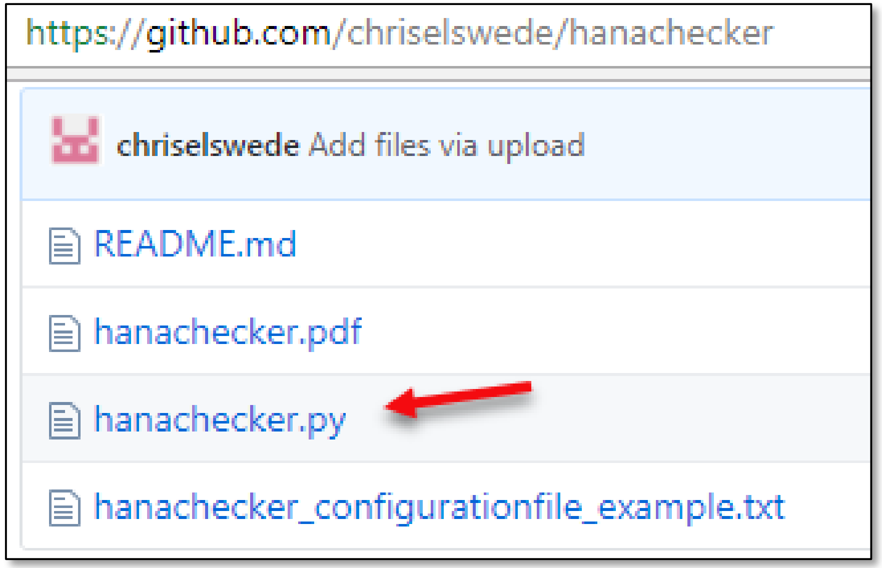
Monitoring

HANAChecker – SAP Note 1999993

SAP Note 1999993 presents a tool that runs the mini-checks (SAP Note 1969700) and sends out emails in case of potential critical issues

1999993 - How-To: Interpreting SAP HANA Mini Check Results

- It is a python script to be downloaded from https://github.com/chriselswede/hanachecker
- It is intended to be executed as <sid>adm on your SAP HANA Server
- It connects via host, port and DB user, provided in hdbuserstore
- It sends out emails via an intern smtp server (to avoid firewall issues) with xmail



https://github.com/chriselswede/hanachecker

chriselswede Add files via upload

README.md

hanachecker.pdf

hanachecker.py

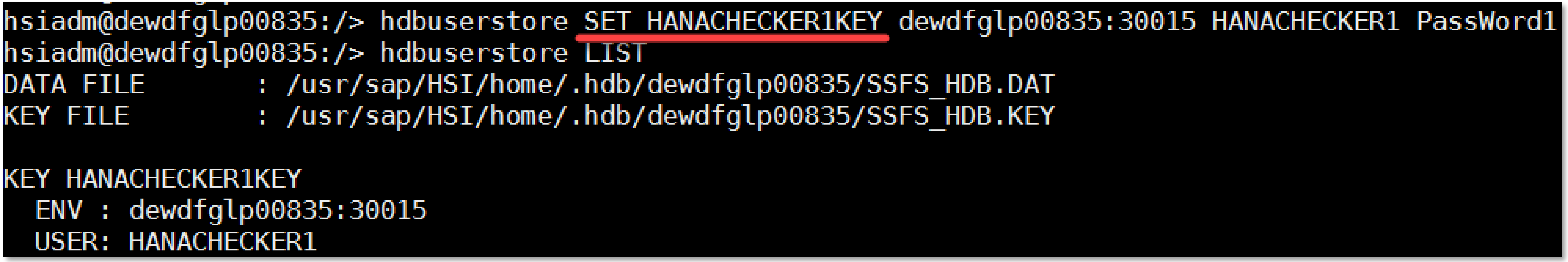
hanachecker_configurationfile_example.txt

NOTE: You have to install the linux program "sendmail" and add a line similar to `DSsmtp.intra.ourcompany.com` in the file sendmail.cf in /etc/mail/, see this page

Monitoring

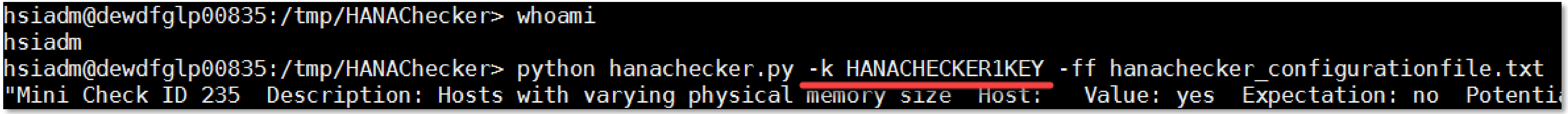
HANAChecker – using hdbuserstore

Host, port and DB user needs to be provided in the hdbuserstore:



```
hsiadm@dewdfglp00835:/> hdbuserstore SET HANACHECKER1KEY dewdfglp00835:30015 HANACHECKER1 PassWord1
hsiadm@dewdfglp00835:/> hdbuserstore LIST
DATA FILE       : /usr/sap/HSI/home/.hdb/dewdfglp00835/SSFS_HDB.DAT
KEY FILE        : /usr/sap/HSI/home/.hdb/dewdfglp00835/SSFS_HDB.KEY

KEY HANACHECKER1KEY
  ENV : dewdfglp00835:30015
  USER: HANACHECKER1
```

Then the hanachecker can connect using the info stored in hdbuserstore:

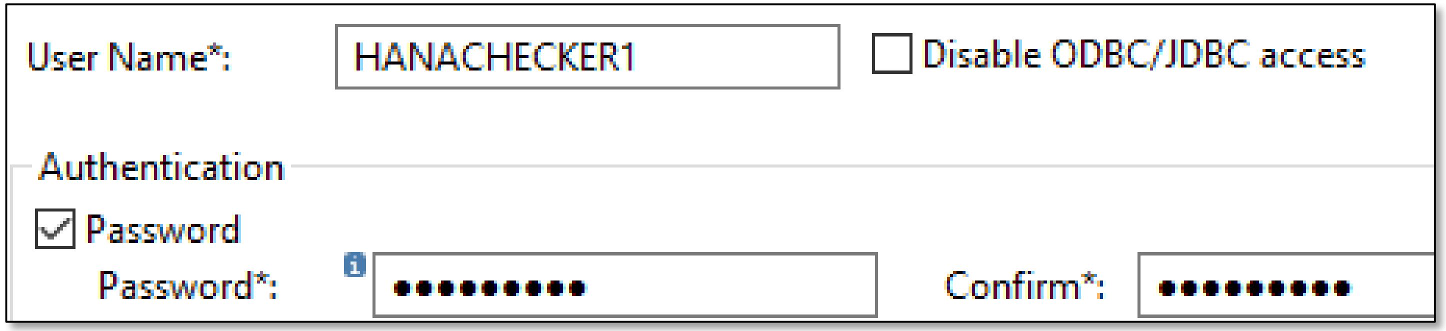


```
hsiadm@dewdfglp00835:/tmp/HANAChecker> whoami
hsiadm
hsiadm@dewdfglp00835:/tmp/HANAChecker> python hanachecker.py -k HANACHECKER1KEY -ff hanachecker_configurationfile.txt
"Mini Check ID 235  Description: Hosts with varying physical memory size  Host:   Value: yes  Expectation: no  Potenti
```

HANAChecker – needs privileges

The DB user that hanachecker uses to connect with needs proper privileges to run the mini-checks

The DB user that hanachecker uses only needs to read in the statistics server tables

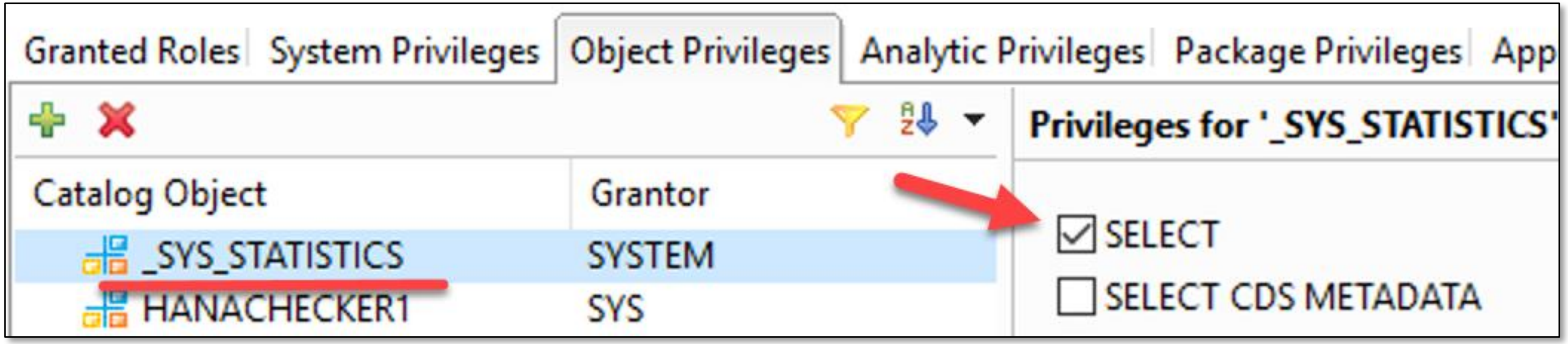


User Name*: HANACHECKER1 □ Disable ODBC/JDBC access

Authentication

☑ Password

Password*: •••••••••• Confirm*: ••••••••••



Catalog Object	Grantor
_SYS_STATISTICS	SYSTEM
HANACHECKER1	SYS

Privileges for '_SYS_STATISTICS'

