# SystemServer 源码分析

标注

注释 源码路径 源码注释 重要函数入口

目录

1. Zygote启动SystemServer

1 fork SystemServer

2 内核中创建SystemServer

3 完成SystemServer创建的剩余工作

4 Zygote进程转到SystemServer

1. SystemServer启动

1 初始化系统时间

2 设置虚拟机

3 设置binder

4 prepare looper

5 加载Native lib

6 创建system context

7 创建 SystemServiceManager

8 开启系统服务

(1)开启启动引导服务

(2)开启系统核心服务

(3)开启其他系统服务

(4)生命周期和bootphase

① Service的开启

② Service 的生命周期

③ bootphase

PHASE\_WAIT\_FOR\_DEFAULT\_DISPLAY = 100

PHASE\_LOCK\_SETTINGS\_READY = 480

PHASE\_SYSTEM\_SERVICES\_READY = 500

PHASE\_DEVICE\_SPECIFIC\_SERVICES\_READY = 520

PHASE\_ACTIVITY\_MANAGER\_READY = 550

PHASE\_THIRD\_PARTY\_APPS\_CAN\_START = 600

PHASE\_BOOT\_COMPLETED = 1000

1. Zygote启动SystemServer

## 1 fork SystemServer

**/**[**frameworks**](http://androidxref.com/9.0.0_r3/xref/frameworks/)**/**[**base**](http://androidxref.com/9.0.0_r3/xref/frameworks/base/)**/**[**core**](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/)**/**[**java**](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/)**/**[**com**](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/)**/**[**android**](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/)**/**[**internal**](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/)**/**[**os**](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/)**/**[**ZygoteInit.java**](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java)

[750](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "750) **public static void** **[main](http://androidxref.com/9.0.0_r3/s?refs=main&project=frameworks)(**[**String**](http://androidxref.com/9.0.0_r3/s?defs=String&project=frameworks)**[argv](http://androidxref.com/9.0.0_r3/s?refs=argv&project=frameworks)[])** {

[751](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "751) [ZygoteServer](http://androidxref.com/9.0.0_r3/s?defs=ZygoteServer&project=frameworks) [zygoteServer](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java#zygoteServer) = new [ZygoteServer](http://androidxref.com/9.0.0_r3/s?defs=ZygoteServer&project=frameworks)();

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[779](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "779) [String](http://androidxref.com/9.0.0_r3/s?defs=String&project=frameworks) [socketName](http://androidxref.com/9.0.0_r3/s?defs=socketName&project=frameworks) = "zygote";

………

[788](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "788) [abiList](http://androidxref.com/9.0.0_r3/s?defs=abiList&project=frameworks) = [argv](http://androidxref.com/9.0.0_r3/s?defs=argv&project=frameworks)[i].[substring](http://androidxref.com/9.0.0_r3/s?defs=substring&project=frameworks)([ABI\_LIST\_ARG](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java#ABI_LIST_ARG).[length](http://androidxref.com/9.0.0_r3/s?defs=length&project=frameworks)());

………

[800](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java#800) [zygoteServer](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java#zygoteServer).[registerServerSocketFromEnv](http://androidxref.com/9.0.0_r3/s?defs=registerServerSocketFromEnv&project=frameworks)([socketName](http://androidxref.com/9.0.0_r3/s?defs=socketName&project=frameworks));

………

[831](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java#831)

[832](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "832) if ([startSystemServer](http://androidxref.com/9.0.0_r3/s?defs=startSystemServer&project=frameworks)) {

//Zygote负责启动SystemServer，

[833](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "833) [Runnable](http://androidxref.com/9.0.0_r3/s?defs=Runnable&project=frameworks) r = [forkSystemServer](#185)([abiList](http://androidxref.com/9.0.0_r3/s?defs=abiList&project=frameworks), [socketName](http://androidxref.com/9.0.0_r3/s?defs=socketName&project=frameworks), [zygoteServer](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java#zygoteServer));

[834](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "834)

[836](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "836) // child (system\_server) process.

[837](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "837) if (r != [null](http://androidxref.com/9.0.0_r3/s?defs=null&project=frameworks)) {

[838](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "838) r.[run](http://androidxref.com/9.0.0_r3/s?defs=run&project=frameworks)();

[839](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "839) return;

[840](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "840) }

[841](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "841) }

[842](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "842)

[843](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "843) [Log](http://androidxref.com/9.0.0_r3/s?defs=Log&project=frameworks).i([TAG](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java#TAG), "Accepting command socket connections");

[844](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "844)

[845](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "845) // The select loop returns early in the child process after a fork and

[846](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "846) // loops forever in the zygote.

[847](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "847) //同时在zygoteServer中创建一个死循环，建立了Socket监听，负责后续的进程创建

[caller](http://androidxref.com/9.0.0_r3/s?defs=caller&project=frameworks) = [zygoteServer](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java#zygoteServer).[runSelectLoop](http://androidxref.com/9.0.0_r3/s?defs=runSelectLoop&project=frameworks)([abiList](http://androidxref.com/9.0.0_r3/s?defs=abiList&project=frameworks));

[848](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "848) } catch ([Throwable](http://androidxref.com/9.0.0_r3/s?defs=Throwable&project=frameworks) [ex](http://androidxref.com/9.0.0_r3/s?defs=ex&project=frameworks)) {

[849](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "849) [Log](http://androidxref.com/9.0.0_r3/s?defs=Log&project=frameworks).e([TAG](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java#TAG), "System zygote died with exception", [ex](http://androidxref.com/9.0.0_r3/s?defs=ex&project=frameworks));

[850](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "850) throw [ex](http://androidxref.com/9.0.0_r3/s?defs=ex&project=frameworks);

[851](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "851) } finally {

[852](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "852) [zygoteServer](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java#zygoteServer).[closeServerSocket](http://androidxref.com/9.0.0_r3/s?defs=closeServerSocket&project=frameworks)();

[853](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "853) }

………

## 2 内核中创建SystemServer

/[frameworks](http://androidxref.com/9.0.0_r3/xref/frameworks/)/[base](http://androidxref.com/9.0.0_r3/xref/frameworks/base/)/[core](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/)/[java](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/)/[com](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/)/[android](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/)/[internal](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/)/[os](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/)/[Zygote.java](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/Zygote.java)

[185](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/Zygote.java" \l "185) public static int [forkSystemServer](http://androidxref.com/9.0.0_r3/s?refs=forkSystemServer&project=frameworks)(int [uid](http://androidxref.com/9.0.0_r3/s?refs=uid&project=frameworks), int [gid](http://androidxref.com/9.0.0_r3/s?refs=gid&project=frameworks), int[] [gids](http://androidxref.com/9.0.0_r3/s?refs=gids&project=frameworks), int [runtimeFlags](http://androidxref.com/9.0.0_r3/s?refs=runtimeFlags&project=frameworks),

[186](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/Zygote.java" \l "186) int[][] [rlimits](http://androidxref.com/9.0.0_r3/s?defs=rlimits&project=frameworks), long [permittedCapabilities](http://androidxref.com/9.0.0_r3/s?defs=permittedCapabilities&project=frameworks), long [effectiveCapabilities](http://androidxref.com/9.0.0_r3/s?defs=effectiveCapabilities&project=frameworks)) {

[187](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/Zygote.java" \l "187) [VM\_HOOKS](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/Zygote.java#VM_HOOKS).[preFork](http://androidxref.com/9.0.0_r3/s?defs=preFork&project=frameworks)();

[188](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/Zygote.java" \l "188) // Resets nice priority for zygote process.

[189](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/Zygote.java" \l "189) [resetNicePriority](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/Zygote.java#resetNicePriority)();

[190](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/Zygote.java" \l "190) int [pid](http://androidxref.com/9.0.0_r3/s?defs=pid&project=frameworks) = [nativeForkSystemServer](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/Zygote.java#nativeForkSystemServer)(

[191](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/Zygote.java" \l "191) [uid](http://androidxref.com/9.0.0_r3/s?defs=uid&project=frameworks), [gid](http://androidxref.com/9.0.0_r3/s?defs=gid&project=frameworks), [gids](http://androidxref.com/9.0.0_r3/s?defs=gids&project=frameworks), [runtimeFlags](http://androidxref.com/9.0.0_r3/s?defs=runtimeFlags&project=frameworks), [rlimits](http://androidxref.com/9.0.0_r3/s?defs=rlimits&project=frameworks), [permittedCapabilities](http://androidxref.com/9.0.0_r3/s?defs=permittedCapabilities&project=frameworks), [effectiveCapabilities](http://androidxref.com/9.0.0_r3/s?defs=effectiveCapabilities&project=frameworks));

[192](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/Zygote.java" \l "192) // Enable tracing as soon as we enter the system\_server.

[193](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/Zygote.java" \l "193) if ([pid](http://androidxref.com/9.0.0_r3/s?defs=pid&project=frameworks) == 0) {

[194](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/Zygote.java" \l "194) [Trace](http://androidxref.com/9.0.0_r3/s?defs=Trace&project=frameworks).[setTracingEnabled](http://androidxref.com/9.0.0_r3/s?defs=setTracingEnabled&project=frameworks)(true, [runtimeFlags](http://androidxref.com/9.0.0_r3/s?defs=runtimeFlags&project=frameworks));

[195](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/Zygote.java" \l "195) }

[196](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/Zygote.java" \l "196) [VM\_HOOKS](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/Zygote.java#VM_HOOKS).[postForkCommon](http://androidxref.com/9.0.0_r3/s?defs=postForkCommon&project=frameworks)();

[197](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/Zygote.java" \l "197) return [pid](http://androidxref.com/9.0.0_r3/s?defs=pid&project=frameworks);

[198](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/Zygote.java" \l "198) }

//Zygote在Native中完成SystemServer创建，并将进程号返回

/[frameworks](http://androidxref.com/9.0.0_r3/xref/frameworks/)/[base](http://androidxref.com/9.0.0_r3/xref/frameworks/base/)/[core](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/)/[java](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/)/[com](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/)/[android](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/)/[internal](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/)/[os](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/)/[ZygoteInit.java](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java)

