps-detind-rx%,%eps-detack-tx%,%eps-detack-
retx%,%eps-detack-rx%,%imsi-detind-tx%,%imsi-detind-retx%,%imsi-detind-rx%,%imsi-detack-
tx%,%imsi-detack-retx%,%imsi-detack-rx%,,,,,,,,%mm-inforeq-tx%,%mm-inforeq-retx%,

[local]MME#
```

시나리오 E. 따라서 선택 키워드를 사용할 때마다 결과가 표시됩니다 **스키마**새 스키마를 추가할 수 없습니다. 현재 스키마를 노드에서 삭제할 수 있지만 다시 추가할 수는 없습니다. 그러나 <url>에 있는 구성 파일에 있는 현재 스키마는 노드에서 수행한 변경 사항의 영향을 받지 않습니다.

# 솔루션

1. cli **bulkstat config schema <url>**이 사용되는데, 이 문제가 발생했습니다.
2. 이는 선택적인 키워드 **스키마**를 사용하는 경우 얻을 수 있는 설계당 예상 결과입니다.
3. 이 경우에는 다음 세 가지 솔루션이 있습니다.

A.cli **bulkstat config schema <url>을** 제거하고 수동 cli/명령 프롬프트를 통해 스키마 추가/삭제를 제어합니다.

B. bulkstat config cli에서 선택적 키워드 **보충**을 사용합니다. cli **bulkstat config supplement <url>**을 사용하면 구성 파일에 있는 스키마를 현재 노드의 스키마에 추가할 수 있습니다. 새 스키마를 추가/삭제할 수 있으며, 현재 스키마는 CLI 명령 프롬프트를 통해 삭제/다시 추가할 수도 있습니다.

C. 구성 파일에서 필요한 스키마를 직접 추가/삭제한 다음 구성 파일을 사용하여 구성을 다시 로드하려면(먼저 **bulkstat 컨피그레이션 없이** cli를 제거한 다음 구성 파일에 스키마를 추가한 다음 **bulkstats config schema <url>**). 구성 파일에 스키마를 추가하려면 vi 편집기로 또는 SFTP로 파일을 추가할 수 있습니다

vi 편집기를 사용하여 다음을 수행합니다.

```
[local]MME-01# cli test-commands password <pswd>
Warning: Test commands enables internal testing and debugging commands
USE OF THIS MODE MAY CAUSE SIGNIFICANT SERVICE INTERRUPTION

[local]MME-01# debug shell
Last log in: Wed Dec 22 15:05:12 +0530 2021 on pts/3 from 10.227.224.108.
MME-01:card1-cpu0# ls -lrtha

total 16
-r--r--r-- 1 root root 952 Dec 15 23:30 .rhosts
-r--r--r-- 1 root root 1.7K Dec 15 23:30 .gdbinit
drwx------ 2 root root 100 Dec 15 23:30 .ssh
drwxr-xr-x 24 root root 500 Dec 15 23:30 ..
-rw------- 1 root root 118 Dec 21 14:48 .bash_history
-rw-r--r-- 1 root root 1 Dec 22 15:05 file
drwxr-xr-x 3 root root 140 Dec 22 15:05 .

MME-01:card1-cpu0# vi file
```
구성 파일을 <url>에서 로컬 드라이브로 SFTP로 편집하고 SFTP에서 <url>로 다시 전송합니다.