☑ SELECT

□ SELECT CDS METADATA

HANAChecker – Input Mini-Check File

HANAChecker takes a mini-check SQL statement file as input

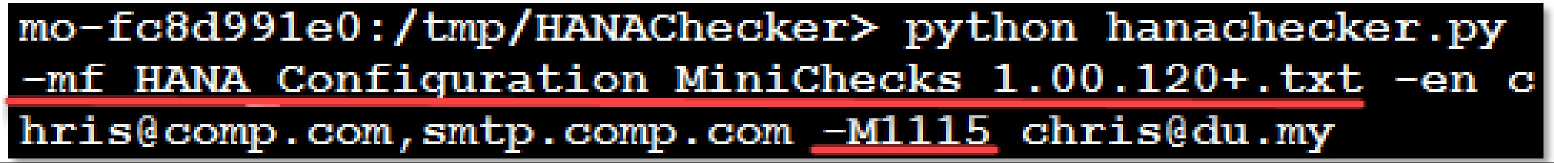
- The mini-check files have to be downloaded from SAP Note 1969700
- Note: Always use the mini-check file that corresponds to your SAP HANA Revision
- Note: It is recommended to regularly download these files to always have the latest versions as SAP Note 1969700 is being updated frequently

Flag	Unit	Details	Explanation	Default
-mf		mini-check file	Full path of the mini-check file (Cannot be used together with -zf)	‘’

Possible Files:

File	CHID	Example
HANA_Configuration_MiniChecks_<revision compatibility>.txt	MXXXX	M0231
HANA_Configuration_MiniChecks_Internal_<revision compatibility>.txt	IXXXX	I0076
HANA_Security_MiniChecks.txt	SXXXX	S1045
HANA_TraceFiles_MiniChecks.txt	TXXXX	T1200

Example:



```
mo-fc8d991e0:/tmp/HANAChecker> python hanachecker.py
-mf HANA_Configuration_MiniChecks_1.00.120+.txt -en c
hris@comp.com,smtp.comp.com -M1115 chris@du.my
```

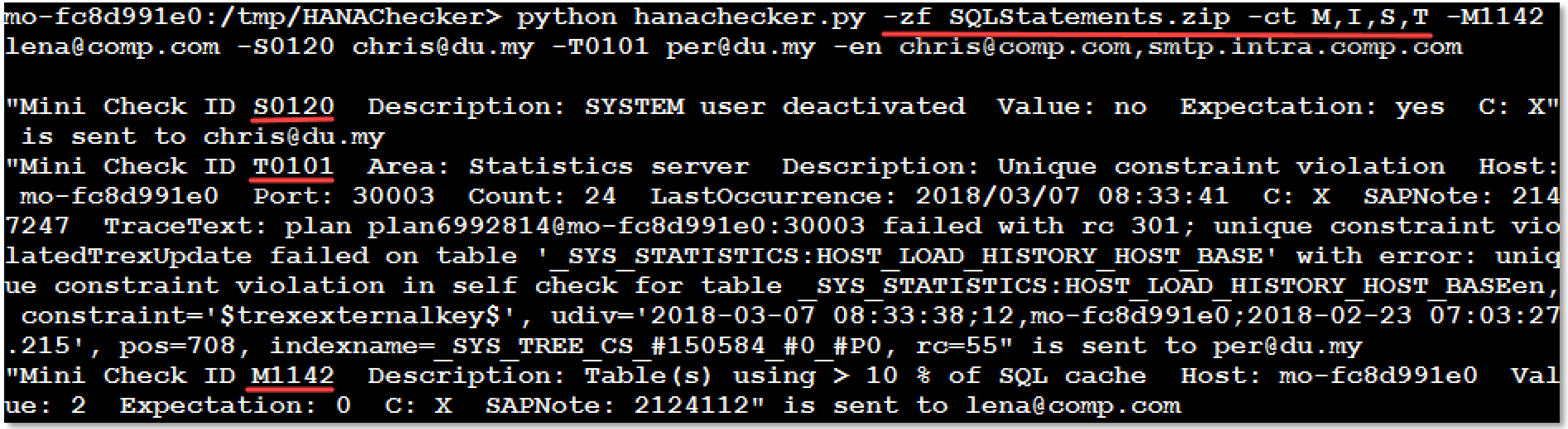
HANAChecker – Input 1969700 ZIP File

HANAChecker can take the SQLStatements.zip file as input

- The .zip file has to be downloaded from SAP Note 1969700
- HANAChecker will use the corresponding check files based on your HANA revision

Flag	Unit	Details	Explanation	Default
-zf		Full path to SQLStatements.zip	Full path of the SQLStatements.zip file (SAP Note 1969700). Cannot be used together with –mf and has to be used together with -ct	‘’
-ct		Check Types	M = Mini-Checks, I = Internal Mini-Checks, S = Security Mini-Checks, T = Trace Mini-Checks	‘’

Example:



```
mo-fc8d991e0:/tmp/HANAChecker> python hanachecker.py -zf SQLStatements.zip -ct M,I,S,T -M1142
lena@comp.com -S0120 chris@du.my -T0101 per@du.my -en chris@comp.com,smtp.intra.comp.com

"Mini Check ID S0120  Description: SYSTEM user deactivated  Value: no  Expectation: yes  C: X"
 is sent to chris@du.my
"Mini Check ID T0101  Area: Statistics server  Description: Unique constraint violation  Host:
 mo-fc8d991e0  Port: 30003  Count: 24  LastOccurrence: 2018/03/07 08:33:41  C: X  SAPNote: 214
7247  TraceText: plan plan6992814@mo-fc8d991e0:30003 failed with rc 301; unique constraint vio
latedTrexUpdate failed on table '_SYS_STATISTICS:HOST_LOAD_HISTORY_HOST_BASE' with error: uniq
ue constraint violation in self check for table _SYS_STATISTICS:HOST_LOAD_HISTORY_HOST_BASEen,
 constraint='$trexexternalkey$', udiv='2018-03-07 08:33:38;12,mo-fc8d991e0;2018-02-23 07:03:27
.215', pos=708, indexname=_SYS_TREE_CS_#150584_#0_#P0, rc=55" is sent to per@du.my
"Mini Check ID M1142  Description: Table(s) using > 10 % of SQL cache  Host: mo-fc8d991e0  Val
ue: 2  Expectation: 0  C: X  SAPNote: 2124112" is sent to lena@comp.com
```

Monitoring

HANAChecker – Email Notification

HANAChecker can send out emails for all critical mini-checks

The HANAChecker executes the mini-checks and sends out emails for every mini-check that are “Potential Critical”, i.e. the column “C” has an “X” in it

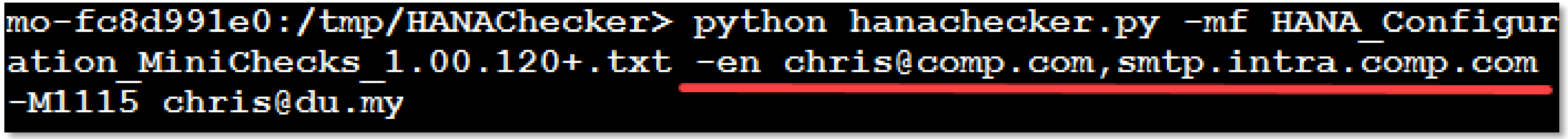
For this to work (see this page for more information):

- an internal smtp server has to be used, e.g. ourcompany.intra.com,
- the Linux program “sendmail” has to be installed and
- a line like DSsmtp.intra.ourcompany.com in file sendmail.cf in /etc/mail/ has to be added

The sender’s email address and the internal smtp email server has to be provided:

Flag	Unit	Details	Explanation	Default
-en		email-notification	<sender’s email>,<mail server>	‘’

Example:



```
mo-fc8d991e0:/tmp/HANAChecker> python hanachecker.py -mf HANA_Configur
ation_MiniChecks_1.00.120+.txt -en chris@comp.com,smtp.intra.comp.com
-M1115 chris@du.my
```