[657](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java#657) private static [Runnable](http://androidxref.com/9.0.0_r3/s?defs=Runnable&project=frameworks)[**forkSystemServer**](http://androidxref.com/9.0.0_r3/s?refs=forkSystemServer&project=frameworks)([String](http://androidxref.com/9.0.0_r3/s?defs=String&project=frameworks) [abiList](http://androidxref.com/9.0.0_r3/s?refs=abiList&project=frameworks), [String](http://androidxref.com/9.0.0_r3/s?defs=String&project=frameworks) [socketName](http://androidxref.com/9.0.0_r3/s?refs=socketName&project=frameworks),

[658](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "658) [ZygoteServer](http://androidxref.com/9.0.0_r3/s?defs=ZygoteServer&project=frameworks) [zygoteServer](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java#zygoteServer)) {

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[700](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java#700) try {

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[710](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java#710)

[711](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "711) /\* Request to fork the system server process \*/

[712](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "712) [pid](http://androidxref.com/9.0.0_r3/s?defs=pid&project=frameworks) = [Zygote](http://androidxref.com/9.0.0_r3/s?defs=Zygote&project=frameworks).[forkSystemServer](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java#forkSystemServer)(

[713](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "713) [parsedArgs](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java#parsedArgs).[uid](http://androidxref.com/9.0.0_r3/s?defs=uid&project=frameworks), [parsedArgs](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java#parsedArgs).[gid](http://androidxref.com/9.0.0_r3/s?defs=gid&project=frameworks),

[714](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "714) [parsedArgs](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java#parsedArgs).[gids](http://androidxref.com/9.0.0_r3/s?defs=gids&project=frameworks),

[715](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "715) [parsedArgs](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java#parsedArgs).[runtimeFlags](http://androidxref.com/9.0.0_r3/s?defs=runtimeFlags&project=frameworks),

[716](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "716) [null](http://androidxref.com/9.0.0_r3/s?defs=null&project=frameworks),

[717](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "717) [parsedArgs](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java#parsedArgs).[permittedCapabilities](http://androidxref.com/9.0.0_r3/s?defs=permittedCapabilities&project=frameworks),

[718](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "718) [parsedArgs](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java#parsedArgs).[effectiveCapabilities](http://androidxref.com/9.0.0_r3/s?defs=effectiveCapabilities&project=frameworks));

[719](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "719) } catch ([IllegalArgumentException](http://androidxref.com/9.0.0_r3/s?defs=IllegalArgumentException&project=frameworks) [ex](http://androidxref.com/9.0.0_r3/s?defs=ex&project=frameworks)) {

[720](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "720) throw new [RuntimeException](http://androidxref.com/9.0.0_r3/s?defs=RuntimeException&project=frameworks)([ex](http://androidxref.com/9.0.0_r3/s?defs=ex&project=frameworks));

[721](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "721) }

[722](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "722)

[723](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "723) /\* For child process \*/

[724](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "724) if ([pid](http://androidxref.com/9.0.0_r3/s?defs=pid&project=frameworks) == 0) {

[725](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "725) if ([hasSecondZygote](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "hasSecondZygote)([abiList](http://androidxref.com/9.0.0_r3/s?defs=abiList&project=frameworks))) {

[726](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "726) [waitForSecondaryZygote](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java#waitForSecondaryZygote)([socketName](http://androidxref.com/9.0.0_r3/s?defs=socketName&project=frameworks));

[727](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "727) }

[728](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "728)

[729](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "729) [zygoteServer](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java#zygoteServer).[closeServerSocket](http://androidxref.com/9.0.0_r3/s?defs=closeServerSocket&project=frameworks)();

[730](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "730) return [handleSystemServerProcess](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java#handleSystemServerProcess)([parsedArgs](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java#parsedArgs));

[731](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "731) }

[732](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "732)

[733](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "733) return [null](http://androidxref.com/9.0.0_r3/s?defs=null&project=frameworks);

[734](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "734) }

## 3 完成SystemServer创建的剩余工作

[450](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java#450) /\*\*

[451](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "451) \* Finish remaining work for the newly forked system server process.

[452](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java#452) \*/

\* 完成新创建的systemserver剩余的工作.

[453](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "453) private static [Runnable](http://androidxref.com/9.0.0_r3/s?defs=Runnable&project=frameworks) [handleSystemServerProcess](http://androidxref.com/9.0.0_r3/s?refs=handleSystemServerProcess&project=frameworks)([ZygoteConnection](http://androidxref.com/9.0.0_r3/s?defs=ZygoteConnection&project=frameworks).[Arguments](http://androidxref.com/9.0.0_r3/s?defs=Arguments&project=frameworks) [parsedArgs](http://androidxref.com/9.0.0_r3/s?refs=parsedArgs&project=frameworks)) {

………

[503](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java#503) /\*

[504](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "504) \* Pass the remaining arguments to SystemServer.

[505](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "505) \*/

进程将转到SystemServer

[506](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java#506) return [ZygoteInit](http://androidxref.com/9.0.0_r3/s?defs=ZygoteInit&project=frameworks).[zygoteInit](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java#zygoteInit)([parsedArgs](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java#parsedArgs).[targetSdkVersion](http://androidxref.com/9.0.0_r3/s?defs=targetSdkVersion&project=frameworks), [parsedArgs](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java#parsedArgs).[remainingArgs](http://androidxref.com/9.0.0_r3/s?defs=remainingArgs&project=frameworks), [cl](http://androidxref.com/9.0.0_r3/s?defs=cl&project=frameworks));

[507](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "507) }

[508](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "508)

[509](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "509) /\* should never reach here \*/

[510](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "510) }

[889](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "889) /\*\*

[890](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "890) \* The main function called when started through the zygote process. This

[891](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java#891) \* could be unified with main(), if the native code in nativeFinishInit()

[892](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "892) \* were rationalized with Zygote startup.<p>

[893](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "893) \*

[894](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "894) \* Current recognized args:

[895](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "895) \* <ul>

[896](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "896) \* <li> <code> [--] &lt;start class name&gt; &lt;args&gt;

[897](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "897) \* </ul>

[898](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "898) \*

[899](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "899) \* **@param** targetSdkVersion target SDK version

[900](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "900) \* **@param** argv arg strings

[901](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "901) \*/

通过Zygote创建的进程将转到其main方法

[902](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java#902) public static final [Runnable](http://androidxref.com/9.0.0_r3/s?defs=Runnable&project=frameworks) [zygoteInit](http://androidxref.com/9.0.0_r3/s?refs=zygoteInit&project=frameworks)(int [targetSdkVersion](http://androidxref.com/9.0.0_r3/s?refs=targetSdkVersion&project=frameworks), [String](http://androidxref.com/9.0.0_r3/s?defs=String&project=frameworks)[] [argv](http://androidxref.com/9.0.0_r3/s?refs=argv&project=frameworks), [ClassLoader](http://androidxref.com/9.0.0_r3/s?defs=ClassLoader&project=frameworks) [classLoader](http://androidxref.com/9.0.0_r3/s?refs=classLoader&project=frameworks)) {

[903](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "903) if ([RuntimeInit](http://androidxref.com/9.0.0_r3/s?defs=RuntimeInit&project=frameworks).[DEBUG](http://androidxref.com/9.0.0_r3/s?defs=DEBUG&project=frameworks)) {

[904](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "904) [Slog](http://androidxref.com/9.0.0_r3/s?defs=Slog&project=frameworks).d([RuntimeInit](http://androidxref.com/9.0.0_r3/s?defs=RuntimeInit&project=frameworks).[TAG](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java#TAG), "RuntimeInit: Starting application from zygote");

[905](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "905) }

[906](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "906)

[907](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "907) [Trace](http://androidxref.com/9.0.0_r3/s?defs=Trace&project=frameworks).[traceBegin](http://androidxref.com/9.0.0_r3/s?defs=traceBegin&project=frameworks)([Trace](http://androidxref.com/9.0.0_r3/s?defs=Trace&project=frameworks).[TRACE\_TAG\_ACTIVITY\_MANAGER](http://androidxref.com/9.0.0_r3/s?defs=TRACE_TAG_ACTIVITY_MANAGER&project=frameworks), "ZygoteInit");

[908](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "908) [RuntimeInit](http://androidxref.com/9.0.0_r3/s?defs=RuntimeInit&project=frameworks).[redirectLogStreams](http://androidxref.com/9.0.0_r3/s?defs=redirectLogStreams&project=frameworks)();

[909](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "909)

[910](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "910) [RuntimeInit](http://androidxref.com/9.0.0_r3/s?defs=RuntimeInit&project=frameworks).[commonInit](http://androidxref.com/9.0.0_r3/s?defs=commonInit&project=frameworks)();

[911](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "911) [ZygoteInit](http://androidxref.com/9.0.0_r3/s?defs=ZygoteInit&project=frameworks).[nativeZygoteInit](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java#nativeZygoteInit)();

[912](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "912) return [RuntimeInit](http://androidxref.com/9.0.0_r3/s?defs=RuntimeInit&project=frameworks).[applicationInit](http://androidxref.com/9.0.0_r3/s?defs=applicationInit&project=frameworks)([targetSdkVersion](http://androidxref.com/9.0.0_r3/s?defs=targetSdkVersion&project=frameworks), [argv](http://androidxref.com/9.0.0_r3/s?defs=argv&project=frameworks), [classLoader](http://androidxref.com/9.0.0_r3/s?defs=classLoader&project=frameworks));

[913](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/ZygoteInit.java" \l "913) }

## 4 Zygote进程转到SystemServer

/[frameworks](http://androidxref.com/9.0.0_r3/xref/frameworks/)/[base](http://androidxref.com/9.0.0_r3/xref/frameworks/base/)/[core](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/)/[java](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/)/[com](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/)/[android](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/)/[internal](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/)/[os](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/)/[RuntimeInit.java](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/RuntimeInit.java)

[345](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/RuntimeInit.java#345) protected static [Runnable](http://androidxref.com/9.0.0_r3/s?defs=Runnable&project=frameworks) [applicationInit](http://androidxref.com/9.0.0_r3/s?refs=applicationInit&project=frameworks)(int [targetSdkVersion](http://androidxref.com/9.0.0_r3/s?refs=targetSdkVersion&project=frameworks), [String](http://androidxref.com/9.0.0_r3/s?defs=String&project=frameworks)[] [argv](http://androidxref.com/9.0.0_r3/s?refs=argv&project=frameworks),

[346](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/RuntimeInit.java" \l "346) [ClassLoader](http://androidxref.com/9.0.0_r3/s?defs=ClassLoader&project=frameworks) [classLoader](http://androidxref.com/9.0.0_r3/s?defs=classLoader&project=frameworks)) {

[347](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/RuntimeInit.java" \l "347) // If the application calls System.exit(), terminate the process

[348](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/RuntimeInit.java" \l "348) // immediately without running any shutdown hooks. It is not possible to

[349](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/RuntimeInit.java" \l "349) // shutdown an Android application gracefully. Among other things, the

[350](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/RuntimeInit.java" \l "350) // Android runtime shutdown hooks close the Binder driver, which can cause

[351](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/RuntimeInit.java" \l "351) // leftover running threads to crash before the process actually exits.

