TECHNICAL NOTE

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JrdSystrace User Guide

Domain: **Architecture**
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CONTENTS:
This doc introduces the JrdSystrace tool, and how to work with it.

KEY WORDS : Tool, Android, Systrace

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1 Introduction

The Systrace tool helps analyze the performance of your application by capturing and displaying execution times of your applications processes and other Android system processes. The tool combines data from the Andriod kernel such as the CPU scheduler, disk activity, and appication threads to generate an HTML report that shows an overall picture o an Android device's system processes for a given period of time.

The Systrace tool is particularly useful in diagnosing display problems where an applicatin is slow to draw or stutters while displaying motion or animation. That's the reason we develop this tool for end user or VAL to capturing Systrace by yourself instantly without any assistive device. To do this, we split this guide into two parts:

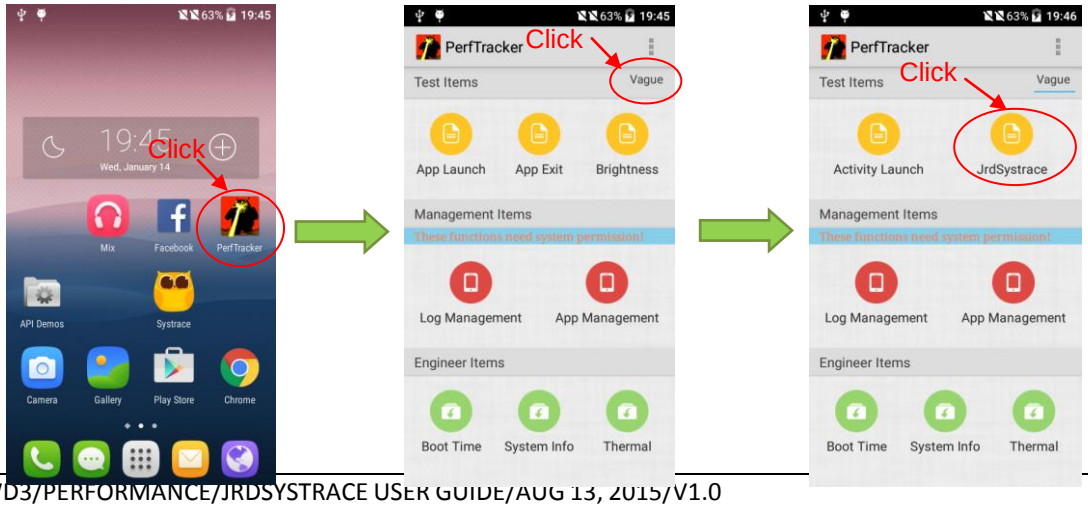
1. How to use it
2. How to extract and change generated file to html

2 How to Use JrdSystrace

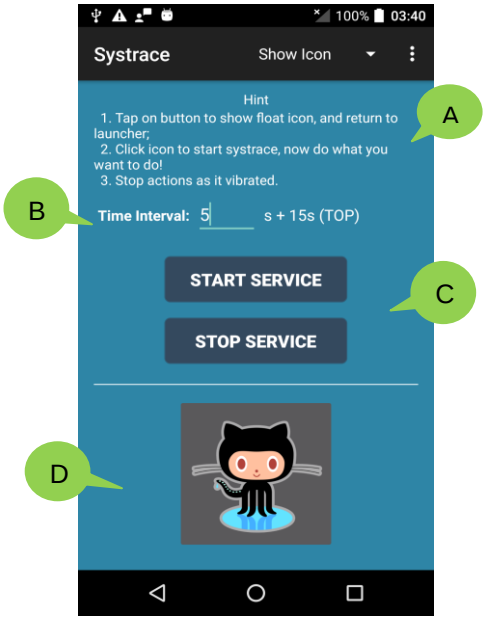
2.1 Let' Start

Now in this chapter, we will explain how to use JrdSystrace. But first of all, we should show you the icon in the Home Screen which is as below:

But in some user version, there is not such icon in the Home Screen, so you should open this tool through another tool named PerfTrack. The following diagram depicts this process.



After providing access to the application's screen, you can open JrdSystrace by whichever way you want, and then the whole scene is as below.



