Core dump

Contents

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Contents

1 Article purpose

This article provides the initial information set needed to start the **core dump** Linux® service.

2 Introduction

The following table provides a brief description of the tool, as well as its availability depending on the software packages:

✓: this tool is either present (ready to use or to be activated), or can be integrated and activated on the software package.

✗: this tool is not present and cannot be integrated, or it is present but cannot be activated on the software package.

Tool			STM32MPU Embedded Software distribution			STM32MPU Embedded Software distribution for Android™		
Name	Category	Purpose	Starter Package	Developer Package	Distribution Package	Starter Package	Developer Package	Distribution Package
systemd core dump	Debugging tools	**systemd core dump**: generates core dump files on Linux	✓	✗	✓	✗	✗	✗

core dump records the states of the working program memory before an abnormal termination. The dump record assists in diagnosing and debugging program errors.

Systemd provides, via a configuration file, a way to generate and store core dump for Linux system.

3 Installing the trace and debug tool on your target board

3.1 Using STM32MPU Embedded Software Distribution

3.1.1 Distribution Package

ST via OpenSTLinux layer provides a recipe named **systemd-conf**, which provides a core dump configuration for systemd.

The **core dump** configuration is available only via OpenSTLinux distribution. If this configuration is activated via another distribution, an add-on must be made in the systemd-conf recipe.

recipes-core/systemd/systemd-conf.bbappend:

```
do_install_append() {
    install -d ${D}${sysconfdir}/systemd/coredump.conf.d/
    echo "[Coredump]" > ${D}${sysconfdir}/systemd/coredump.conf.d/coredump-custom.conf
    echo "Storage=external" >> ${D}${sysconfdir}/systemd/coredump.conf.d/coredump-custom.
conf
}
```

4 Getting started

4.1 Verify setup

- Verify configuration are present

```
Board $> ls /etc/systemd/coredump.conf.d/
coredump-custom.conf
```

- Verify if **core dump** is registered by Linux

```
Board $> cat /proc/sys/kernel/core_pattern
|/lib/systemd/systemd-coredump %P %u %g %s %t %c %h %e
```

4.2 Crash append

If an application/program has crashed and generated a core dump while running, the core dump result is stored in ***/var/lib/systemd/coredump***.

(See the How to test core dump service below).

5 How to test core dump

- Launch a program

Launch a program (for example: "weston-flower")

```
Board $> weston-flower &
```

- Get the pid of this program with the ps command

```
Board $> ps ax | grep <program>
```

- kill the program with specific **ILL** (4) signal (ILL: Illegal instruction)

```
Board $> kill -4 <pid of program>
```

Force to generate core dump (for example)

```
Board $> kill -4 `pidof weston-flower`
```

- check */var/lib/systemd/coredump/*, the core dump associated to this abnormal termination:

```
Board $> find /var/lib/systemd/coredump/
```

/var/lib/systemd/coredump/ /var/lib/systemd/coredump/core.weston-flower.0.47f9def8d0f44af5919d0e4cd5ee04ae.554.1543488316000000.xz

The core dump generated has a size of around 300 Kbytes

```
Board $> du -sh /var/lib/systemd/coredump/*
295K /var/lib/systemd/coredump/core.weston-flower.0.47f9def8d0f44af5919d0e4cd5ee04ae.554.1543488316000000.xz
```

6 To go further

To make core analysis please refer to GDB#Core_dump_analysis_using_GDB

7 Documentation and web articles

Document link	Document Type	Description
systemd man page for core dump configuration	Standard	systemd man page

"External links"

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Return to Category:Debugging tools.

Subcategories

This category has the following 3 subcategories, out of 3 total.

A

- Android debugging tools (1 P)

H

- HW probes (1 P)

L

- Linux debugging tools (3 P)

Pages in category "Debugging tools"

The following 9 pages are in this category, out of 9 total.

G

- GDB
- GDB commands
- Gdbgui

H

- How to debug OP-TEE
- How to debug TF-A BL2
- How to debug TF-A SP-MIN

I

- IDE

U

- U-Boot - How to debug

W

- Wrapper for FSBL images

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Document link	Document Type	Description
systemd man page for core dump configuration	Standard	systemd man page

"External links"

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Return to GDB.