[352](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/RuntimeInit.java" \l "352) [nativeSetExitWithoutCleanup](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/RuntimeInit.java#nativeSetExitWithoutCleanup)(true);

[353](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/RuntimeInit.java" \l "353)

[354](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/RuntimeInit.java" \l "354) // We want to be fairly aggressive about heap utilization, to avoid

[355](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/RuntimeInit.java" \l "355) // holding on to a lot of memory that isn't needed.

[356](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/RuntimeInit.java" \l "356) [VMRuntime](http://androidxref.com/9.0.0_r3/s?defs=VMRuntime&project=frameworks).[getRuntime](http://androidxref.com/9.0.0_r3/s?defs=getRuntime&project=frameworks)().[setTargetHeapUtilization](http://androidxref.com/9.0.0_r3/s?defs=setTargetHeapUtilization&project=frameworks)(0.75f);

[357](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/RuntimeInit.java" \l "357) [VMRuntime](http://androidxref.com/9.0.0_r3/s?defs=VMRuntime&project=frameworks).[getRuntime](http://androidxref.com/9.0.0_r3/s?defs=getRuntime&project=frameworks)().[setTargetSdkVersion](http://androidxref.com/9.0.0_r3/s?defs=setTargetSdkVersion&project=frameworks)([targetSdkVersion](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/RuntimeInit.java#targetSdkVersion));

[358](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/RuntimeInit.java" \l "358)

[359](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/RuntimeInit.java" \l "359) final [Arguments](http://androidxref.com/9.0.0_r3/s?defs=Arguments&project=frameworks) [args](http://androidxref.com/9.0.0_r3/s?defs=args&project=frameworks) = new [Arguments](http://androidxref.com/9.0.0_r3/s?defs=Arguments&project=frameworks)([argv](http://androidxref.com/9.0.0_r3/s?defs=argv&project=frameworks));

[360](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/RuntimeInit.java" \l "360)

[361](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/RuntimeInit.java" \l "361) // The end of of the RuntimeInit event (see #zygoteInit).

[362](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/RuntimeInit.java" \l "362) [Trace](http://androidxref.com/9.0.0_r3/s?defs=Trace&project=frameworks).[traceEnd](http://androidxref.com/9.0.0_r3/s?defs=traceEnd&project=frameworks)([Trace](http://androidxref.com/9.0.0_r3/s?defs=Trace&project=frameworks).[TRACE\_TAG\_ACTIVITY\_MANAGER](http://androidxref.com/9.0.0_r3/s?defs=TRACE_TAG_ACTIVITY_MANAGER&project=frameworks));

[363](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/RuntimeInit.java" \l "363)

[364](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/RuntimeInit.java" \l "364) // Remaining arguments are passed to the start class's static main

[365](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/RuntimeInit.java" \l "365) return [findStaticMain](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/RuntimeInit.java#findStaticMain)([args](http://androidxref.com/9.0.0_r3/s?defs=args&project=frameworks).[startClass](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/RuntimeInit.java#startClass), [args](http://androidxref.com/9.0.0_r3/s?defs=args&project=frameworks).[startArgs](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/RuntimeInit.java#startArgs), [classLoader](http://androidxref.com/9.0.0_r3/s?defs=classLoader&project=frameworks));

[366](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/RuntimeInit.java" \l "366) }

[367](http://androidxref.com/9.0.0_r3/xref/frameworks/base/core/java/com/android/internal/os/RuntimeInit.java" \l "367)

# 二. SystemServer启动

/[frameworks](http://androidxref.com/9.0.0_r3/xref/frameworks/)/[base](http://androidxref.com/9.0.0_r3/xref/frameworks/base/)/[services](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/)/[java](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/)/[com](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/)/[android](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/)/[server](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/)/[SystemServer.java](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java)

[293](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#293) public static void [main](http://androidxref.com/9.0.0_r3/s?refs=main&project=frameworks)([String](http://androidxref.com/9.0.0_r3/s?defs=String&project=frameworks)[] [args](http://androidxref.com/9.0.0_r3/s?refs=args&project=frameworks)) {

[294](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "294) new [SystemServer](http://androidxref.com/9.0.0_r3/s?defs=SystemServer&project=frameworks)().[**run**](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#run)();

[295](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "295) }

[296](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "296)

[307](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "307) private void [run](http://androidxref.com/9.0.0_r3/s?refs=run&project=frameworks)() {

[308](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "308) try {

## 1 初始化系统时间

[309](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "309) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("InitBeforeStartServices");

[310](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "310) // If a device's clock is before 1970 (before 0), a lot of

[311](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "311) // APIs crash dealing with negative numbers, notably

[312](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "312) // java.io.File#setLastModified, so instead we fake it and

[313](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "313) // hope that time from cell towers or NTP fixes it shortly.

[314](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "314) if ([System](http://androidxref.com/9.0.0_r3/s?defs=System&project=frameworks).[currentTimeMillis](http://androidxref.com/9.0.0_r3/s?defs=currentTimeMillis&project=frameworks)() < [EARLIEST\_SUPPORTED\_TIME](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#EARLIEST_SUPPORTED_TIME)) {

[315](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "315) [Slog](http://androidxref.com/9.0.0_r3/s?defs=Slog&project=frameworks).w([TAG](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#TAG), "System clock is before 1970; setting to 1970.");

[316](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "316) [SystemClock](http://androidxref.com/9.0.0_r3/s?defs=SystemClock&project=frameworks).[setCurrentTimeMillis](http://androidxref.com/9.0.0_r3/s?defs=setCurrentTimeMillis&project=frameworks)([EARLIEST\_SUPPORTED\_TIME](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#EARLIEST_SUPPORTED_TIME));

[317](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "317) }

[318](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "318)

[319](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "319) //

[320](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "320) // Default the timezone property to GMT if not set.

[321](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "321) //

[322](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "322) [String](http://androidxref.com/9.0.0_r3/s?defs=String&project=frameworks) [timezoneProperty](http://androidxref.com/9.0.0_r3/s?defs=timezoneProperty&project=frameworks) = [SystemProperties](http://androidxref.com/9.0.0_r3/s?defs=SystemProperties&project=frameworks).[get](http://androidxref.com/9.0.0_r3/s?defs=get&project=frameworks)("persist.sys.timezone");

[323](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "323) if ([timezoneProperty](http://androidxref.com/9.0.0_r3/s?defs=timezoneProperty&project=frameworks) == [null](http://androidxref.com/9.0.0_r3/s?defs=null&project=frameworks) || [timezoneProperty](http://androidxref.com/9.0.0_r3/s?defs=timezoneProperty&project=frameworks).[isEmpty](http://androidxref.com/9.0.0_r3/s?defs=isEmpty&project=frameworks)()) {

[324](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "324) [Slog](http://androidxref.com/9.0.0_r3/s?defs=Slog&project=frameworks).w([TAG](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#TAG), "Timezone not set; setting to GMT.");

[325](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "325) [SystemProperties](http://androidxref.com/9.0.0_r3/s?defs=SystemProperties&project=frameworks).[set](http://androidxref.com/9.0.0_r3/s?defs=set&project=frameworks)("persist.sys.timezone", "GMT");

[326](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "326) }

[327](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "327)

[328](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "328) // If the system has "persist.sys.language" and friends set, replace them with

[329](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "329) // "persist.sys.locale". Note that the default locale at this point is calculated

[330](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "330) // using the "-Duser.locale" command line flag. That flag is usually populated by

[331](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "331) // AndroidRuntime using the same set of system properties, but only the system\_server

[332](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "332) // and system apps are allowed to set them.

[333](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "333) //

[334](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "334) // NOTE: Most changes made here will need an equivalent change to

[335](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "335) // [core](http://androidxref.com/9.0.0_r3/s?path=core/)/[jni](http://androidxref.com/9.0.0_r3/s?path=core/jni/)/[AndroidRuntime.cpp](http://androidxref.com/9.0.0_r3/s?path=core/jni/AndroidRuntime.cpp)

[336](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "336) if (![SystemProperties](http://androidxref.com/9.0.0_r3/s?defs=SystemProperties&project=frameworks).[get](http://androidxref.com/9.0.0_r3/s?defs=get&project=frameworks)("persist.sys.language").[isEmpty](http://androidxref.com/9.0.0_r3/s?defs=isEmpty&project=frameworks)()) {

[337](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "337) final [String](http://androidxref.com/9.0.0_r3/s?defs=String&project=frameworks) [languageTag](http://androidxref.com/9.0.0_r3/s?defs=languageTag&project=frameworks) = [Locale](http://androidxref.com/9.0.0_r3/s?defs=Locale&project=frameworks).[getDefault](http://androidxref.com/9.0.0_r3/s?defs=getDefault&project=frameworks)().[toLanguageTag](http://androidxref.com/9.0.0_r3/s?defs=toLanguageTag&project=frameworks)();

[338](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "338)

[339](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "339) [SystemProperties](http://androidxref.com/9.0.0_r3/s?defs=SystemProperties&project=frameworks).[set](http://androidxref.com/9.0.0_r3/s?defs=set&project=frameworks)("persist.sys.locale", [languageTag](http://androidxref.com/9.0.0_r3/s?defs=languageTag&project=frameworks));

[340](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "340) [SystemProperties](http://androidxref.com/9.0.0_r3/s?defs=SystemProperties&project=frameworks).[set](http://androidxref.com/9.0.0_r3/s?defs=set&project=frameworks)("persist.sys.language", "");

[341](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "341) [SystemProperties](http://androidxref.com/9.0.0_r3/s?defs=SystemProperties&project=frameworks).[set](http://androidxref.com/9.0.0_r3/s?defs=set&project=frameworks)("persist.sys.country", "");

[342](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "342) [SystemProperties](http://androidxref.com/9.0.0_r3/s?defs=SystemProperties&project=frameworks).[set](http://androidxref.com/9.0.0_r3/s?defs=set&project=frameworks)("persist.sys.localevar", "");

[343](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "343) }

[344](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "344)

[345](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#345) // The system server should never make non-oneway calls

[346](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#346) [Binder](http://androidxref.com/9.0.0_r3/s?defs=Binder&project=frameworks).[setWarnOnBlocking](http://androidxref.com/9.0.0_r3/s?defs=setWarnOnBlocking&project=frameworks)(true);

[347](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#347) // The system server should always load safe labels

[348](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#348) [PackageItemInfo](http://androidxref.com/9.0.0_r3/s?defs=PackageItemInfo&project=frameworks).[setForceSafeLabels](http://androidxref.com/9.0.0_r3/s?defs=setForceSafeLabels&project=frameworks)(true);

[349](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#349) // Deactivate SQLiteCompatibilityWalFlags until settings provider is initialized

[350](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#350) [SQLiteCompatibilityWalFlags](http://androidxref.com/9.0.0_r3/s?defs=SQLiteCompatibilityWalFlags&project=frameworks).[init](http://androidxref.com/9.0.0_r3/s?defs=init&project=frameworks)([null](http://androidxref.com/9.0.0_r3/s?defs=null&project=frameworks));

[351](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#351)

[352](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#352) // Here we go!