A. Hint part is just sketch words for guidance note.

B. Time Interval represents how long you want to capture the Systrace, in other words, it's the time your operations spent.

Note that the time interval is split into two parts: the first one is the capture time of the systrace; the second one is the capture time for the other information of system, such as "top" info.

C. Service Buttons would open/close float icon which is the floating button for you to enable Systrace in the background and catch Systrace information into *.trace file.

D. That's all. Touching "Hello Kitty" doesn't help you at all; it's just a picture as now, but we may explore it for new feature in the future, so please wait for coming soon ^_^.

2.2 Operation Procedure

In order to create a trace of your problem, you must perform a few steps. And the normal operation procedure you should follow is described in this section:

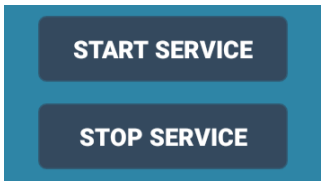
- Open JrdSystrace tool, if you want to reset time interval then change it.

  Note that: The Systrace tool can generate a potentially huge amount of data from your operation, so to limit the amount of data the tool collects and make

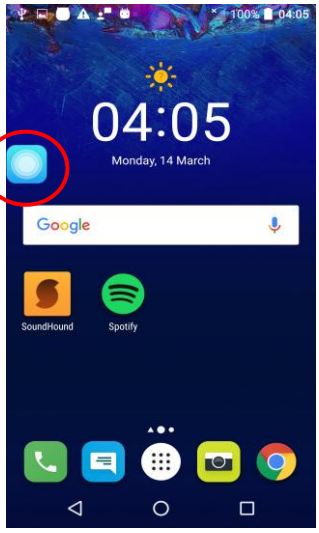
the data more relevant to our analysis, please trace exactly problem that typically recur across your operations in as little time as possible.

The Time Interval of Systrace's maximum value is 30s.

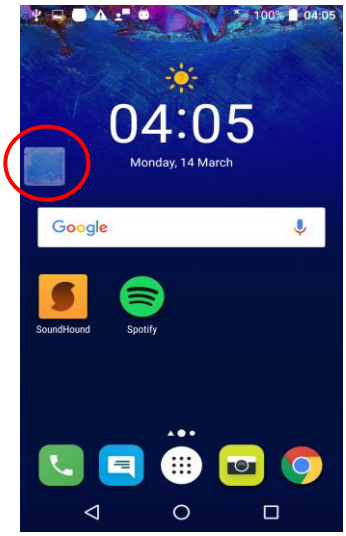
- Click "Start Service"



- Now go back to the scenario in what you want to execute any user actions which will be included in the trace, click the floating button to start tracking.

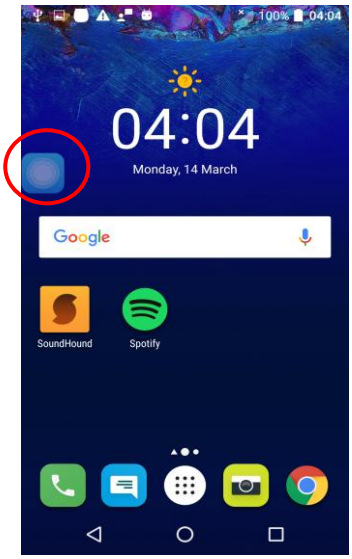


- The float icon will freeze or disappear (as discussed in the next section) until the time of capture systrace has run out. So execute any actions to reproduce performance problem in this period.

