



**BOSCH**

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## Memlog

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Memlog is a small tool to log memory usage during runtime. The data is stored in a comma separated value list and can be analyzed offline.

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# 1 Install:

You can fetch the tool from this directory: \

[\bosch.com\dfsrb\DfsDE\DIV\CM\AI\Progs\Gen3\\_Tools\Debug\DebugStickGen3\tools\memlog](#)

The tools must be installed on the target, so first ensure that the target filesystem is read writable:

```
root@mx6q:~# rwrfs
```

Copy the rbcm-memlog.opk to the target.

```
user@host:~# scp rbcm-memlog.opk root@172.17.0.5:/root
```

Of course you can use {{winscp}} copy the package from USB stick as well.

Install rbcm-memlog on target:

```
root@mx6q:~# opkg install rbcm-memlog.opk
```

The tool has been installed into /usr/local/bin.

## 2 Usage:

Memlog is used to measure memory consumption over time. It can be started with:

```
root@mx6q:~# memlog
```

Once started, it will run till termination by the user. You can terminate memlog with CTRL-C. Note that the tool will finalize the current cycle, store the log data and terminate. So be patient.

If you start memlog without parameters, it will use the defaults.

After termination you'll find the resulting log at */tmp/memlog.csv*

You can see additional options if you invoke memlog with parameter '-h'.

### 3 Analysis:

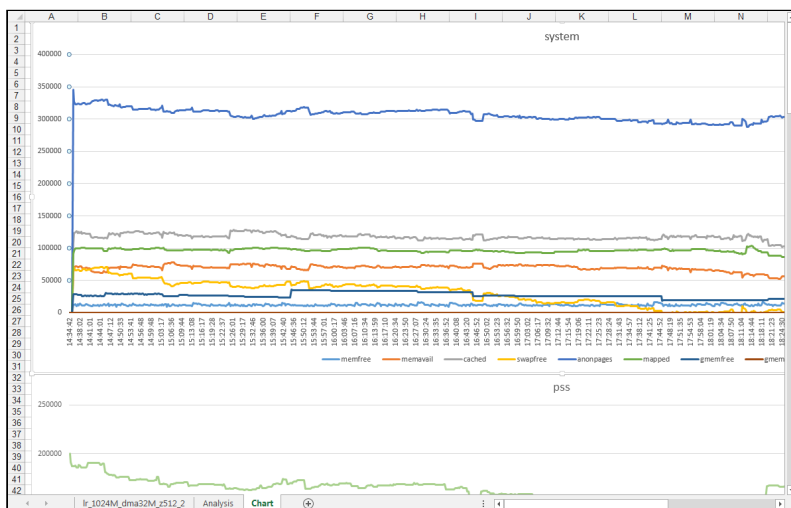
The resulting csv can easily be imported into Excel for some analysis. Open Excel, enter a new, empty tab and select "import from text" from Data menu. Choose your memlog.csv file. All default settings from import assistant are fine, except the "semicolon", which you have to activate additionally! Another option is, to double-click the csv file in explorer and let excel import automatically.

If you have imported the data into A1 of the sheet, the layout is as follows:

- First coloum (A) indicates the type of data
- Second coloumn (B) will contain the PID or zero for system values
- Third coloum (C) contains the process name or some other info for system data
- Fourth coloumn (D) contains the unit of the following data
- From fifth coloum (E) to the right, different sets of data appear.
  - You can see the time, the data was recorded, in the "time row" (row 9).
- The first rows, till the one containing only equal signs, do contain system data (not process specific)
  - The very first rows from system data area do contain system parameters (memory size, SW version, ...). They only have one data set!
- Below the "equal sign row", process related data will follow
  - Each process will have one row per type of data (e.g. RSS, gman, ...).

Some tips:

- To sort all process related data according to type, you can mark whole rows from equal sign row down to the last row and sort them according the coloumn A.
- You can quickly create diagrams:
  - e.g. mark all rows of same type (e.g. PSS), press "Insert menu" and "Insert line diagram".
  - In the diagram, do a right click, press "select data" and "change rows/coloumns" and press "ok".
  - You might want to remove the legend, as it requires a hugh space and is available via mouse hover.
    - Select diagram, press "+" menu on top right corner and uncheck "legend"



## 4 Autorun at startup:

By installing the opk, some systemd service files are installed on the target. By default, they're not activated!

**To enable autorun** of memlog at device startup, you have to run:

```
root@mx6q:~# systemctl enable rbcm-memlog.timer
```

Ensure that rootfs is writable ('rwrfs') .

Now memlog is attached to device startup and will be started 60s after start. There is an output on console printed.

Because rootfs is usually RO, the data will be store to `/var/opt/bosch/dynamic/memlog.csv`. To lower system resource usage, the interval is set to 30s and only RSS (not PSS) is stored. Do avoid data lose, each cycle is immediately saved to disk.

**To stop autorun:**

```
root@mx6q:~# systemctl stop rbcm-memlog
```

**To disable autorun**, call:

```
root@mx6q:~# systemctl disable rbcm-memlog.timer
```

and memlog won't be automatically started on next device startup.

Be aware that autorun requires CPU, memory and fills the eMMC silently. Enable it only with intend and disable it afterwards, to not forget about it.

You can adjust the default parameters in `/lib/systemd/system/rcbm-memlog.[service, timer]` if necessary. However, take care to not shoot yourself into feet ...