## 2 设置虚拟机

[353](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#353) [Slog](http://androidxref.com/9.0.0_r3/s?defs=Slog&project=frameworks).i([TAG](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#TAG), "Entered the Android system server!");

[354](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#354) int [uptimeMillis](http://androidxref.com/9.0.0_r3/s?defs=uptimeMillis&project=frameworks) = (int) [SystemClock](http://androidxref.com/9.0.0_r3/s?defs=SystemClock&project=frameworks).[elapsedRealtime](http://androidxref.com/9.0.0_r3/s?defs=elapsedRealtime&project=frameworks)();

[355](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#355) [EventLog](http://androidxref.com/9.0.0_r3/s?defs=EventLog&project=frameworks).[writeEvent](http://androidxref.com/9.0.0_r3/s?defs=writeEvent&project=frameworks)([EventLogTags](http://androidxref.com/9.0.0_r3/s?defs=EventLogTags&project=frameworks).[BOOT\_PROGRESS\_SYSTEM\_RUN](http://androidxref.com/9.0.0_r3/s?defs=BOOT_PROGRESS_SYSTEM_RUN&project=frameworks), [uptimeMillis](http://androidxref.com/9.0.0_r3/s?defs=uptimeMillis&project=frameworks));

[356](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#356) if (![mRuntimeRestart](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "mRuntimeRestart)) {

[357](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#357) [MetricsLogger](http://androidxref.com/9.0.0_r3/s?defs=MetricsLogger&project=frameworks).[histogram](http://androidxref.com/9.0.0_r3/s?defs=histogram&project=frameworks)([null](http://androidxref.com/9.0.0_r3/s?defs=null&project=frameworks), "boot\_system\_server\_init", [uptimeMillis](http://androidxref.com/9.0.0_r3/s?defs=uptimeMillis&project=frameworks));

[358](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#358) }

[359](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#359)

[360](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#360) // In case the runtime switched since last boot (such as when

[361](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#361) // the old runtime was removed in an OTA), set the system

[362](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#362) // property so that it is in sync. We can | xq oqi't do this in

[363](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#363) // libnativehelper's JniInvocation::Init code where we already

[364](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#364) // had to fallback to a different runtime because it is

[365](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#365) // running as root and we need to be the system user to set

[366](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#366) // the property. <http://b/11463182>

[367](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#367) [SystemProperties](http://androidxref.com/9.0.0_r3/s?defs=SystemProperties&project=frameworks).[set](http://androidxref.com/9.0.0_r3/s?defs=set&project=frameworks)("persist.sys.dalvik.vm.lib.2", [VMRuntime](http://androidxref.com/9.0.0_r3/s?defs=VMRuntime&project=frameworks).[getRuntime](http://androidxref.com/9.0.0_r3/s?defs=getRuntime&project=frameworks)().[vmLibrary](http://androidxref.com/9.0.0_r3/s?defs=vmLibrary&project=frameworks)());

[368](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "368)

[369](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "369) // Mmmmmm... more memory!

[370](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "370) [VMRuntime](http://androidxref.com/9.0.0_r3/s?defs=VMRuntime&project=frameworks).[getRuntime](http://androidxref.com/9.0.0_r3/s?defs=getRuntime&project=frameworks)().[clearGrowthLimit](http://androidxref.com/9.0.0_r3/s?defs=clearGrowthLimit&project=frameworks)();

[371](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "371)

[372](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "372) // The system server has to run all of the time, so it needs to be

[373](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "373) // as efficient as possible with its memory usage.

[374](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "374) [VMRuntime](http://androidxref.com/9.0.0_r3/s?defs=VMRuntime&project=frameworks).[getRuntime](http://androidxref.com/9.0.0_r3/s?defs=getRuntime&project=frameworks)().[setTargetHeapUtilization](http://androidxref.com/9.0.0_r3/s?defs=setTargetHeapUtilization&project=frameworks)(0.8f);

[375](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "375)

[376](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "376) // Some devices rely on runtime fingerprint generation, so make sure

[377](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "377) // we've defined it before booting further.

[378](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "378) [Build](http://androidxref.com/9.0.0_r3/s?defs=Build&project=frameworks).[ensureFingerprintProperty](http://androidxref.com/9.0.0_r3/s?defs=ensureFingerprintProperty&project=frameworks)();

[379](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "379)

[380](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "380) // Within the system server, it is an error to access Environment paths without

[381](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "381) // explicitly specifying a user.

[382](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "382) [Environment](http://androidxref.com/9.0.0_r3/s?defs=Environment&project=frameworks).[setUserRequired](http://androidxref.com/9.0.0_r3/s?defs=setUserRequired&project=frameworks)(true);

[383](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "383)

[384](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "384) // Within the system server, any incoming Bundles should be defused

[385](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "385) // to avoid throwing BadParcelableException.

[386](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "386) [BaseBundle](http://androidxref.com/9.0.0_r3/s?defs=BaseBundle&project=frameworks).[setShouldDefuse](http://androidxref.com/9.0.0_r3/s?defs=setShouldDefuse&project=frameworks)(true);

[387](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "387)

[388](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "388) // Within the system server, when parceling exceptions, include the stack trace

[389](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "389) [Parcel](http://androidxref.com/9.0.0_r3/s?defs=Parcel&project=frameworks).[setStackTraceParceling](http://androidxref.com/9.0.0_r3/s?defs=setStackTraceParceling&project=frameworks)(true);

[390](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "390)

## 3 设置binder

[391](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "391) // Ensure binder calls into the system always run at foreground priority.

[392](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "392) [BinderInternal](http://androidxref.com/9.0.0_r3/s?defs=BinderInternal&project=frameworks).[disableBackgroundScheduling](http://androidxref.com/9.0.0_r3/s?defs=disableBackgroundScheduling&project=frameworks)(true);

[393](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "393)

[394](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "394) // Increase the number of binder threads in system\_server

[395](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "395) [BinderInternal](http://androidxref.com/9.0.0_r3/s?defs=BinderInternal&project=frameworks).[setMaxThreads](http://androidxref.com/9.0.0_r3/s?defs=setMaxThreads&project=frameworks)([sMaxBinderThreads](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#sMaxBinderThreads));

[396](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "396)

[397](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "397) // Prepare the main looper thread (this thread).

[398](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "398) [android](http://androidxref.com/9.0.0_r3/s?defs=android&project=frameworks).[os](http://androidxref.com/9.0.0_r3/s?defs=os&project=frameworks).[Process](http://androidxref.com/9.0.0_r3/s?defs=Process&project=frameworks).[setThreadPriority](http://androidxref.com/9.0.0_r3/s?defs=setThreadPriority&project=frameworks)(

[399](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "399) [android](http://androidxref.com/9.0.0_r3/s?defs=android&project=frameworks).[os](http://androidxref.com/9.0.0_r3/s?defs=os&project=frameworks).[Process](http://androidxref.com/9.0.0_r3/s?defs=Process&project=frameworks).[THREAD\_PRIORITY\_FOREGROUND](http://androidxref.com/9.0.0_r3/s?defs=THREAD_PRIORITY_FOREGROUND&project=frameworks));

[400](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "400) [android](http://androidxref.com/9.0.0_r3/s?defs=android&project=frameworks).[os](http://androidxref.com/9.0.0_r3/s?defs=os&project=frameworks).[Process](http://androidxref.com/9.0.0_r3/s?defs=Process&project=frameworks).[setCanSelfBackground](http://androidxref.com/9.0.0_r3/s?defs=setCanSelfBackground&project=frameworks)(false);

## 4 prepare looper

[401](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#401) [Looper](http://androidxref.com/9.0.0_r3/s?defs=Looper&project=frameworks).[prepareMainLooper](http://androidxref.com/9.0.0_r3/s?defs=prepareMainLooper&project=frameworks)();

[402](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "402) [Looper](http://androidxref.com/9.0.0_r3/s?defs=Looper&project=frameworks).[getMainLooper](http://androidxref.com/9.0.0_r3/s?defs=getMainLooper&project=frameworks)().[setSlowLogThresholdMs](http://androidxref.com/9.0.0_r3/s?defs=setSlowLogThresholdMs&project=frameworks)(

[403](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "403) [SLOW\_DISPATCH\_THRESHOLD\_MS](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#SLOW_DISPATCH_THRESHOLD_MS), [SLOW\_DELIVERY\_THRESHOLD\_MS](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#SLOW_DELIVERY_THRESHOLD_MS));

[404](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "404)

## 5 加载Native lib

[405](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#405) // Initialize native services.

[406](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "406) [System](http://androidxref.com/9.0.0_r3/s?defs=System&project=frameworks).[loadLibrary](http://androidxref.com/9.0.0_r3/s?defs=loadLibrary&project=frameworks)("android\_servers");

[407](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "407)

[408](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "408) // Check whether we failed to shut down last time we tried.

[409](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "409) // This call may not return.