Monitoring

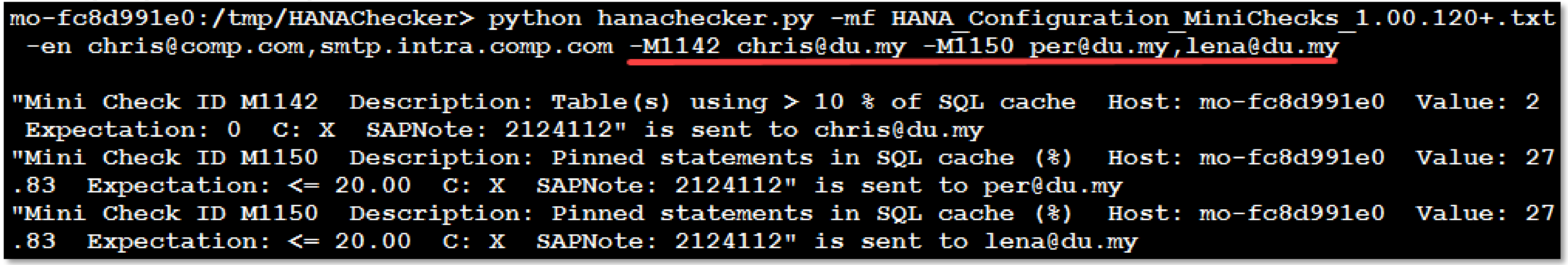
HANAChecker – Email Mapping

HANAChecker sends out emails to the addresses mapped for the mini-checks

If the flag -<CHID> is specified for a email address and the mini-check with that check id (CHID) is potential critical then an email is send to that email address

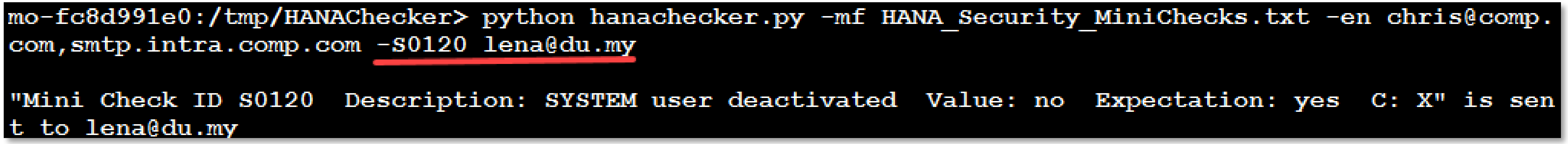
Flag	Unit	Details	Explanation	Default
-<CHID>		mini-check to email address	If that particular mini-check specified by the flag is potential critical an email is sent to the addresses specified by the value of the flag	

Example (mini-checks):



```
mo-fc8d991e0:/tmp/HANAChecker> python hanachecker.py -mf HANA_Configuration_MiniChecks_1.00.120+.txt
 -en chris@comp.com,smtp.intra.comp.com -M1142 chris@du.my -M1150 per@du.my,lena@du.my

"Mini Check ID M1142  Description: Table(s) using > 10 % of SQL cache  Host: mo-fc8d991e0  Value: 2
 Expectation: 0  C: X  SAPNote: 2124112" is sent to chris@du.my
"Mini Check ID M1150  Description: Pinned statements in SQL cache (%)  Host: mo-fc8d991e0  Value: 27
.83  Expectation: <= 20.00  C: X  SAPNote: 2124112" is sent to per@du.my
"Mini Check ID M1150  Description: Pinned statements in SQL cache (%)  Host: mo-fc8d991e0  Value: 27
.83  Expectation: <= 20.00  C: X  SAPNote: 2124112" is sent to lena@du.my
```

Example (security mini-checks):



```
mo-fc8d991e0:/tmp/HANAChecker> python hanachecker.py -mf HANA_Security_MiniChecks.txt -en chris@comp.
com,smtp.intra.comp.com -S0120 lena@du.my

"Mini Check ID S0120  Description: SYSTEM user deactivated  Value: no  Expectation: yes  C: X" is sen
t to lena@du.my
```

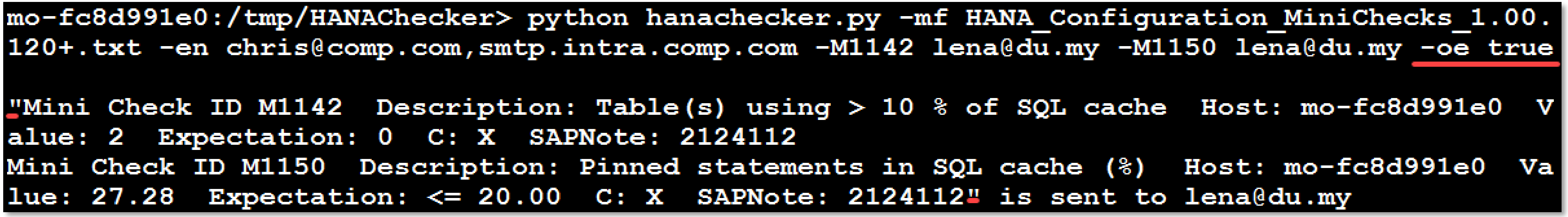
HANAChecker – Only One Email

HANAChecker can be told to only send one email per email address

The flag -oe flag tells HANAChecker that if one email address is supposed to get notified by many mini-check warnings, they are sent in only one email

Flag	Unit	Details	Explanation	Default
-oe		one email per address	true: only one email is sent per email address, false: one email is sent per critical mini check	false

Example: Here lena@du.my gets only one email, including warnings from mini-check M1142, and M1150



```
mo-fc8d991e0:/tmp/HANAChecker> python hanachecker.py -mf HANA_Configuration_MiniChecks_1.00.
120+.txt -en chris@comp.com,smtp.intra.comp.com -M1142 lena@du.my -M1150 lena@du.my -oe true

"Mini Check ID M1142  Description: Table(s) using > 10 % of SQL cache  Host: mo-fc8d991e0  V
alue: 2  Expectation: 0  C: X  SAPNote: 2124112
Mini Check ID M1150  Description: Pinned statements in SQL cache (%)  Host: mo-fc8d991e0  Va
lue: 27.28  Expectation: <= 20.00  C: X  SAPNote: 2124112" is sent to lena@du.my
```

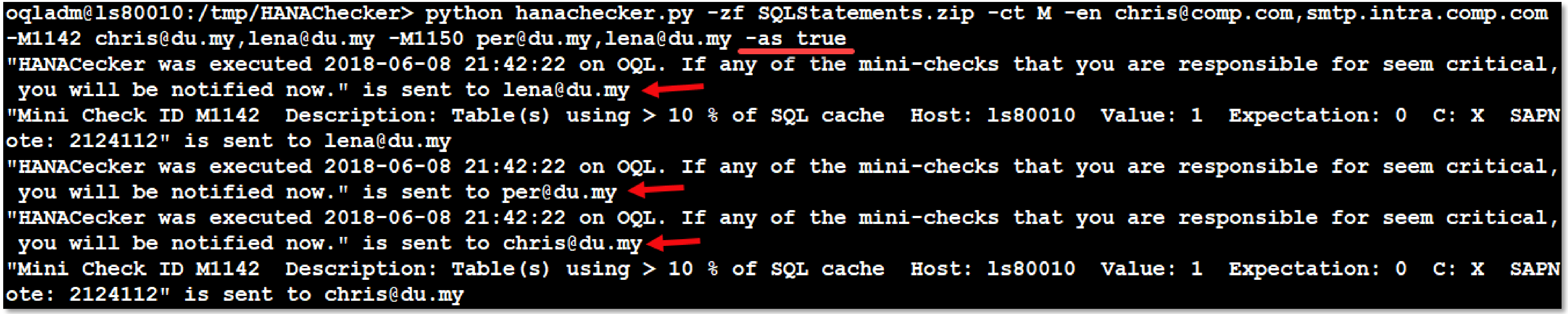
Monitoring

HANAChecker – Always Send a Notification Email

HANAChecker can send an email to all unique email addresses even if none of the mini-checks for those addresses seemed critical – just to notify that HANAChecker was executed

Flag	Unit	Details	Explanation	Default
-as		always send at least a notification email	true: all email addresses will be send at least a notification email, even if none of the mini-checks assigned to the emails were potential critical	false

Example: Here all emails, chris@du.my, lena@du.my, and per@du.my, gets the notification email. Note that Per also get the notification email so he will know that the HANAChecker ran even though none of his mini-checks were critical.