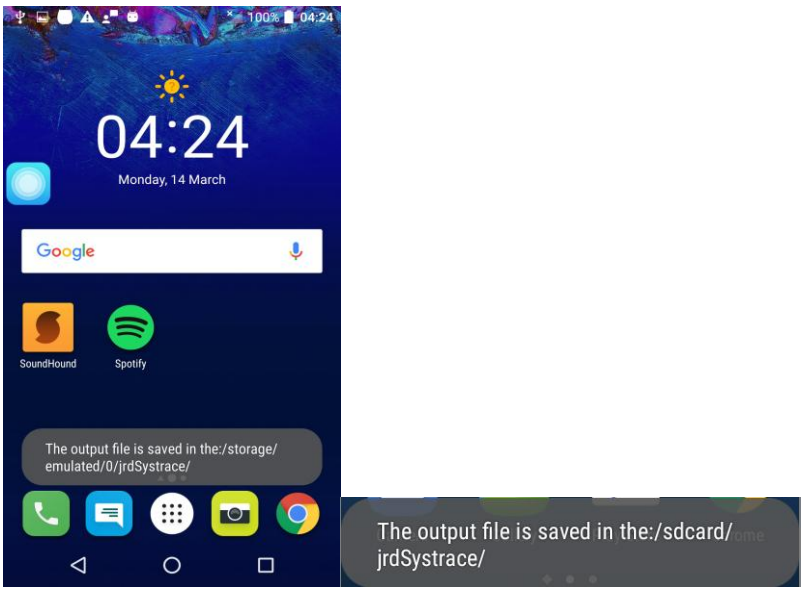


- After fetching Systrace, the icon will change to translucent normal state with vibration.

Note that: (A). Please stop your operation in this state; (B). If you finished your process before this step, don't do anything until the end of the time.

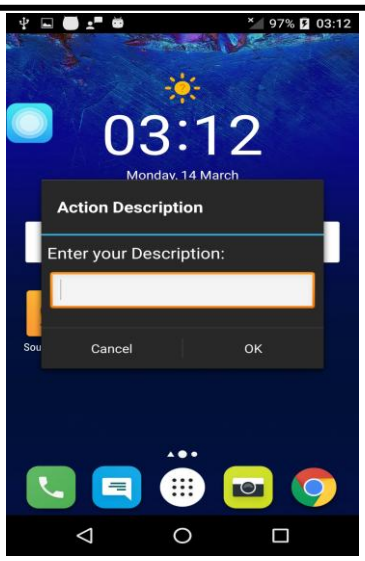


- After tracking, the float icon returns to the original status, and the toast with generated file's path shows at the bottom third of the screen.



- If you checked "Show Dialog" in the Settings, it will show a feedback dialog in the end. Please describe your behaviour during capturing systrace in this dialog.

We recommend opening this option for user to describe your behaviour by default.



- Return to the JrdSystrace application, and click “Stop Service” to close float icon.
- Fetch out the output file from sdcard in the device using the command-line or other tools.

```
$ adb pull /sdcard/jrdSystrace/
```

```
root@idol4:/sdcard/jrdSystrace # ls
systrace_2016-03-14-03-14-48.752.trace
systrace_2016-03-14-03-14-48.752.trace.ps
systrace_2016-03-14-03-14-48.752.trace.top
systrace_2016-03-14-03-14-48.752.trace.txt
```

*.trace compressed systrace file which will be changed into html with systrace.py later.

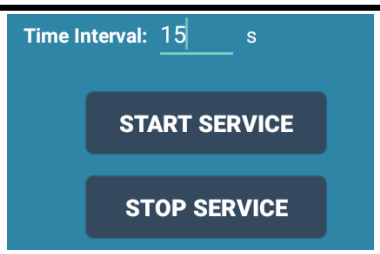
*.trace.ps it saves the process status of device at the finished moment.

*.trace.top it saves the TOP information of device at the finished moment.

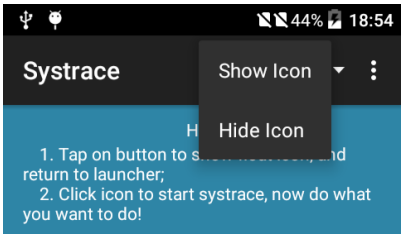
*.trace.txt it saves the user actions described in the dialog. (Optional)

2.3 Configure It

1. **Set time interval**: In theory, there is no restriction about time interval value, but for the analysis purpose, we strongly recommend the range of its value between 5 seconds and 30 seconds; moreover you can change its value at any time except tracking period. The default value of the time interval is 15 seconds.



2. **Show/Hide icon over tracking time**: You can show or hide floating button over the tracking time by change the spinner to “Show Icon” mode in which the icon looks like ice cube or “Hide Icon” mode in which the icon disappears during the tracking time.