[410](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "410) [performPendingShutdown](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#performPendingShutdown)();

[411](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "411)

## 6 创建system context

[412](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "412) // Initialize the system context.

[413](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "413) [createSystemContext](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#createSystemContext)();

[414](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "414)

## 7 创建 SystemServiceManager

[415](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "415) // Create the system service manager.

[416](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "416) [mSystemServiceManager](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mSystemServiceManager) = new [SystemServiceManager](http://androidxref.com/9.0.0_r3/s?defs=SystemServiceManager&project=frameworks)([mSystemContext](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mSystemContext));

[417](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "417) [mSystemServiceManager](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mSystemServiceManager).[setStartInfo](http://androidxref.com/9.0.0_r3/s?defs=setStartInfo&project=frameworks)([mRuntimeRestart](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mRuntimeRestart),

[418](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "418) [mRuntimeStartElapsedTime](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mRuntimeStartElapsedTime), [mRuntimeStartUptime](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mRuntimeStartUptime));

[419](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "419) [LocalServices](http://androidxref.com/9.0.0_r3/s?defs=LocalServices&project=frameworks).[addService](http://androidxref.com/9.0.0_r3/s?defs=addService&project=frameworks)([SystemServiceManager](http://androidxref.com/9.0.0_r3/s?defs=SystemServiceManager&project=frameworks).class, [mSystemServiceManager](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mSystemServiceManager));

[420](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "420) // Prepare the thread pool for init tasks that can be parallelized

[421](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "421) [SystemServerInitThreadPool](http://androidxref.com/9.0.0_r3/s?defs=SystemServerInitThreadPool&project=frameworks).[get](http://androidxref.com/9.0.0_r3/s?defs=get&project=frameworks)();

[422](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "422) } finally {

[423](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "423) [traceEnd](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceEnd)(); // InitBeforeStartServices

[424](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "424) }

[425](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "425)

## 8 开启系统服务

[426](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "426) // Start services.

[427](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "427) try {

[428](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "428) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartServices");

[429](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "429) [startBootstrapServices](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#startBootstrapServices)();

[430](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "430) [startCoreServices](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#startCoreServices)();

[431](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "431) [startOtherServices](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#startOtherServices)();

[432](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "432) [SystemServerInitThreadPool](http://androidxref.com/9.0.0_r3/s?defs=SystemServerInitThreadPool&project=frameworks).[shutdown](http://androidxref.com/9.0.0_r3/s?defs=shutdown&project=frameworks)();

[433](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "433) } catch ([Throwable](http://androidxref.com/9.0.0_r3/s?defs=Throwable&project=frameworks) [ex](http://androidxref.com/9.0.0_r3/s?defs=ex&project=frameworks)) {

[434](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "434) [Slog](http://androidxref.com/9.0.0_r3/s?defs=Slog&project=frameworks).e("System", "\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*");

[435](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "435) [Slog](http://androidxref.com/9.0.0_r3/s?defs=Slog&project=frameworks).e("System", "\*\*\*\*\*\*\*\*\*\*\*\* Failure starting system services", [ex](http://androidxref.com/9.0.0_r3/s?defs=ex&project=frameworks));

[436](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "436) throw [ex](http://androidxref.com/9.0.0_r3/s?defs=ex&project=frameworks);

[437](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "437) } finally {

[438](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "438) [traceEnd](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceEnd)();

[439](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "439) }

[440](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "440)

[441](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "441) [StrictMode](http://androidxref.com/9.0.0_r3/s?defs=StrictMode&project=frameworks).[initVmDefaults](http://androidxref.com/9.0.0_r3/s?defs=initVmDefaults&project=frameworks)([null](http://androidxref.com/9.0.0_r3/s?defs=null&project=frameworks));

[442](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "442)

[443](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "443) if (![mRuntimeRestart](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "mRuntimeRestart) && ![isFirstBootOrUpgrade](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "isFirstBootOrUpgrade)()) {

[444](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "444) int [uptimeMillis](http://androidxref.com/9.0.0_r3/s?defs=uptimeMillis&project=frameworks) = (int) [SystemClock](http://androidxref.com/9.0.0_r3/s?defs=SystemClock&project=frameworks).[elapsedRealtime](http://androidxref.com/9.0.0_r3/s?defs=elapsedRealtime&project=frameworks)();

[445](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "445) [MetricsLogger](http://androidxref.com/9.0.0_r3/s?defs=MetricsLogger&project=frameworks).[histogram](http://androidxref.com/9.0.0_r3/s?defs=histogram&project=frameworks)([null](http://androidxref.com/9.0.0_r3/s?defs=null&project=frameworks), "boot\_system\_server\_ready", [uptimeMillis](http://androidxref.com/9.0.0_r3/s?defs=uptimeMillis&project=frameworks));

[446](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "446) final int [MAX\_UPTIME\_MILLIS](http://androidxref.com/9.0.0_r3/s?defs=MAX_UPTIME_MILLIS&project=frameworks) = 60 \* 1000;

[447](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "447) if ([uptimeMillis](http://androidxref.com/9.0.0_r3/s?defs=uptimeMillis&project=frameworks) > [MAX\_UPTIME\_MILLIS](http://androidxref.com/9.0.0_r3/s?defs=MAX_UPTIME_MILLIS&project=frameworks)) {

[448](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "448) [Slog](http://androidxref.com/9.0.0_r3/s?defs=Slog&project=frameworks).[wtf](http://androidxref.com/9.0.0_r3/s?defs=wtf&project=frameworks)([SYSTEM\_SERVER\_TIMING\_TAG](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#SYSTEM_SERVER_TIMING_TAG),

[449](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "449) "SystemServer init took too long. uptimeMillis=" + [uptimeMillis](http://androidxref.com/9.0.0_r3/s?defs=uptimeMillis&project=frameworks));

[450](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#450) }

[451](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#451) }

[452](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#452)

[453](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#453) // Loop forever.

[454](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "454) [Looper](http://androidxref.com/9.0.0_r3/s?defs=Looper&project=frameworks).[loop](http://androidxref.com/9.0.0_r3/s?defs=loop&project=frameworks)();

[455](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "455) throw new [RuntimeException](http://androidxref.com/9.0.0_r3/s?defs=RuntimeException&project=frameworks)("Main thread loop unexpectedly exited");

[456](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "456) }

### (1)开启启动引导服务

[530](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#530) /\*\*

[531](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "531) \* Starts the small tangle of critical services that are needed to get

[532](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "532) \* the system off the ground. These services have complex mutual dependencies

[533](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "533) \* which is why we initialize them all in one place here. Unless your service

[534](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "534) \* is also entwined in these dependencies, it should be initialized in one of

[535](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "535) \* the other functions.

[536](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "536) \*/

[537](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "537) private void [startBootstrapServices](http://androidxref.com/9.0.0_r3/s?refs=startBootstrapServices&project=frameworks)() {

[538](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "538) [Slog](http://androidxref.com/9.0.0_r3/s?defs=Slog&project=frameworks).i([TAG](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#TAG), "Reading configuration...");

[539](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "539) final [String](http://androidxref.com/9.0.0_r3/s?defs=String&project=frameworks) [TAG\_SYSTEM\_CONFIG](http://androidxref.com/9.0.0_r3/s?defs=TAG_SYSTEM_CONFIG&project=frameworks) = "ReadingSystemConfig";

[540](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "540) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)([TAG\_SYSTEM\_CONFIG](http://androidxref.com/9.0.0_r3/s?defs=TAG_SYSTEM_CONFIG&project=frameworks));

[541](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "541) [SystemServerInitThreadPool](http://androidxref.com/9.0.0_r3/s?defs=SystemServerInitThreadPool&project=frameworks).[get](http://androidxref.com/9.0.0_r3/s?defs=get&project=frameworks)().[submit](http://androidxref.com/9.0.0_r3/s?defs=submit&project=frameworks)([SystemConfig](http://androidxref.com/9.0.0_r3/s?defs=SystemConfig&project=frameworks)::[getInstance](http://androidxref.com/9.0.0_r3/s?defs=getInstance&project=frameworks), [TAG\_SYSTEM\_CONFIG](http://androidxref.com/9.0.0_r3/s?defs=TAG_SYSTEM_CONFIG&project=frameworks));

[542](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "542) [traceEnd](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceEnd)();

[543](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "543)

[544](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "544) // Wait for installd to finish starting up so that it has a chance to

[545](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "545) // create critical directories such as /[data](http://androidxref.com/9.0.0_r3/s?path=/data/)/[user](http://androidxref.com/9.0.0_r3/s?path=/data/user) with the appropriate

[546](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "546) // permissions. We need this to complete before we initialize other services.

[547](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "547) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartInstaller");

[548](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "548) [Installer](http://androidxref.com/9.0.0_r3/s?defs=Installer&project=frameworks) [installer](http://androidxref.com/9.0.0_r3/s?defs=installer&project=frameworks) = [mSystemServiceManager](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mSystemServiceManager).[startService](http://androidxref.com/9.0.0_r3/s?defs=startService&project=frameworks)([Installer](http://androidxref.com/9.0.0_r3/s?defs=Installer&project=frameworks).class);

[549](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "549) [traceEnd](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceEnd)();

[550](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "550)

[551](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "551) // In some cases after launching an app we need to access device identifiers,

[552](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "552) // therefore register the device identifier policy before the activity manager.

[553](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "553) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("DeviceIdentifiersPolicyService");

[554](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "554) [mSystemServiceManager](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mSystemServiceManager).[startService](http://androidxref.com/9.0.0_r3/s?defs=startService&project=frameworks)([DeviceIdentifiersPolicyService](http://androidxref.com/9.0.0_r3/s?defs=DeviceIdentifiersPolicyService&project=frameworks).class);

[555](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "555) [traceEnd](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceEnd)();

[556](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "556)

[557](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "557) // Activity manager runs the show.