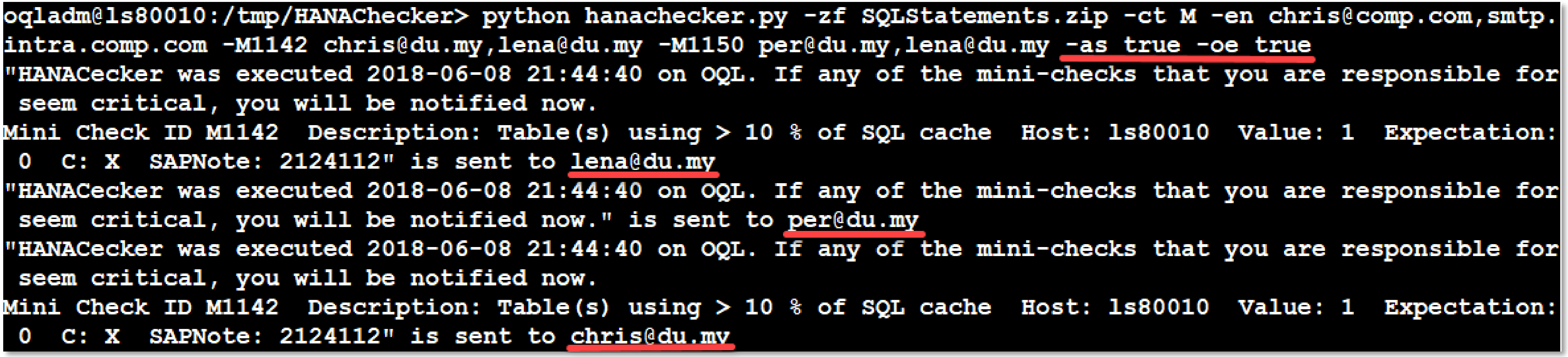
```
oqladm@ls80010:/tmp/HANAChecker> python hanachecker.py -zf SQLStatements.zip -ct M -en chris@comp.com,smtp.intra.comp.com
-M1142 chris@du.my,lena@du.my -M1150 per@du.my,lena@du.my -as true
"HANACecker was executed 2018-06-08 21:42:22 on OQL. If any of the mini-checks that you are responsible for seem critical,
 you will be notified now." is sent to lena@du.my
"Mini Check ID M1142  Description: Table(s) using > 10 % of SQL cache  Host: ls80010  Value: 1  Expectation: 0  C: X  SAPN
ote: 2124112" is sent to lena@du.my
"HANACecker was executed 2018-06-08 21:42:22 on OQL. If any of the mini-checks that you are responsible for seem critical,
 you will be notified now." is sent to per@du.my
"HANACecker was executed 2018-06-08 21:42:22 on OQL. If any of the mini-checks that you are responsible for seem critical,
 you will be notified now." is sent to chris@du.my
"Mini Check ID M1142  Description: Table(s) using > 10 % of SQL cache  Host: ls80010  Value: 1  Expectation: 0  C: X  SAPN
ote: 2124112" is sent to chris@du.my
```

Monitoring

HANAChecker – Always Send One Email

If both the -as and the -oe flags are set to true then all email addresses get one email and one email only; the email includes always the notification that HANAChecker ran and then, if any of the mini-checks were critical, those mini-check notifications will follow

Example: Here all email addresses, chris@du.my, lena@du.my, and per@du.my, get one email



```
oqladm@ls80010:/tmp/HANAChecker> python hanachecker.py -zf SQLStatements.zip -ct M -en chris@comp.com,smtp.
intra.comp.com -M1142 chris@du.my,lena@du.my -M1150 per@du.my,lena@du.my -as true -oe true
"HANACecker was executed 2018-06-08 21:44:40 on OQL. If any of the mini-checks that you are responsible for
 seem critical, you will be notified now.
Mini Check ID M1142  Description: Table(s) using > 10 % of SQL cache  Host: ls80010  Value: 1  Expectation:
 0  C: X  SAPNote: 2124112" is sent to lena@du.my
"HANACecker was executed 2018-06-08 21:44:40 on OQL. If any of the mini-checks that you are responsible for
 seem critical, you will be notified now." is sent to per@du.my
"HANACecker was executed 2018-06-08 21:44:40 on OQL. If any of the mini-checks that you are responsible for
 seem critical, you will be notified now.
Mini Check ID M1142  Description: Table(s) using > 10 % of SQL cache  Host: ls80010  Value: 1  Expectation:
 0  C: X  SAPNote: 2124112" is sent to chris@du.my
```

Monitoring

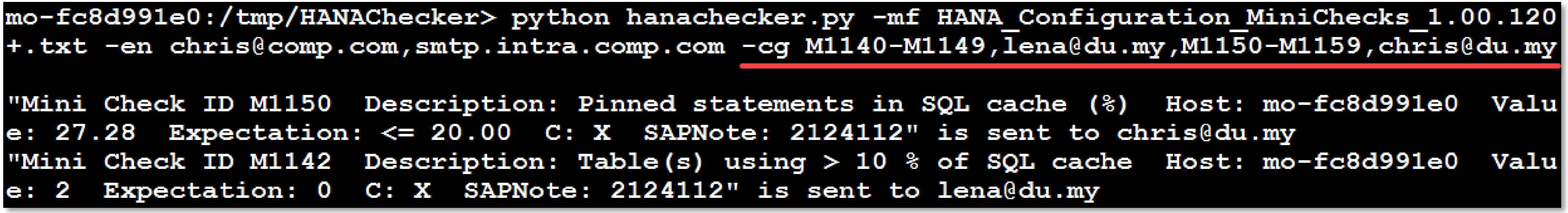
HANAChecker – Email Grouping

HANAChecker sends out emails to the addresses grouped for the checks

The flag -cg can specify ranges of mini-checks and map an email address for each of these ranges

Flag	Unit	Details	Explanation	Default
-cg		mini-check groups	Groupings of mini-checks with responsible email addresses associated	

Example: Here lena@du.my gets emails for every potential critical mini-check between M1140 and M1149 and chris@du.my gets emails for every potential critical mini-check between M1150 and M1159



```
mo-fc8d991e0:/tmp/HANAChecker> python hanachecker.py -mf HANA_Configuration_MiniChecks_1.00.120
+.txt -en chris@comp.com,smtp.intra.comp.com -cg M1140-M1149,lena@du.my,M1150-M1159,chris@du.my

"Mini Check ID M1150  Description: Pinned statements in SQL cache (%)  Host: mo-fc8d991e0  Valu
e: 27.28  Expectation: <= 20.00  C: X  SAPNote: 2124112" is sent to chris@du.my
"Mini Check ID M1142  Description: Table(s) using > 10 % of SQL cache  Host: mo-fc8d991e0  Valu
e: 2  Expectation: 0  C: X  SAPNote: 2124112" is sent to lena@du.my
```

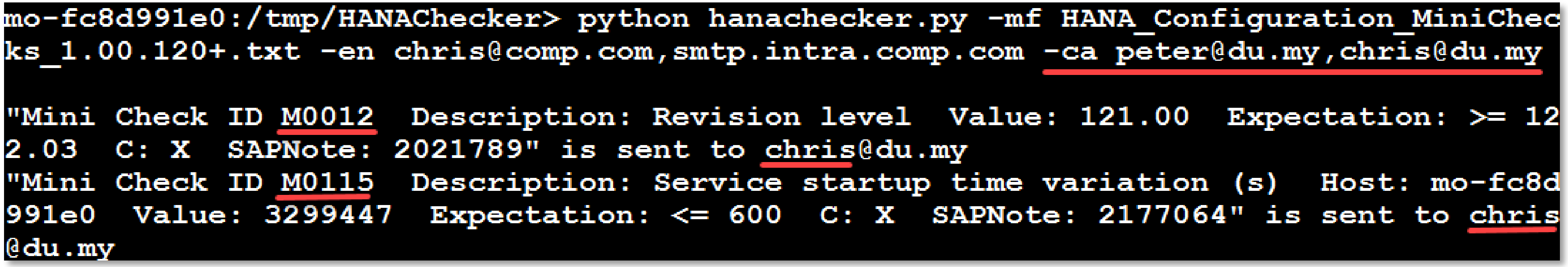
Monitoring

HANAChecker – Catch All

HANAChecker can send out emails for all potential critical checks to the emails defined as “catch all” emails

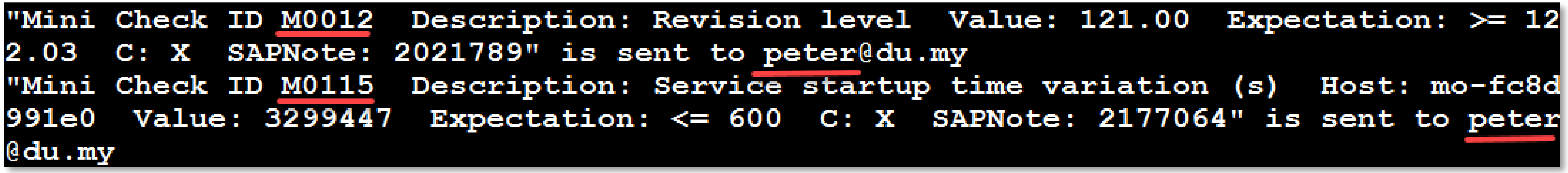
Flag	Unit	Details	Explanation	Default
-ca		catch all emails	The email addresses specified receive an email about each potential critical mini-check	

Example:



```
mo-fc8d991e0:/tmp/HANAChecker> python hanachecker.py -mf HANA_Configuration_MiniChec
ks_1.00.120+.txt -en chris@comp.com,smtp.intra.comp.com -ca peter@du.my,chris@du.my

"Mini Check ID M0012  Description: Revision level  Value: 121.00  Expectation: >= 12
2.03  C: X  SAPNote: 2021789" is sent to chris@du.my
"Mini Check ID M0115  Description: Service startup time variation (s)  Host: mo-fc8d
991e0  Value: 3299447  Expectation: <= 600  C: X  SAPNote: 2177064" is sent to chris
@du.my
```

…



```
"Mini Check ID M0012  Description: Revision level  Value: 121.00  Expectation: >= 12
2.03  C: X  SAPNote: 2021789" is sent to peter@du.my
"Mini Check ID M0115  Description: Service startup time variation (s)  Host: mo-fc8d
991e0  Value: 3299447  Expectation: <= 600  C: X  SAPNote: 2177064" is sent to peter
@du.my
```