Note that: Long click the floating button will return to the application in the other user interface.

3. **Show Dialog for user actions**: You can show dialog after capturing down by checked the “Show Dialog” option in the Settings, and record your process actions’ detail in order to accelerate the analysis of the engineer.

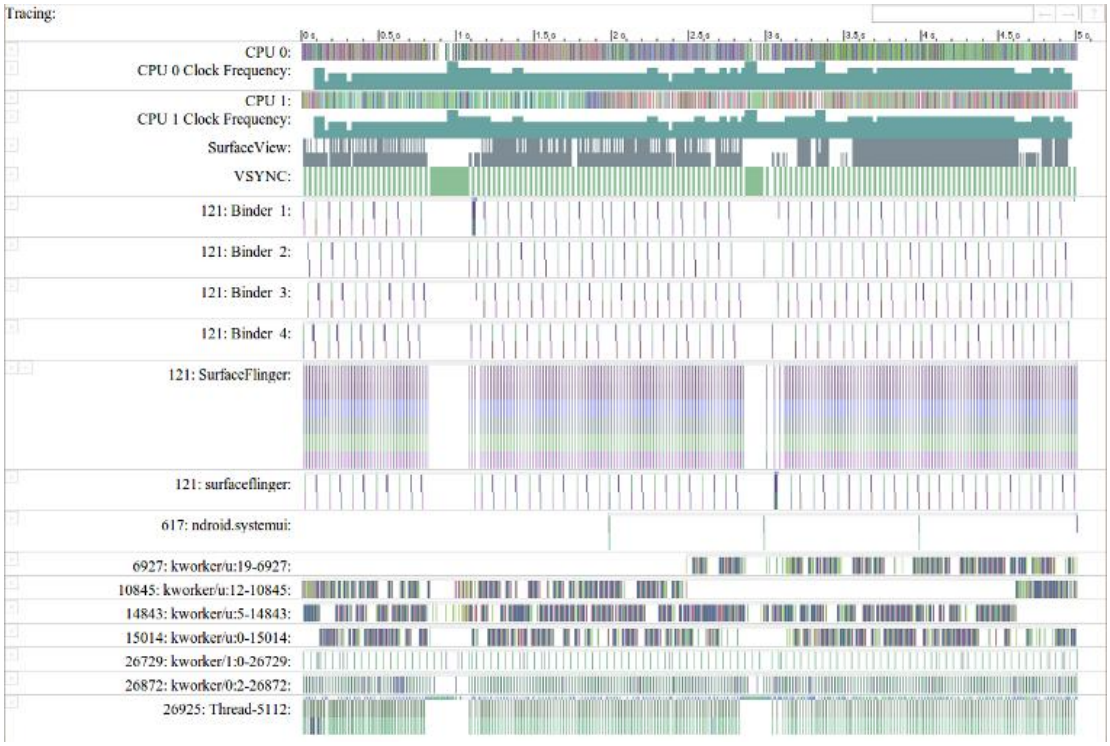
3 How to Analyze Trace

With the trace file, we should transform it into HTML file with android tool which can be found in the Android SDK package. Here is an example execution run that change the *.trace file into *.html file.

```
$ cd android-sdk/platform-tools/systrace

$ python systrace.py –form-file *.trace –o [output file]
```

The output HTML file can be opened with chrome browser in the below figure.



The table below lists the keyboard shortcuts that are available while viewing a Systrace trace HTML report.

Key	Description
w	Zoom into the trace timeline.
s	Zoom out of the trace timeline.
a	Pan left on the trace timeline
d	Pan right on the trace timeline
e	Centre the trace timeline on the current mouse location
g	Show grid at the start of the currently selected task.
Shift+g	Show grid at the end of the current selected task.
Right Arrow	Select the next event on the currently selected timeline.
Left Arrow	Select the previous event on the currently selected timeline.
Double Click	Zoom into the trace timeline.
Shift+Double Click	Zoom out of the trace timeline.

You can find more informance about Systrace in the website as below :

http://developer.android.com/tools/help/systrace.html

http://developer.android.com/tools/debugging/systrace.html