[558](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "558) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartActivityManager");

[559](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "559) [mActivityManagerService](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mActivityManagerService) = [mSystemServiceManager](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mSystemServiceManager).[startService](http://androidxref.com/9.0.0_r3/s?defs=startService&project=frameworks)(

[560](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "560) [ActivityManagerService](http://androidxref.com/9.0.0_r3/s?defs=ActivityManagerService&project=frameworks).[Lifecycle](http://androidxref.com/9.0.0_r3/s?defs=Lifecycle&project=frameworks).class).[getService](http://androidxref.com/9.0.0_r3/s?defs=getService&project=frameworks)();

[561](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "561) [mActivityManagerService](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mActivityManagerService).[setSystemServiceManager](http://androidxref.com/9.0.0_r3/s?defs=setSystemServiceManager&project=frameworks)([mSystemServiceManager](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mSystemServiceManager));

[562](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "562) [mActivityManagerService](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mActivityManagerService).[setInstaller](http://androidxref.com/9.0.0_r3/s?defs=setInstaller&project=frameworks)([installer](http://androidxref.com/9.0.0_r3/s?defs=installer&project=frameworks));

[563](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "563) [traceEnd](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceEnd)();

[564](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "564)

[565](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "565) // Power manager needs to be started early because other services need it.

[566](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "566) // Native daemons may be watching for it to be registered so it must be ready

[567](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "567) // to handle incoming binder calls immediately (including being able to verify

[568](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "568) // the permissions for those calls).

[569](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "569) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartPowerManager");

[570](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "570) [mPowerManagerService](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mPowerManagerService) = [mSystemServiceManager](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mSystemServiceManager).[startService](http://androidxref.com/9.0.0_r3/s?defs=startService&project=frameworks)([PowerManagerService](http://androidxref.com/9.0.0_r3/s?defs=PowerManagerService&project=frameworks).class);

[571](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "571) [traceEnd](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceEnd)();

[572](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "572)

[573](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "573) // Now that the power manager has been started, let the activity manager

[574](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "574) // initialize power management features.

[575](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "575) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("InitPowerManagement");

[576](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "576) [mActivityManagerService](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mActivityManagerService).[initPowerManagement](http://androidxref.com/9.0.0_r3/s?defs=initPowerManagement&project=frameworks)();

[577](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "577) [traceEnd](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceEnd)();

[578](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "578)

[579](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "579) // Bring up recovery system in case a rescue party needs a reboot

[580](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "580) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartRecoverySystemService");

[581](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "581) [mSystemServiceManager](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mSystemServiceManager).[startService](http://androidxref.com/9.0.0_r3/s?defs=startService&project=frameworks)([RecoverySystemService](http://androidxref.com/9.0.0_r3/s?defs=RecoverySystemService&project=frameworks).class);

[582](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "582) [traceEnd](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceEnd)();

[583](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "583)

[584](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "584) // Now that we have the bare essentials of the OS up and running, take

[585](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "585) // note that we just booted, which might send out a rescue party if

[586](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "586) // we're stuck in a runtime restart loop.

[587](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "587) [RescueParty](http://androidxref.com/9.0.0_r3/s?defs=RescueParty&project=frameworks).[noteBoot](http://androidxref.com/9.0.0_r3/s?defs=noteBoot&project=frameworks)([mSystemContext](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mSystemContext));

[588](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "588)

[589](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "589) // Manages LEDs and display backlight so we need it to bring up the display.

[590](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "590) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartLightsService");

[591](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "591) [mSystemServiceManager](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mSystemServiceManager).[startService](http://androidxref.com/9.0.0_r3/s?defs=startService&project=frameworks)([LightsService](http://androidxref.com/9.0.0_r3/s?defs=LightsService&project=frameworks).class);

[592](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "592) [traceEnd](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceEnd)();

[593](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "593)

[594](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "594) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartSidekickService");

[595](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "595) // Package manager isn't started yet; need to use SysProp not hardware feature

[596](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "596) if ([SystemProperties](http://androidxref.com/9.0.0_r3/s?defs=SystemProperties&project=frameworks).[getBoolean](http://androidxref.com/9.0.0_r3/s?defs=getBoolean&project=frameworks)("config.enable\_sidekick\_graphics", false)) {

[597](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "597) [mSystemServiceManager](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mSystemServiceManager).[startService](http://androidxref.com/9.0.0_r3/s?defs=startService&project=frameworks)([WEAR\_SIDEKICK\_SERVICE\_CLASS](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#WEAR_SIDEKICK_SERVICE_CLASS));

[598](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "598) }

[599](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "599) [traceEnd](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceEnd)();

[600](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "600)

[601](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "601) // Display manager is needed to provide display metrics before package manager

[602](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "602) // starts up.

[603](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "603) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartDisplayManager");

[604](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "604) [mDisplayManagerService](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mDisplayManagerService) = [mSystemServiceManager](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mSystemServiceManager).[startService](http://androidxref.com/9.0.0_r3/s?defs=startService&project=frameworks)([DisplayManagerService](http://androidxref.com/9.0.0_r3/s?defs=DisplayManagerService&project=frameworks).class);

[605](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "605) [traceEnd](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceEnd)();

[606](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "606)

[607](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "607) // We need the default display before we can initialize the package manager.

[608](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "608) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("WaitForDisplay");

#### Bootphase ：PHASE\_WAIT\_FOR\_DEFAULT\_DISPLAY = 100

[609](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#609) [mSystemServiceManager](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mSystemServiceManager).[startBootPhase](http://androidxref.com/9.0.0_r3/s?defs=startBootPhase&project=frameworks)([SystemService](http://androidxref.com/9.0.0_r3/s?defs=SystemService&project=frameworks).[PHASE\_WAIT\_FOR\_DEFAULT\_DISPLAY](http://androidxref.com/9.0.0_r3/s?defs=PHASE_WAIT_FOR_DEFAULT_DISPLAY&project=frameworks));

[610](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "610) [traceEnd](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceEnd)();

[611](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "611)

[612](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "612) // Only run "core" apps if we're encrypting the device.

[613](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "613) [String](http://androidxref.com/9.0.0_r3/s?defs=String&project=frameworks) [cryptState](http://androidxref.com/9.0.0_r3/s?defs=cryptState&project=frameworks) = [SystemProperties](http://androidxref.com/9.0.0_r3/s?defs=SystemProperties&project=frameworks).[get](http://androidxref.com/9.0.0_r3/s?defs=get&project=frameworks)("vold.decrypt");

[614](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "614) if ([ENCRYPTING\_STATE](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "ENCRYPTING_STATE).[equals](http://androidxref.com/9.0.0_r3/s?defs=equals&project=frameworks)([cryptState](http://androidxref.com/9.0.0_r3/s?defs=cryptState&project=frameworks))) {

[615](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "615) [Slog](http://androidxref.com/9.0.0_r3/s?defs=Slog&project=frameworks).w([TAG](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#TAG), "Detected encryption in progress - only parsing core apps");

[616](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "616) [mOnlyCore](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mOnlyCore) = true;

[617](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "617) } else if ([ENCRYPTED\_STATE](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "ENCRYPTED_STATE).[equals](http://androidxref.com/9.0.0_r3/s?defs=equals&project=frameworks)([cryptState](http://androidxref.com/9.0.0_r3/s?defs=cryptState&project=frameworks))) {

[618](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "618) [Slog](http://androidxref.com/9.0.0_r3/s?defs=Slog&project=frameworks).w([TAG](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#TAG), "Device encrypted - only parsing core apps");

[619](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "619) [mOnlyCore](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mOnlyCore) = true;

[620](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "620) }

[621](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "621)

[622](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "622) // Start the package manager.

[623](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "623) if (![mRuntimeRestart](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "mRuntimeRestart)) {

[624](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "624) [MetricsLogger](http://androidxref.com/9.0.0_r3/s?defs=MetricsLogger&project=frameworks).[histogram](http://androidxref.com/9.0.0_r3/s?defs=histogram&project=frameworks)([null](http://androidxref.com/9.0.0_r3/s?defs=null&project=frameworks), "boot\_package\_manager\_init\_start",

[625](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "625) (int) [SystemClock](http://androidxref.com/9.0.0_r3/s?defs=SystemClock&project=frameworks).[elapsedRealtime](http://androidxref.com/9.0.0_r3/s?defs=elapsedRealtime&project=frameworks)());

[626](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "626) }

[627](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "627) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartPackageManagerService")**;**

[628](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "628) [mPackageManagerService](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mPackageManagerService) = [PackageManagerService](http://androidxref.com/9.0.0_r3/s?defs=PackageManagerService&project=frameworks).[main](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#main)([mSystemContext](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mSystemContext), [installer](http://androidxref.com/9.0.0_r3/s?defs=installer&project=frameworks),

[629](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "629) [mFactoryTestMode](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mFactoryTestMode) != [FactoryTest](http://androidxref.com/9.0.0_r3/s?defs=FactoryTest&project=frameworks).[FACTORY\_TEST\_OFF](http://androidxref.com/9.0.0_r3/s?defs=FACTORY_TEST_OFF&project=frameworks), [mOnlyCore](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mOnlyCore));

[630](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "630) [mFirstBoot](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mFirstBoot) = [mPackageManagerService](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mPackageManagerService).[isFirstBoot](http://androidxref.com/9.0.0_r3/s?defs=isFirstBoot&project=frameworks)();

[631](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "631) [mPackageManager](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mPackageManager) = [mSystemContext](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mSystemContext).[getPackageManager](http://androidxref.com/9.0.0_r3/s?defs=getPackageManager&project=frameworks)();

[632](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "632) [traceEnd](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceEnd)();

[633](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "633) if (![mRuntimeRestart](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "mRuntimeRestart) && ![isFirstBootOrUpgrade](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "isFirstBootOrUpgrade)()) {

[634](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "634) [MetricsLogger](http://androidxref.com/9.0.0_r3/s?defs=MetricsLogger&project=frameworks).[histogram](http://androidxref.com/9.0.0_r3/s?defs=histogram&project=frameworks)([null](http://androidxref.com/9.0.0_r3/s?defs=null&project=frameworks), "boot\_package\_manager\_init\_ready",

[635](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "635) (int) [SystemClock](http://androidxref.com/9.0.0_r3/s?defs=SystemClock&project=frameworks).[elapsedRealtime](http://androidxref.com/9.0.0_r3/s?defs=elapsedRealtime&project=frameworks)());

[636](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "636) }

[637](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "637) // Manages A/B OTA dexopting. This is a bootstrap service as we need it to rename

[638](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "638) // A/B artifacts after boot, before anything else might [touch](http://androidxref.com/9.0.0_r3/s?path=touch/)/[need](http://androidxref.com/9.0.0_r3/s?path=touch/need) them.