…

Monitoring

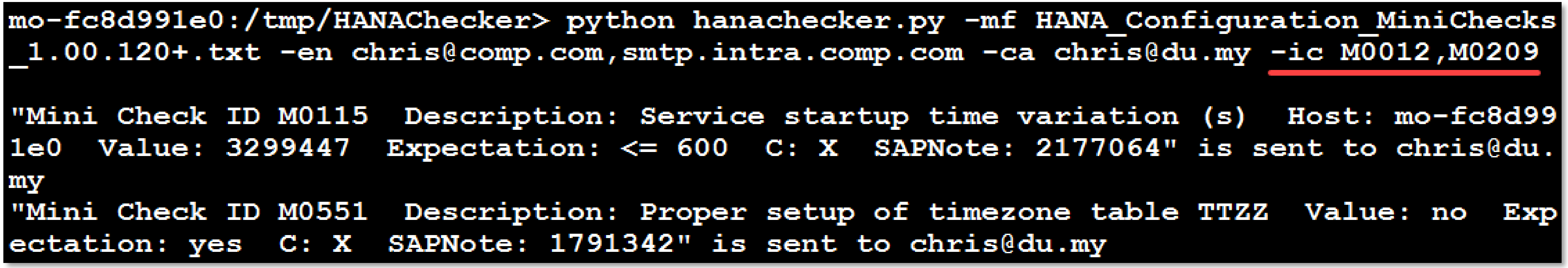
HANAChecker – Ignore Checks

While using the “Catch All” flag, you can “Ignore” some checks with the –ic flag, i.e. catch all except some checks

Example:

Flag	Unit	Details	Explanation	Default
-ic		ignore checks	A list of mini-check CHIDs to be ignored by the catch all emails	

Example:



```
mo-fc8d991e0:/tmp/HANAChecker> python hanachecker.py -mf HANA_Configuration_MiniChecks
_1.00.120+.txt -en chris@comp.com,smtp.intra.comp.com -ca chris@du.my -ic M0012,M0209

"Mini Check ID M0115  Description: Service startup time variation (s)  Host: mo-fc8d99
1e0  Value: 3299447  Expectation: <= 600  C: X  SAPNote: 2177064" is sent to chris@du.
my
"Mini Check ID M0551  Description: Proper setup of timezone table TTZZ  Value: no  Exp
ectation: yes  C: X  SAPNote: 1791342" is sent to chris@du.my
```

…

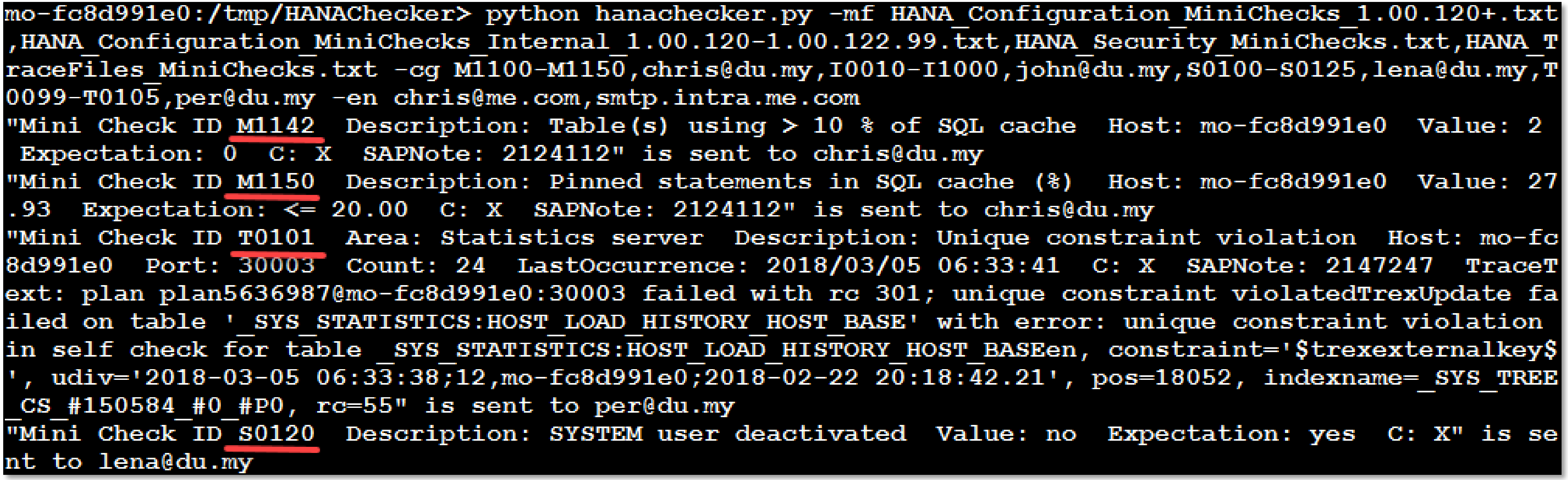
Monitoring

HANAChecker – Different Check Types

One can define different mini-check files with the -mf flag and assign different mini-check types to emails, e.g.

```
-mf <mini-check file>,<security-mini-check file>,…
-cg M0100-M0200,email1@comp.com,S0100-S0200,email2@comp.com
```

Example:



```
mo-fc8d991e0:/tmp/HANAChecker> python hanachecker.py -mf HANA_Configuration_MiniChecks_1.00.120+.txt
,HANA_Configuration_MiniChecks_Internal_1.00.120-1.00.122.99.txt,HANA_Security_MiniChecks.txt,HANA_T
raceFiles_MiniChecks.txt -cg M1100-M1150,chris@du.my,I0010-I1000,john@du.my,S0100-S0125,lena@du.my,T
0099-T0105,per@du.my -en chris@me.com,smtp.intra.me.com
"Mini Check ID M1142  Description: Table(s) using > 10 % of SQL cache  Host: mo-fc8d991e0  Value: 2
 Expectation: 0  C: X  SAPNote: 2124112" is sent to chris@du.my
"Mini Check ID M1150  Description: Pinned statements in SQL cache (%)  Host: mo-fc8d991e0  Value: 27
.93  Expectation: <= 20.00  C: X  SAPNote: 2124112" is sent to chris@du.my
"Mini Check ID T0101  Area: Statistics server  Description: Unique constraint violation  Host: mo-fc
8d991e0  Port: 30003  Count: 24  LastOccurrence: 2018/03/05 06:33:41  C: X  SAPNote: 2147247  TraceT
ext: plan plan5636987@mo-fc8d991e0:30003 failed with rc 301; unique constraint violatedTrexUpdate fa
iled on table '_SYS_STATISTICS:HOST_LOAD_HISTORY_HOST_BASE' with error: unique constraint violation
in self check for table _SYS_STATISTICS:HOST_LOAD_HISTORY_HOST_BASEen, constraint='$trexexternalkey$
', udiv='2018-03-05 06:33:38;12,mo-fc8d991e0;2018-02-22 20:18:42.21', pos=18052, indexname=_SYS_TREE
_CS_#150584_#0_#P0, rc=55" is sent to per@du.my
"Mini Check ID S0120  Description: SYSTEM user deactivated  Value: no  Expectation: yes  C: X" is se
nt to lena@du.my
```

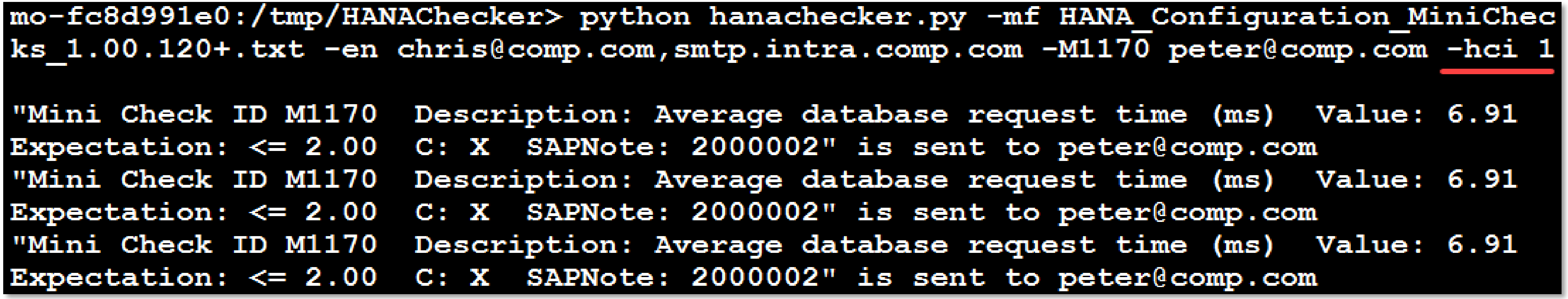
Monitoring

HANAChecker – Interval

Run hanachecker “forever” with the –hci flag

Flag	Unit	Details	Explanation	Default
-hci	Days	hanachecker interval	After these number days hanachecker will restart	-1 (exits)

Example: HANAChecker runs here the mini-checks and sends emails once every day



```
mo-fc8d991e0:/tmp/HANAChecker> python hanachecker.py -mf HANA_Configuration_MiniChec
ks_1.00.120+.txt -en chris@comp.com,smtp.intra.comp.com -M1170 peter@comp.com -hci 1

"Mini Check ID M1170  Description: Average database request time (ms)  Value: 6.91
Expectation: <= 2.00  C: X  SAPNote: 2000002" is sent to peter@comp.com
"Mini Check ID M1170  Description: Average database request time (ms)  Value: 6.91
Expectation: <= 2.00  C: X  SAPNote: 2000002" is sent to peter@comp.com
"Mini Check ID M1170  Description: Average database request time (ms)  Value: 6.91
Expectation: <= 2.00  C: X  SAPNote: 2000002" is sent to peter@comp.com
```

Note: HANAChecker could ofcourse also be scheduled by a cron job – do then NOT use the -hci flag!

