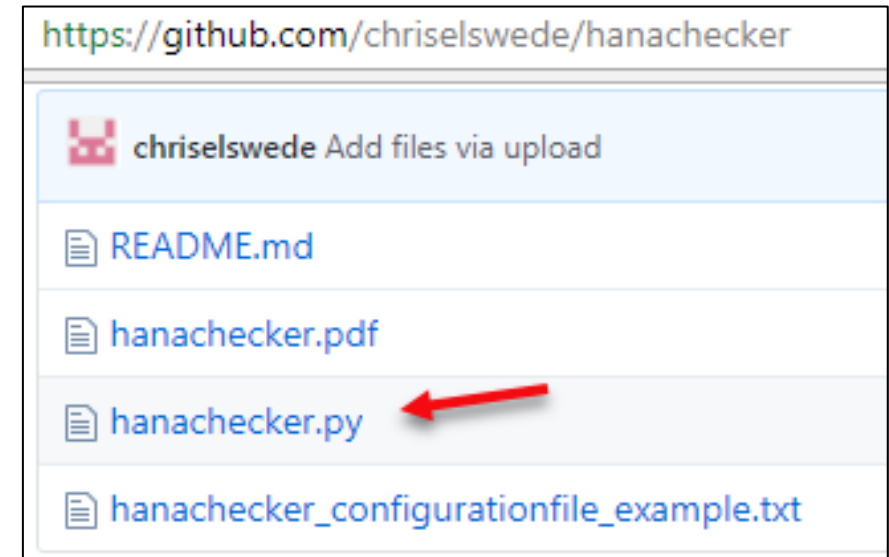




**SAP Note 1999993 presents a tool that runs the mini-checks (SAP Note 1969700) and sends out emails in case of potential critical issues**

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



**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](#)**



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
```



**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*:	<input type="text" value="HANACHECKER1"/>	<input type="checkbox"/> Disable ODBC/JDBC access
Authentication		
<input checked="" type="checkbox"/> Password		
Password*:	<input type="password" value="●●●●●●●●"/>	Confirm*: <input type="password" value="●●●●●●●●"/>

Granted Roles			System Privileges	Object Privileges	Analytic Privileges	Package Privileges
+ x						
Role		Grantor				
MONITORING		SYSTEM				
PUBLIC		SYS				



## 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
<b>-zf</b>		Full path to SQLStatements.zip	Full path of the SQLStatements.zip file (SAP Note 1969700). Cannot be used together with –mf and must be used together with -ct	"
<b>-ct</b>		Check Types	M = Mini-Checks, I = Internal Mini-Checks, S = Security Mini-Checks, T = Trace Mini-Checks, P = Parameter Checks (see some slides below), C = Call Stacks Mini-Checks (see some slides below)	"

### 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
```



## 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 and download these files regularly 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:	CHID	Example
HANA_Configuration_MiniChecks_<revision>.txt	MXXXX	M0231
HANA_Configuration_MiniChecks_Internal_<revision>.txt	IXXXX	I0076
HANA_Security_MiniChecks.txt	SXXXX	S1045
HANA_TraceFiles_MiniChecks.txt	TXXXX	T1200
HANA_Configuration_Parameters_<revision>.txt (see some slides below)		
HANA_Threads_Callstacks_MiniChecks_<revision>.txt (see some slides below)	CXXXX	C1013

### 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 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_Configuration_MiniChecks_1.00.120+.txt -en chris@comp.com,smtp.intra.comp.com -M1115 chris@du.my
```



## 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
```



Monitoring

# 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,smtplib.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
```



# 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](mailto:chris@du.my), [lana@du.my](mailto:lana@du.my), and [per@du.my](mailto: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,lana@du.my -M1150 per@du.my,lana@du.my -as true
"HANACeacker 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 lana@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 lana@du.my
"HANACeacker 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
"HANACeacker 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
```

# 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
```



HANAChecker sends out emails to the addresses listed after the flag `-pe` if there are parameters mentioned by `HANA_Configuration_Parameters` (SAP Note 1969700)

Flag	Unit	Details	Explanation	Default
<code>-pe</code>		parameter emails	a comma seperated list of emails that catches all parameter checks, this only makes sense if <code>HANA_Configuration_Parameters</code> is included in the input, either with <code>-mf</code> , or <code>-ct P</code>	not used
<code>-is</code>	true/false	ignore check_why_set	parameters that have been set without that there is any recommended value, will be ignored	false

**Example:** Here `per@al.com` gets emails for every potential critical parameter issue and if `M0208` is potential critical:

```
pqladm@atgls90010:/tmp/HANAChecker> python hanachecker.py -zf SQLStatements.zip -ct M,P
-pe per@al.com -M0208 per@al.com -oe true -k TCHECK
"
Mini Check ID M0208 Description: Supported operating system Host: atgls90010 Value: n
o (SUSE Linux Enterprise Server 12 SP3) Expectation: yes C: X SAPNote: 2235581