[639](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "639) // Note: this isn't needed during decryption (we don't have /data anyways).

[640](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "640) if (![mOnlyCore](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "mOnlyCore)) {

[641](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "641) boolean [disableOtaDexopt](http://androidxref.com/9.0.0_r3/s?defs=disableOtaDexopt&project=frameworks) = [SystemProperties](http://androidxref.com/9.0.0_r3/s?defs=SystemProperties&project=frameworks).[getBoolean](http://androidxref.com/9.0.0_r3/s?defs=getBoolean&project=frameworks)("config.disable\_otadexopt",

[642](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "642) false);

[643](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "643) if (![disableOtaDexopt](http://androidxref.com/9.0.0_r3/s?defs=disableOtaDexopt&project=frameworks)) {

[644](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "644) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartOtaDexOptService");

[645](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "645) try {

[646](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "646) [OtaDexoptService](http://androidxref.com/9.0.0_r3/s?defs=OtaDexoptService&project=frameworks).[main](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#main)([mSystemContext](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mSystemContext), [mPackageManagerService](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mPackageManagerService));

[647](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "647) } catch ([Throwable](http://androidxref.com/9.0.0_r3/s?defs=Throwable&project=frameworks) e) {

[648](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "648) [reportWtf](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#reportWtf)("starting OtaDexOptService", e);

[649](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "649) } finally {

[650](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "650) [traceEnd](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceEnd)();

[651](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "651) }

[652](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "652) }

[653](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "653) }

[654](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "654)

[655](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "655) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartUserManagerService");

[656](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "656) [mSystemServiceManager](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mSystemServiceManager).[startService](http://androidxref.com/9.0.0_r3/s?defs=startService&project=frameworks)([UserManagerService](http://androidxref.com/9.0.0_r3/s?defs=UserManagerService&project=frameworks).[LifeCycle](http://androidxref.com/9.0.0_r3/s?defs=LifeCycle&project=frameworks).class);

[657](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#657) [traceEnd](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceEnd)();

[658](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#658)

[659](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "659) // Initialize attribute cache used to cache resources from packages.

[660](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "660) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("InitAttributerCache");

[661](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "661) [AttributeCache](http://androidxref.com/9.0.0_r3/s?defs=AttributeCache&project=frameworks).[init](http://androidxref.com/9.0.0_r3/s?defs=init&project=frameworks)([mSystemContext](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mSystemContext));

[662](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "662) [traceEnd](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceEnd)();

[663](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "663)

[664](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "664) // Set up the Application instance for the system process and get started.

[665](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "665) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("SetSystemProcess");

[666](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "666) [mActivityManagerService](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mActivityManagerService).[setSystemProcess](http://androidxref.com/9.0.0_r3/s?defs=setSystemProcess&project=frameworks)();

[667](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "667) [traceEnd](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceEnd)();

[668](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "668)

[669](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "669) // DisplayManagerService needs to setup android.display scheduling related policies

[670](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "670) // since setSystemProcess() would have overridden policies due to setProcessGroup

[671](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "671) [mDisplayManagerService](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mDisplayManagerService).[setupSchedulerPolicies](http://androidxref.com/9.0.0_r3/s?defs=setupSchedulerPolicies&project=frameworks)();

[672](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "672)

[673](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "673) // Manages Overlay packages

[674](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "674) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartOverlayManagerService");

[675](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "675) [mSystemServiceManager](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mSystemServiceManager).[startService](http://androidxref.com/9.0.0_r3/s?defs=startService&project=frameworks)(new [OverlayManagerService](http://androidxref.com/9.0.0_r3/s?defs=OverlayManagerService&project=frameworks)([mSystemContext](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mSystemContext), [installer](http://androidxref.com/9.0.0_r3/s?defs=installer&project=frameworks)));

[676](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "676) [traceEnd](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceEnd)();

[677](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "677)

[678](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "678) // The sensor service needs access to package manager service, app ops

[679](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "679) // service, and permissions service, therefore we start it after them.

[680](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "680) // Start sensor service in a separate thread. Completion should be checked

[681](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "681) // before using it.

[682](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "682) [mSensorServiceStart](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mSensorServiceStart) = [SystemServerInitThreadPool](http://androidxref.com/9.0.0_r3/s?defs=SystemServerInitThreadPool&project=frameworks).[get](http://androidxref.com/9.0.0_r3/s?defs=get&project=frameworks)().[submit](http://androidxref.com/9.0.0_r3/s?defs=submit&project=frameworks)(() -> {

[683](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "683) [TimingsTraceLog](http://androidxref.com/9.0.0_r3/s?defs=TimingsTraceLog&project=frameworks) [traceLog](http://androidxref.com/9.0.0_r3/s?defs=traceLog&project=frameworks) = new [TimingsTraceLog](http://androidxref.com/9.0.0_r3/s?defs=TimingsTraceLog&project=frameworks)(

[684](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "684) [SYSTEM\_SERVER\_TIMING\_ASYNC\_TAG](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#SYSTEM_SERVER_TIMING_ASYNC_TAG), [Trace](http://androidxref.com/9.0.0_r3/s?defs=Trace&project=frameworks).[TRACE\_TAG\_SYSTEM\_SERVER](http://androidxref.com/9.0.0_r3/s?defs=TRACE_TAG_SYSTEM_SERVER&project=frameworks));

[685](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "685) [traceLog](http://androidxref.com/9.0.0_r3/s?defs=traceLog&project=frameworks).[traceBegin](http://androidxref.com/9.0.0_r3/s?defs=traceBegin&project=frameworks)([START\_SENSOR\_SERVICE](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#START_SENSOR_SERVICE));

[686](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "686) [startSensorService](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#startSensorService)();

[687](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "687) [traceLog](http://androidxref.com/9.0.0_r3/s?defs=traceLog&project=frameworks).[traceEnd](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceEnd)();

[688](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "688) }, [START\_SENSOR\_SERVICE](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#START_SENSOR_SERVICE));

[689](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "689) }

[690](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "690)

### (2)开启系统核心服务

[691](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "691) /\*\*

[692](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "692) \* Starts some essential services that are not tangled up in the bootstrap process.

[693](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "693) \*/

[694](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "694) private void [startCoreServices](http://androidxref.com/9.0.0_r3/s?refs=startCoreServices&project=frameworks)() {

[695](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "695) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartBatteryService");

[696](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "696) // Tracks the battery level. Requires LightService.

[697](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "697) [mSystemServiceManager](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mSystemServiceManager).[startService](http://androidxref.com/9.0.0_r3/s?defs=startService&project=frameworks)([BatteryService](http://androidxref.com/9.0.0_r3/s?defs=BatteryService&project=frameworks).class);

[698](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "698) [traceEnd](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceEnd)();

[699](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "699)

[700](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#700) // Tracks application usage stats.

[701](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "701) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartUsageService");

[702](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "702) [mSystemServiceManager](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mSystemServiceManager).[startService](http://androidxref.com/9.0.0_r3/s?defs=startService&project=frameworks)([UsageStatsService](http://androidxref.com/9.0.0_r3/s?defs=UsageStatsService&project=frameworks).class);

[703](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "703) [mActivityManagerService](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mActivityManagerService).[setUsageStatsManager](http://androidxref.com/9.0.0_r3/s?defs=setUsageStatsManager&project=frameworks)(

[704](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "704) [LocalServices](http://androidxref.com/9.0.0_r3/s?defs=LocalServices&project=frameworks).[getService](http://androidxref.com/9.0.0_r3/s?defs=getService&project=frameworks)([UsageStatsManagerInternal](http://androidxref.com/9.0.0_r3/s?defs=UsageStatsManagerInternal&project=frameworks).class));

[705](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "705) [traceEnd](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceEnd)();

[706](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "706)

[707](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "707) // Tracks whether the updatable WebView is in a ready state and watches for update installs.

[708](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "708) if ([mPackageManager](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mPackageManager).[hasSystemFeature](http://androidxref.com/9.0.0_r3/s?defs=hasSystemFeature&project=frameworks)([PackageManager](http://androidxref.com/9.0.0_r3/s?defs=PackageManager&project=frameworks).[FEATURE\_WEBVIEW](http://androidxref.com/9.0.0_r3/s?defs=FEATURE_WEBVIEW&project=frameworks))) {

[709](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "709) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartWebViewUpdateService");

[710](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#710) [mWebViewUpdateService](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mWebViewUpdateService) = [mSystemServiceManager](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mSystemServiceManager).[startService](http://androidxref.com/9.0.0_r3/s?defs=startService&project=frameworks)([WebViewUpdateService](http://androidxref.com/9.0.0_r3/s?defs=WebViewUpdateService&project=frameworks).class);

[711](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#711) [traceEnd](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceEnd)();

[712](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#712) }

[713](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#713)

[714](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#714) // Tracks cpu time spent in binder calls

[715](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#715) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartBinderCallsStatsService");

[716](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#716) [BinderCallsStatsService](http://androidxref.com/9.0.0_r3/s?defs=BinderCallsStatsService&project=frameworks).[start](http://androidxref.com/9.0.0_r3/s?defs=start&project=frameworks)();

[717](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#717) [traceEnd](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceEnd)();

[718](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#718) }

[719](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#719)

### (3)开启其他系统服务

[720](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#720) /\*\*

[721](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#721) \* Starts a miscellaneous grab bag of stuff that has yet to be refactored

[722](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#722) \* and organized.