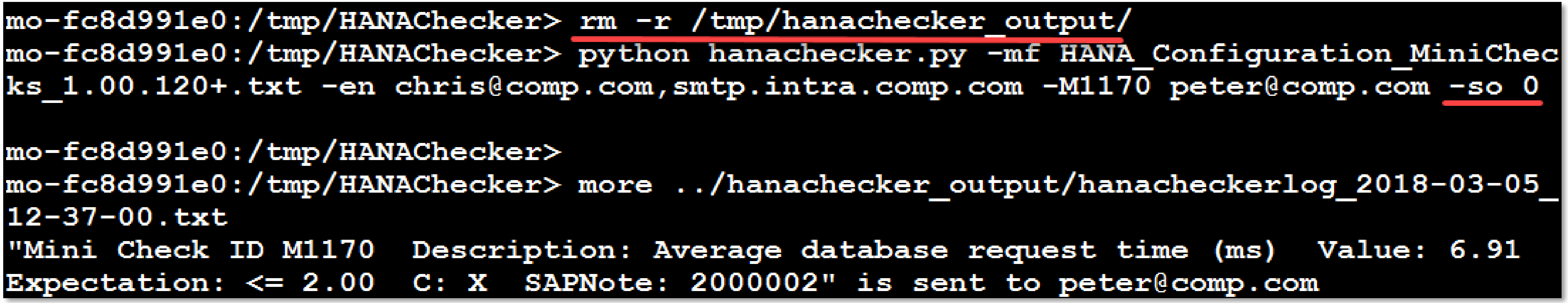
Monitoring

HANAChecker – output

To control the output of the hanachecker there are these flags

Flag	Unit	Details	Explanation	Default
-od		output directory	full path of the folder where the hanachecker logs are written	/tmp/hanachecker_output
-so		standard out switch	1: write to std out, 0: do not write to std out	1

Example:
Here an output folder is deleted and then automatically created again by hanachecker and a new log file is written into it:



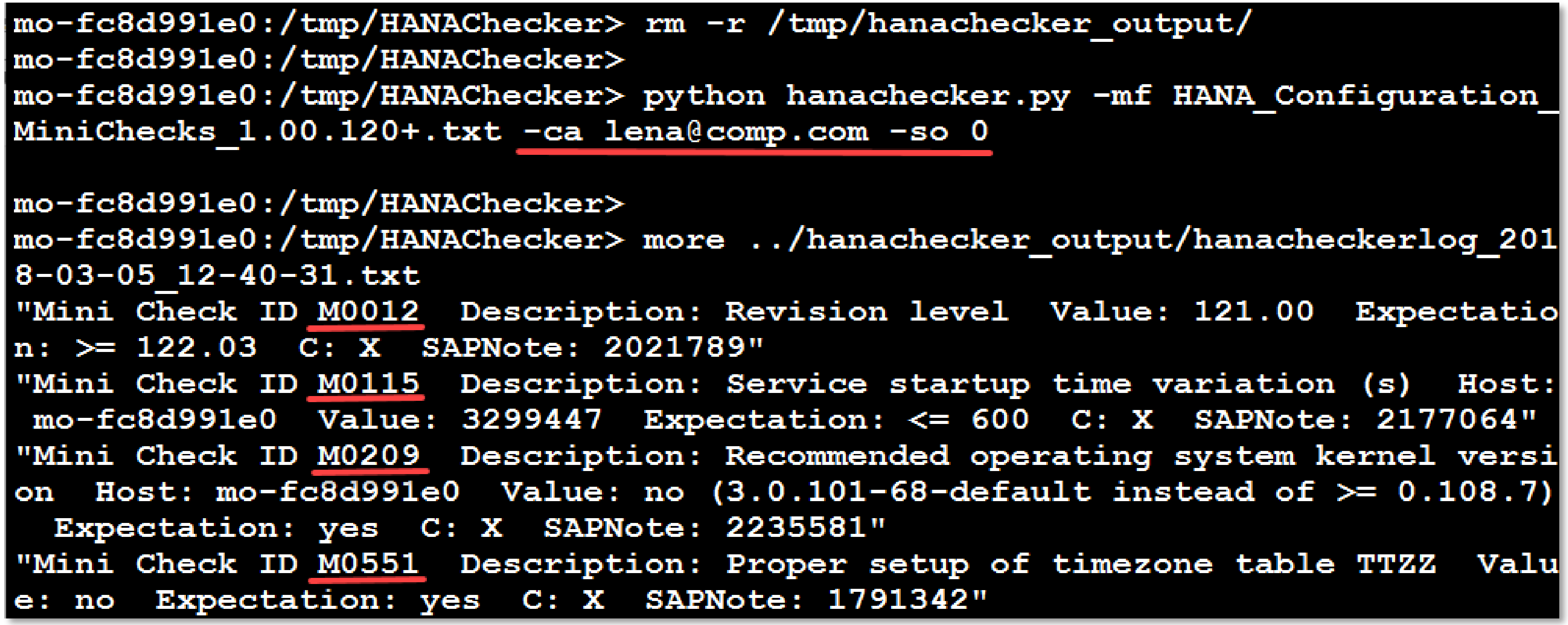
```
mo-fc8d991e0:/tmp/HANAChecker> rm -r /tmp/hanachecker_output/
mo-fc8d991e0:/tmp/HANAChecker> python hanachecker.py -mf HANA_Configuration_MiniChec
ks_1.00.120+.txt -en chris@comp.com,smtp.intra.comp.com -M1170 peter@comp.com -so 0

mo-fc8d991e0:/tmp/HANAChecker>
mo-fc8d991e0:/tmp/HANAChecker> more ../hanachecker_output/hanacheckerlog_2018-03-05_
12-37-00.txt
"Mini Check ID M1170  Description: Average database request time (ms)  Value: 6.91
Expectation: <= 2.00  C: X  SAPNote: 2000002" is sent to peter@comp.com
```

HANAChecker – Used To Only Log Checks

If the -en flag is not specified, HANAChecker can be used to simply write all potential critical mini-checks in the log file, without sending out emails:

```
python hanachecker.py -mf HANA_Configuration_MiniChecks_1.00.120+.txt
-ca dummy@me.com -so 0
```

Example:



```
mo-fc8d991e0:/tmp/HANAChecker> rm -r /tmp/hanachecker_output/
mo-fc8d991e0:/tmp/HANAChecker>
mo-fc8d991e0:/tmp/HANAChecker> python hanachecker.py -mf HANA_Configuration_
MiniChecks_1.00.120+.txt -ca lena@comp.com -so 0

mo-fc8d991e0:/tmp/HANAChecker>
mo-fc8d991e0:/tmp/HANAChecker> more ../hanachecker_output/hanacheckerlog_201
8-03-05_12-40-31.txt
"Mini Check ID M0012  Description: Revision level  Value: 121.00  Expectatio
n: >= 122.03  C: X  SAPNote: 2021789"
"Mini Check ID M0115  Description: Service startup time variation (s)  Host:
 mo-fc8d991e0  Value: 3299447  Expectation: <= 600  C: X  SAPNote: 2177064"
"Mini Check ID M0209  Description: Recommended operating system kernel versi
on  Host: mo-fc8d991e0  Value: no (3.0.101-68-default instead of >= 0.108.7)
  Expectation: yes  C: X  SAPNote: 2235581"
"Mini Check ID M0551  Description: Proper setup of timezone table TTZZ  Valu
e: no  Expectation: yes  C: X  SAPNote: 1791342"
```

…

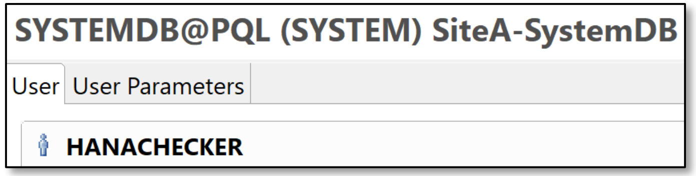
Monitoring

HANAChecker – MDC (1/2)

In a MDC system the hanachecker can check the SystemDB and multiple Tenants with one key

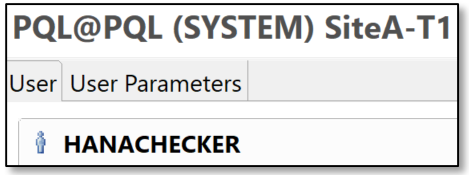
Maintain a user with same user name and same password in multiple DBs in one HANA System

Example:
Here the user HANACLEANER1 with same password was created in both SystemDB and in a Tenant