Parameter 'global_auditing_state' in configuration file 'global.ini' and in section 'aud
iting configuration' has an internal default value, is not configured, but the recommend
ation is 'true'. For more information see SAP Note 863362. This has priority 2.
Following scenario has been taken into account:
Revision: 2.00.036 Environment: ABAP,ERP,ESS,MDCTEN,SDA,SINGLE,SYSREP,AUD,XFS

Parameter 'default_statement_concurrency_limit' in configuration file 'global.ini' and i
n section 'execution' has default value '0', is not configured, but the recommendation i
s '16 to 40'. For more information see SAP Note 2222250. This has priority 1.
Following scenario has been taken into account:
Revision: 2.00.036 Environment: ABAP,ERP,ESS,MDCTEN,SDA,SINGLE,SYSREP,AUD,XFS CpuThrea
ds: 80
```



# HANAChecker – Parameter Email (2/3)



**Example:** Here [chris@dum.com](mailto:chris@dum.com) gets emails for every potential critical SAP HANA Parameter issue. We also see that some parameter checked specific scenario, that can be changed in the Modification Section in SQL: HANA\_Configuration\_Parameters (see also next slide).

```
pqladm@atgls90010:/tmp/HANAChecker> python hanachecker.py -zf SQLStatements.zip -ct P -oe true -pe chris@dum.com -k TCHECK
"
Parameter 'global_auditing_state' in configuration file 'global.ini' and in section 'auditing configuration' has an internal default value, is not configured, but the recommendation is 'true'. For more information see SAP Note 863362. This has priority 2.
Following scenario has been taken into account:
Revision: 2.00.036 Environment: ABAP,ERP,ESS,MDCTEN,SDA,SINGLE,SYSREP,AUD,XFS

Parameter 'default_statement_concurrency_limit' in configuration file 'global.ini' and in section 'execution' has default value '0', is not configured, but the recommendation is '16 to 40'. For more information see SAP Note 2222250. This has priority 1.
Following scenario has been taken into account:
Revision: 2.00.036 Environment: ABAP,ERP,ESS,MDCTEN,SDA,SINGLE,SYSREP,AUD,XFS CpuThreads: 80

Parameter 'log_backup_timeout_s' in configuration file 'global.ini' and in section 'persistence' has default value '7200', is not configured, but the recommendation is '300 to 3600'. For more information see SAP Note 1645183. This has priority 3.
Following scenario has been taken into account:
Revision: 2.00.036 Environment: ABAP,ERP,ESS,MDCTEN,SDA,SINGLE,SYSREP,AUD,XFS

Parameter 'logshipping_max_retention_size' in configuration file 'global.ini' and in section 'system_replication' has default value '1048576', is not configured, but the recommendation is '0 to 656384'. For more information see SAP Note 2526877. This has priority 3.
Following scenario has been taken into account:
Revision: 2.00.036 Environment: ABAP,ERP,ESS,MDCTEN,SDA,SINGLE,SYSREP,AUD,XFS LogVolumeSize: 801
```

# HANAChecker – Parameter Email (3/3)



**Example:** Here [per@al.com](mailto:per@al.com) gets emails for every potential critical SAP HANA Parameter issue. Here SQL: HANA\_Configuration\_Parameters was changed in the Modification Section (number CPU\_THREADS was changed to 50), and the changed version was given as input to the –mf flag:

```
pqladm@atgls90010:/tmp/HANAChecker> python hanachecker.py -mf HANA_Configuration_Parameters_cpu50.txt -pe per@al.com
-o true -k TCHECK
"
Parameter 'global_auditing_state' in configuration file 'global.ini' and in section 'auditing configuration' has an internal default value, is not configured, but the recommendation is 'true'. For more information see SAP Note 863362. This has priority 2.
Following scenario has been taken into account:
Revision: 2.00.036 Environment: ABAP,ERP,ESS,MDCTEN,SDA,SINGLE,SYSREP,AUD,XFS

Parameter 'default_statement_concurrency_limit' in configuration file 'global.ini' and in section 'execution' has default value '0', is not configured, but the recommendation is '15 to 25'. For more information see SAP Note 2222250. This has priority 1.
Following scenario has been taken into account:
Revision: 2.00.036 Environment: ABAP,ERP,ESS,MDCTEN,SDA,SINGLE,SYSREP,AUD,XFS CpuThreads: 50 (manual)

Parameter 'max_concurrency' in configuration file 'global.ini' and in section 'execution' has default value '0', is not configured, but the recommendation is '50'. For more information see SAP Note 2222250. This has priority 1.
Following scenario has been taken into account:
Revision: 2.00.036 Environment: ABAP,ERP,ESS,MDCTEN,SDA,SINGLE,SYSREP,AUD,XFS CpuThreads: 50 (manual)

Parameter 'log backup timeout s' in configuration file 'global.ini' and in section 'persistence' has default value '7
```



## HANAChecker also covers the call stacks mini checks

The default value in the modification section of active threads limit, 0.2, is normally fine, but it is possible to change it with the -at flag

Flag	Details	Explanation	Default
-at	active threads	this sets MIN_ACTIVE_THREADS in modification section	(not used, i.e. default value in modification section 0.2 is used)

**Example:** Here [chris@me.com](mailto:chris@me.com) gets emails for all potential critical call stacks mini-checks that have more than 0.01 average active threads