SYSTEMDB@PQL (SYSTEM) SiteA-SystemDB

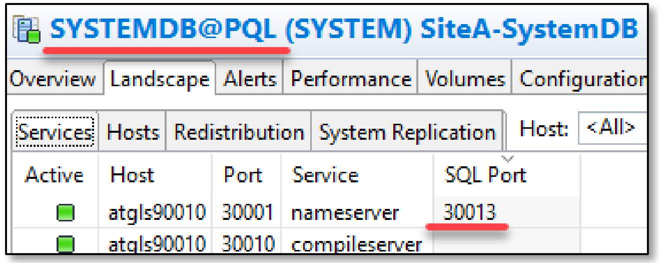
HANACHECKER



PQL@PQL (SYSTEM) SiteA-T1

HANACHECKER

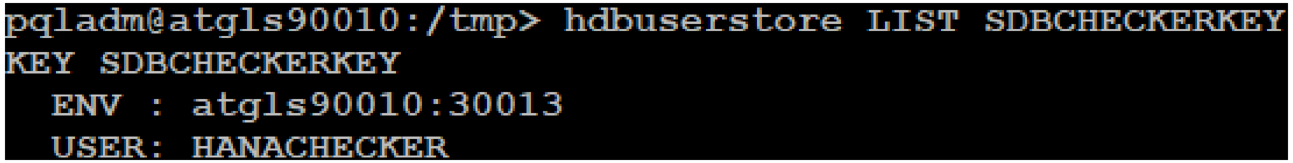
(for privileges,
see earlier slides)



SYSTEMDB@PQL (SYSTEM) SiteA-SystemDB

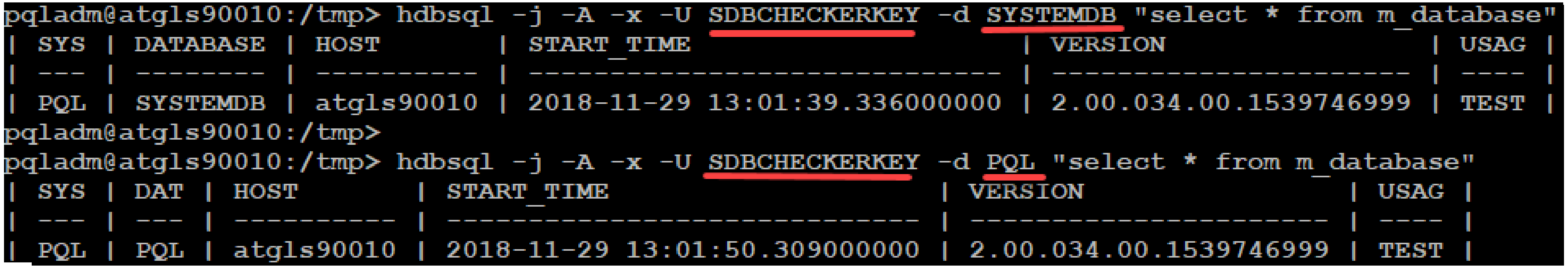
Active	Host	Port	Service	SQL Port
🟩	atgls90010	30001	nameserver	30013
🟩	atgls90010	30010	compileserver	

Then only one key, for the SystemDB, was provided in hdbuserstore



```
pqladm@atgls90010:/tmp> hdbuserstore LIST SDBCHECKERKEY
KEY SDBCHECKERKEY
  ENV : atgls90010:30013
  USER: HANACHECKER
```

Test that this single key can be used to access both databases:



```
pqladm@atgls90010:/tmp> hdbsql -j -A -x -U SDBCHECKERKEY -d SYSTEMDB "select * from m_database"
| SYS | DATABASE | HOST       | START_TIME                    | VERSION                 | USAG |
| --- | -------- | ---------- | ----------------------------- | ----------------------- | ---- |
| PQL | SYSTEMDB | atgls90010 | 2018-11-29 13:01:39.336000000 | 2.00.034.00.1539746999 | TEST |
pqladm@atgls90010:/tmp>
pqladm@atgls90010:/tmp> hdbsql -j -A -x -U SDBCHECKERKEY -d PQL "select * from m_database"
| SYS | DAT | HOST       | START_TIME                    | VERSION                 | USAG |
| --- | --- | ---------- | ----------------------------- | ----------------------- | ---- |
| PQL | PQL | atgls90010 | 2018-11-29 13:01:50.309000000 | 2.00.034.00.1539746999 | TEST |
```

Monitoring

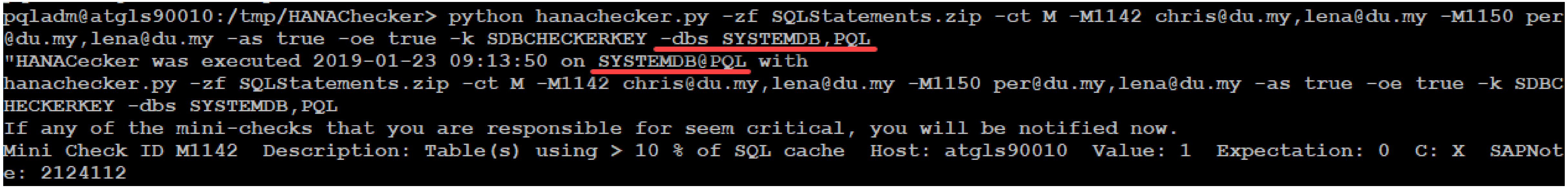
HANAChecker – MDC (2/2)

In a MDC system the hanachecker can check the SystemDB and multiple Tenants with one key

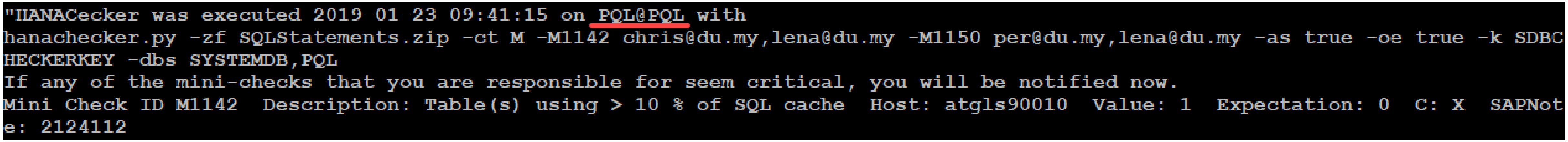
Flag	Unit	Details	Explanation	Default
-dbs		DB key(s)	this can be a list of databases accessed from the system defined by -k (-k can only be one key if -dbs is used)	''

Example:

Here the key SDBCHECKERKEY is used to access the system, then it is specified with -dbs that two databases, SYSTEMDB and PQL, will be checked:



```
pqladm@atgls90010:/tmp/HANAChecker> python hanachecker.py -zf SQLStatements.zip -ct M -M1142 chris@du.my,lena@du.my -M1150 per
@du.my,lena@du.my -as true -oe true -k SDBCHECKERKEY -dbs SYSTEMDB,PQL
"HANACecker was executed 2019-01-23 09:13:50 on SYSTEMDB@PQL with
hanachecker.py -zf SQLStatements.zip -ct M -M1142 chris@du.my,lena@du.my -M1150 per@du.my,lena@du.my -as true -oe true -k SDBC
HECKERKEY -dbs SYSTEMDB,PQL
If any of the mini-checks that you are responsible for seem critical, you will be notified now.
Mini Check ID M1142  Description: Table(s) using > 10 % of SQL cache  Host: atgls90010  Value: 1  Expectation: 0  C: X  SAPNot
e: 2124112
```



```
"HANACecker was executed 2019-01-23 09:41:15 on PQL@PQL with
hanachecker.py -zf SQLStatements.zip -ct M -M1142 chris@du.my,lena@du.my -M1150 per@du.my,lena@du.my -as true -oe true -k SDBC
HECKERKEY -dbs SYSTEMDB,PQL
If any of the mini-checks that you are responsible for seem critical, you will be notified now.
Mini Check ID M1142  Description: Table(s) using > 10 % of SQL cache  Host: atgls90010  Value: 1  Expectation: 0  C: X  SAPNot
e: 2124112
```

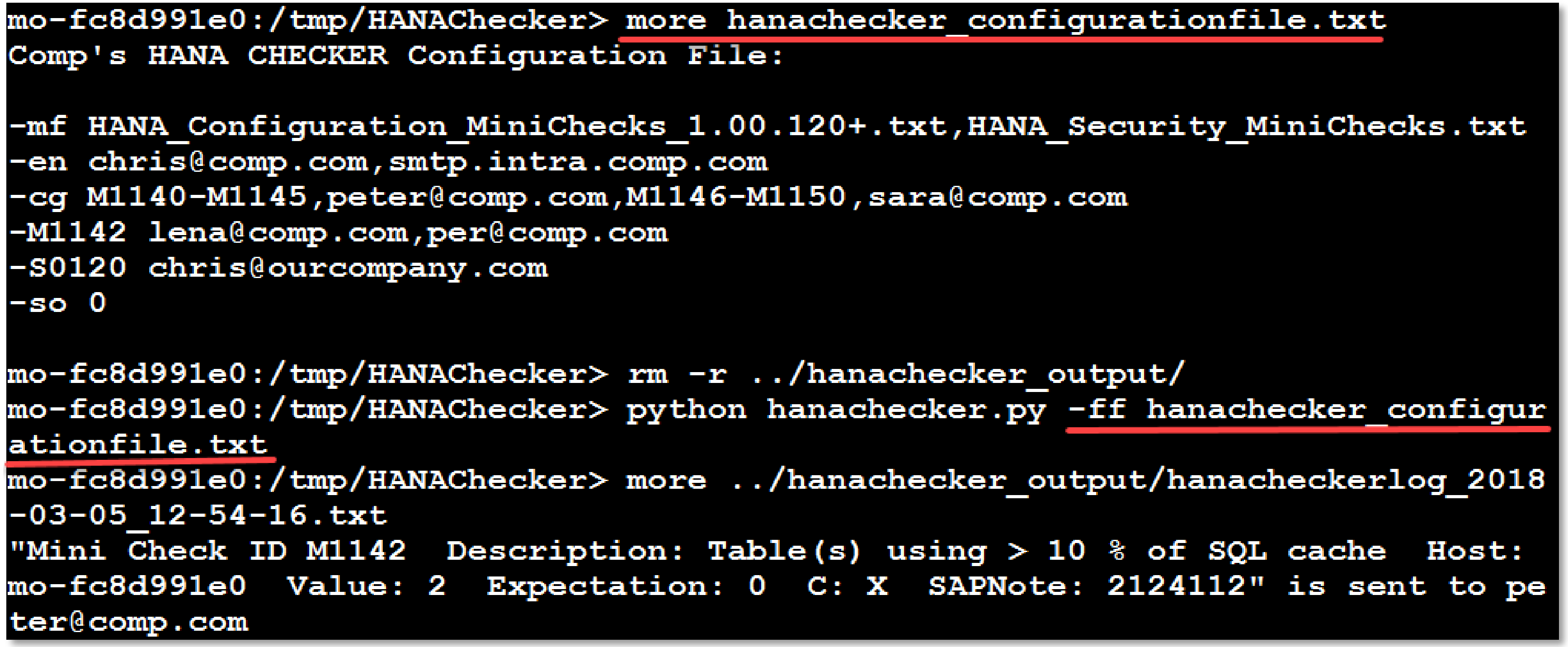
Monitoring

HANAChecker – Configuration File

HANAChecker can be controlled with a configuration file
(additional flags given will overwrite flags in the configuration file)

Flag	Unit	Details	Explanation	Default
-ff		flag file	full path to the configuration file	

Example:



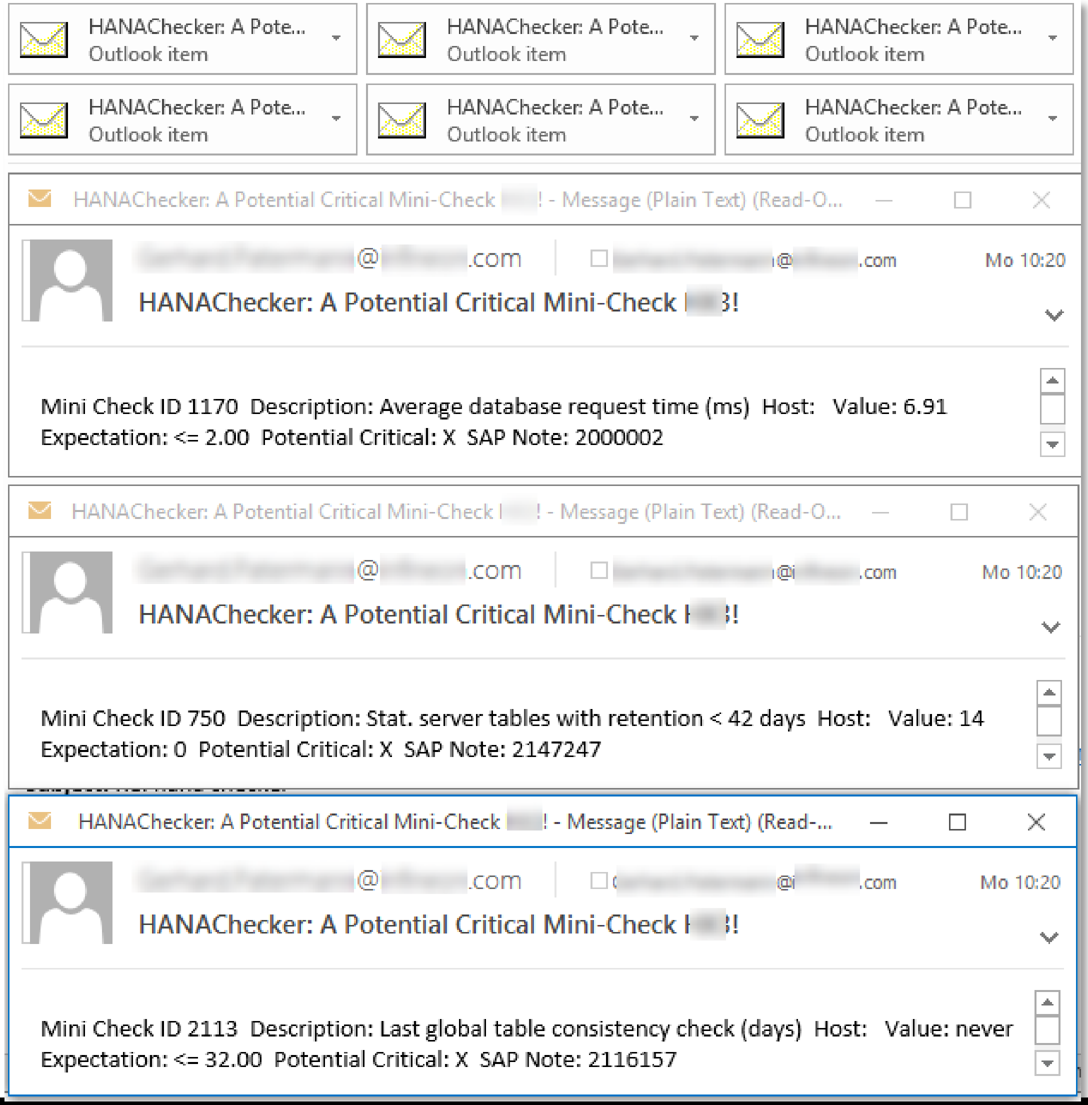
```
mo-fc8d991e0:/tmp/HANAChecker> more hanachecker_configurationfile.txt
Comp's HANA CHECKER Configuration File:

-mf HANA_Configuration_MiniChecks_1.00.120+.txt,HANA_Security_MiniChecks.txt
-en chris@comp.com,smtp.intra.comp.com
-cg M1140-M1145,peter@comp.com,M1146-M1150,sara@comp.com
-M1142 lena@comp.com,per@comp.com
-S0120 chris@ourcompany.com
-so 0

mo-fc8d991e0:/tmp/HANAChecker> rm -r ../hanachecker_output/
mo-fc8d991e0:/tmp/HANAChecker> python hanachecker.py -ff hanachecker_configur
ationfile.txt
mo-fc8d991e0:/tmp/HANAChecker> more ../hanachecker_output/hanacheckerlog_2018
-03-05_12-54-16.txt
"Mini Check ID M1142  Description: Table(s) using > 10 % of SQL cache  Host:
mo-fc8d991e0  Value: 2  Expectation: 0  C: X  SAPNote: 2124112" is sent to pe
ter@comp.com
```

…

Monitoring

HANAChecker – Real Life Example

Emails were retrieved from HANAChecker for potential critical mini-checks:



HANAChecker: A Pote... Outlook item

HANAChecker: A Pote... Outlook item

HANAChecker: A Pote... Outlook item

HANAChecker: A Pote... Outlook item

HANAChecker: A Pote... Outlook item

HANAChecker: A Pote... Outlook item

HANAChecker: A Potential Critical Mini-Check [redacted]! - Message (Plain Text) (Read-O...

[redacted]@[redacted].com □ [redacted]@[redacted].com Mo 10:20

HANAChecker: A Potential Critical Mini-Check [redacted]3!

Mini Check ID 1170 Description: Average database request time (ms) Host: Value: 6.91
Expectation: <= 2.00 Potential Critical: X SAP Note: 2000002

HANAChecker: A Potential Critical Mini-Check [redacted]! - Message (Plain Text) (Read-O...

[redacted]@[redacted].com □ [redacted]@[redacted].com Mo 10:20

HANAChecker: A Potential Critical Mini-Check [redacted]3!

Mini Check ID 750 Description: Stat. server tables with retention < 42 days Host: Value: 14
Expectation: 0 Potential Critical: X SAP Note: 2147247

HANAChecker: A Potential Critical Mini-Check [redacted]! - Message (Plain Text) (Read-...

[redacted]@[redacted].com □ [redacted]@[redacted].com Mo 10:20

HANAChecker: A Potential Critical Mini-Check [redacted]3!

Mini Check ID 2113 Description: Last global table consistency check (days) Host: Value: never
Expectation: <= 32.00 Potential Critical: X SAP Note: 2116157