```
hsiadm@atgvmls7071:/tmp/HANAChecker> python hanachecker.py -zf SQLStatements.zip -ct C -ca chris@me.com -en chris@comp.com,smtp.intra.comp.com -k T1SYSKEY -at 0.01
"
Mini Check ID C1013 Area: Locks Description: Futex lock wait Host: atgvmls7071 Port: 30003 Count: 21 Active Threads: 0.0104 LastOccurrence: 2021/03/16 08:13:27 C: X SAPNote: 1999998 TraceText: ptime::Futex::lock"
is sent to chris@me.com
"
Mini Check ID C1020 Area: Locks Description: Unlocking of mutex Host: atgvmls7071 Port: 30003 Count: 31 Active Threads: 0.0153 LastOccurrence: 2021/03/16 00:23:27 C: X SAPNote: 1999998 TraceText: Synchronization: :Mutex::unlock" is sent to chris@me.com
```

**Example:** Here [chris@me.com](mailto:chris@me.com) gets an email if C1013 is potential critical and has more than 0.01 average active threads

```
hsiadm@atgvmls7071:/tmp/HANAChecker> python hanachecker.py -zf SQLStatements.zip -ct C -C1013 chris@me.com -en chris@comp.com,smtp.intra.comp.com -k T1SYSKEY -at 0.01
"
Mini Check ID C1013 Area: Locks Description: Futex lock wait Host: atgvmls7071 Port: 30003 Count: 21 Active Threads: 0.0104 LastOccurrence: 2021/03/16 08:13:27 C: X SAPNote: 1999998 TraceText: ptime::Futex::lock"
is sent to chris@me.com
```





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 and parameter check	

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 peter@du.my,chris@du.my
```

```
"Mini Check ID M0012 Description: Revision level Value: 121.00 Expectation: >= 122.03 C: X SAPNote: 2021789" is sent to chris@du.my
```

```
"Mini Check ID M0115 Description: Service startup time variation (s) Host: mo-fc8d991e0 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: >= 122.03 C: X SAPNote: 2021789" is sent to peter@du.my
```

```
"Mini Check ID M0115 Description: Service startup time variation (s) Host: mo-fc8d991e0 Value: 3299447 Expectation: <= 600 C: X SAPNote: 2177064" is sent to peter@du.my
```

...



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-fc8d991e0  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  Expectation: yes  C: X  SAPNote: 1791342" is sent to chris@du.my
```

...



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
```



## 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_Minichecks_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!



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_Minichecks_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"
```

...

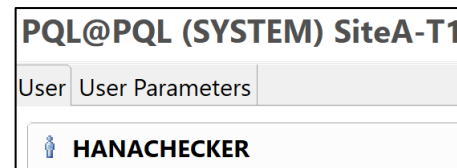
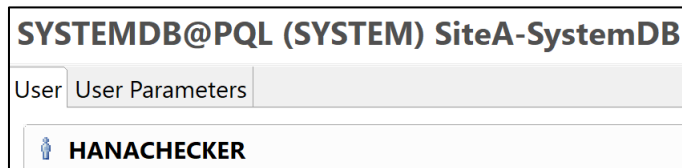


**In a MDC system the hanachecker can check the SystemDB and multiple Tenants with one key**

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



(for privileges,  
see earlier slides)

SYSTEMDB@PQL (SYSTEM) SiteA-SystemDB

Overview Landscape Alerts Performance Volumes Configuration

Services Hosts Redistribution System Replication Host: <All>

Active	Host	Port	Service	SQL Port
<input checked="" type="checkbox"/>	atgls90010	30001	nameserver	30013
<input checked="" type="checkbox"/>	atgls90010	30010	compileserv	

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 |
```





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 SDBCHECKERKEY -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 SAPNote: 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 SDBCHECKERKEY -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 SAPNote: 2124112
```



**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
```

...



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

The screenshot displays an Outlook interface with three emails from HANAChecker. The third email is highlighted with a blue border.

**Email 1:** HANAChecker: A Potential Critical Mini-Check [redacted] - Message (Plain Text) (Read-O...  
Mo 10:20  
HANAChecker: A Potential Critical Mini-Check [redacted]!  
Mini Check ID 1170 Description: Average database request time (ms) Host: Value: 6.91  
Expectation: <= 2.00 Potential Critical: X SAP Note: 2000002

**Email 2:** HANAChecker: A Potential Critical Mini-Check [redacted] - Message (Plain Text) (Read-O...  
Mo 10:20  
HANAChecker: A Potential Critical Mini-Check [redacted]!  
Mini Check ID 750 Description: Stat. server tables with retention < 42 days Host: Value: 14  
Expectation: 0 Potential Critical: X SAP Note: 2147247

**Email 3 (highlighted):** HANAChecker: A Potential Critical Mini-Check [redacted] - Message (Plain Text) (Read-...  
Mo 10:20  
HANAChecker: A Potential Critical Mini-Check [redacted]!  
Mini Check ID 2113 Description: Last global table consistency check (days) Host: Value: never  
Expectation: <= 32.00 Potential Critical: X SAP Note: 2116157