[723](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#723) \*/

[724](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#724) private void [startOtherServices](http://androidxref.com/9.0.0_r3/s?refs=startOtherServices&project=frameworks)() {

[725](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#725) final [Context](http://androidxref.com/9.0.0_r3/s?defs=Context&project=frameworks) [context](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#context) = [mSystemContext](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mSystemContext);

………

[799](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#799) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartTelephonyRegistry");

[804](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "804) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartEntropyMixer");

[811](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "811) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartAccountManagerService");

[815](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "815) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartContentService");

[819](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "819) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("InstallSystemProviders");

[820](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "820) [mActivityManagerService](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mActivityManagerService).[installSystemProviders](http://androidxref.com/9.0.0_r3/s?defs=installSystemProviders&project=frameworks)();

[821](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "821) // Now that SettingsProvider is ready, reactivate SQLiteCompatibilityWalFlags

[822](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "822) [SQLiteCompatibilityWalFlags](http://androidxref.com/9.0.0_r3/s?defs=SQLiteCompatibilityWalFlags&project=frameworks).[reset](http://androidxref.com/9.0.0_r3/s?defs=reset&project=frameworks)();

[828](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "828) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartDropBoxManager");

[832](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#832) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartVibratorService");

[838](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#838) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartConsumerIrService");

[844](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#844) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartAlarmManagerService");

[848](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#848) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("InitWatchdog");

[853](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#853) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartInputManagerService");

[857](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "857) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartWindowManagerService");

[858](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "858) // WMS needs sensor service ready

[859](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "859) [ConcurrentUtils](http://androidxref.com/9.0.0_r3/s?defs=ConcurrentUtils&project=frameworks).[waitForFutureNoInterrupt](http://androidxref.com/9.0.0_r3/s?defs=waitForFutureNoInterrupt&project=frameworks)([mSensorServiceStart](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mSensorServiceStart), [START\_SENSOR\_SERVICE](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#START_SENSOR_SERVICE));

[860](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "860) [mSensorServiceStart](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mSensorServiceStart) = [null](http://androidxref.com/9.0.0_r3/s?defs=null&project=frameworks);

[861](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "861) [wm](http://androidxref.com/9.0.0_r3/s?defs=wm&project=frameworks) = [WindowManagerService](http://androidxref.com/9.0.0_r3/s?defs=WindowManagerService&project=frameworks).[main](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#main)([context](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#context), [inputManager](http://androidxref.com/9.0.0_r3/s?defs=inputManager&project=frameworks),

[862](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "862) [mFactoryTestMode](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mFactoryTestMode) != [FactoryTest](http://androidxref.com/9.0.0_r3/s?defs=FactoryTest&project=frameworks).[FACTORY\_TEST\_LOW\_LEVEL](http://androidxref.com/9.0.0_r3/s?defs=FACTORY_TEST_LOW_LEVEL&project=frameworks),

[863](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "863) ![mFirstBoot](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "mFirstBoot), [mOnlyCore](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mOnlyCore), new [PhoneWindowManager](http://androidxref.com/9.0.0_r3/s?defs=PhoneWindowManager&project=frameworks)());

[864](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "864) [ServiceManager](http://androidxref.com/9.0.0_r3/s?defs=ServiceManager&project=frameworks).[addService](http://androidxref.com/9.0.0_r3/s?defs=addService&project=frameworks)([Context](http://androidxref.com/9.0.0_r3/s?defs=Context&project=frameworks).[WINDOW\_SERVICE](http://androidxref.com/9.0.0_r3/s?defs=WINDOW_SERVICE&project=frameworks), [wm](http://androidxref.com/9.0.0_r3/s?defs=wm&project=frameworks), /\* allowIsolated= \*/ false,

[865](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "865) [DUMP\_FLAG\_PRIORITY\_CRITICAL](http://androidxref.com/9.0.0_r3/s?defs=DUMP_FLAG_PRIORITY_CRITICAL&project=frameworks) | [DUMP\_FLAG\_PROTO](http://androidxref.com/9.0.0_r3/s?defs=DUMP_FLAG_PROTO&project=frameworks));

[866](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "866) [ServiceManager](http://androidxref.com/9.0.0_r3/s?defs=ServiceManager&project=frameworks).[addService](http://androidxref.com/9.0.0_r3/s?defs=addService&project=frameworks)([Context](http://androidxref.com/9.0.0_r3/s?defs=Context&project=frameworks).[INPUT\_SERVICE](http://androidxref.com/9.0.0_r3/s?defs=INPUT_SERVICE&project=frameworks), [inputManager](http://androidxref.com/9.0.0_r3/s?defs=inputManager&project=frameworks),

[867](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "867) /\* allowIsolated= \*/ false, [DUMP\_FLAG\_PRIORITY\_CRITICAL](http://androidxref.com/9.0.0_r3/s?defs=DUMP_FLAG_PRIORITY_CRITICAL&project=frameworks));

[868](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "868) [traceEnd](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceEnd)();

[869](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "869)

[870](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "870) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("SetWindowManagerService");

[871](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "871) [mActivityManagerService](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mActivityManagerService).[setWindowManager](http://androidxref.com/9.0.0_r3/s?defs=setWindowManager&project=frameworks)([wm](http://androidxref.com/9.0.0_r3/s?defs=wm&project=frameworks));

[872](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "872) [traceEnd](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceEnd)();

[873](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "873)

[874](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "874) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("WindowManagerServiceOnInitReady");

[875](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "875) [wm](http://androidxref.com/9.0.0_r3/s?defs=wm&project=frameworks).[onInitReady](http://androidxref.com/9.0.0_r3/s?defs=onInitReady&project=frameworks)();

[876](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "876) [traceEnd](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceEnd)();

[877](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "877)

[878](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "878) // Start receiving calls from HIDL services. Start in in a separate thread

[879](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "879) // because it need to connect to SensorManager. This have to start

[880](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "880) // after START\_SENSOR\_SERVICE is done.

[881](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "881) [SystemServerInitThreadPool](http://androidxref.com/9.0.0_r3/s?defs=SystemServerInitThreadPool&project=frameworks).[get](http://androidxref.com/9.0.0_r3/s?defs=get&project=frameworks)().[submit](http://androidxref.com/9.0.0_r3/s?defs=submit&project=frameworks)(() -> {

[882](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "882) [TimingsTraceLog](http://androidxref.com/9.0.0_r3/s?defs=TimingsTraceLog&project=frameworks) [traceLog](http://androidxref.com/9.0.0_r3/s?defs=traceLog&project=frameworks) = new [TimingsTraceLog](http://androidxref.com/9.0.0_r3/s?defs=TimingsTraceLog&project=frameworks)(

[883](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "883) [SYSTEM\_SERVER\_TIMING\_ASYNC\_TAG](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#SYSTEM_SERVER_TIMING_ASYNC_TAG), [Trace](http://androidxref.com/9.0.0_r3/s?defs=Trace&project=frameworks).[TRACE\_TAG\_SYSTEM\_SERVER](http://androidxref.com/9.0.0_r3/s?defs=TRACE_TAG_SYSTEM_SERVER&project=frameworks));

[884](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "884) [traceLog](http://androidxref.com/9.0.0_r3/s?defs=traceLog&project=frameworks).[traceBegin](http://androidxref.com/9.0.0_r3/s?defs=traceBegin&project=frameworks)([START\_HIDL\_SERVICES](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#START_HIDL_SERVICES));

[885](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "885) [startHidlServices](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#startHidlServices)();

[886](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "886) [traceLog](http://androidxref.com/9.0.0_r3/s?defs=traceLog&project=frameworks).[traceEnd](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceEnd)();

[887](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "887) }, [START\_HIDL\_SERVICES](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#START_HIDL_SERVICES));

[888](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "888)

[890](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#890) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartVrManagerService");

[894](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#894)

[895](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#895) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartInputManager");

[901](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#901) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("DisplayManagerWindowManagerAndInputReady");

[916](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "916) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartBluetoothService");

[920](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "920)

[921](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "921) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("IpConnectivityMetrics");

[925](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "925) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("NetworkWatchlistService");

[929](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "929) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("PinnerService");

[943](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "943)

[944](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "944) // Bring up services needed for UI.

[946](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "946) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartInputMethodManagerLifecycle");

[950](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "950) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartAccessibilityManagerService");

[960](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "960) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("MakeDisplayReady");

[961](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "961) try {

[962](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "962) [wm](http://androidxref.com/9.0.0_r3/s?defs=wm&project=frameworks).[displayReady](http://androidxref.com/9.0.0_r3/s?defs=displayReady&project=frameworks)();

[963](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "963) } catch ([Throwable](http://androidxref.com/9.0.0_r3/s?defs=Throwable&project=frameworks) e) {

[964](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "964) [reportWtf](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#reportWtf)("making display ready", e);

[965](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "965) }

[966](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "966) [traceEnd](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceEnd)();

[967](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "967)

[970](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "970) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartStorageManagerService");

[984](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "984) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartStorageStatsService");

[996](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "996) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartUiModeManager");

[1001](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1001) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("UpdatePackagesIfNeeded");

[1010](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1010) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("PerformFstrimIfNeeded");

[1019](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1019) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartLockSettingsService");

[1031](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1031) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartPersistentDataBlock");

[1038](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1038) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartOemLockService");

[1043](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1043) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartDeviceIdleController");

[1049](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1049) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartDevicePolicyManager");

[1054](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1054) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartStatusBarManagerService");

[1064](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1064) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartClipboardService");

[1068](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1068) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartNetworkManagementService");

[1077](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1077) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartIpSecService");

[1086](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1086) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartTextServicesManager");

[1096](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1096) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartNetworkScoreService");

[1100](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1100) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartNetworkStatsService");

[1109](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1109) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartNetworkPolicyManagerService");

[1123](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1123) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartWifi");

[1126](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1126) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartWifiScanning");

[1134](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1134) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartRttService");

[1142](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1142) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartWifiAware");

[1149](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1149) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartWifiP2P");

[1156](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1156) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartLowpan");

[1164](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1164) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartEthernet");

[1169](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1169) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartConnectivityService");

[1183](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1183) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartNsdService");

[1193](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1193) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartSystemUpdateManagerService");

[1202](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1202) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartUpdateLockService");

[1211](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1211) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartNotificationManager");

[1218](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1218) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartDeviceMonitor");

[1222](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1222) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartLocationManagerService");

[1231](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1231) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartCountryDetectorService");

[1241](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1241) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartSearchManagerService");

[1251](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1251) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartWallpaperManagerService");

[1256](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1256) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartAudioService");

[1261](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1261) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartBroadcastRadioService");

[1266](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1266) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartDockObserver");

[1271](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1271) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartThermalObserver");

[1276](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1276) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartWiredAccessoryManager");

[1288](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1288) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartMidiManager");

[1298](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1298) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartUsbService");

[1304](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1304) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartSerialService");

[1315](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1315) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartHardwarePropertiesManagerService");

[1325](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1325) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartTwilightService");

[1335](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1335) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartJobScheduler");

[1339](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1339) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartSoundTrigger");

[1343](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1343) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartTrustManager");

[1348](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1348) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartBackupManager");

[1355](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1355) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartAppWidgerService");

[1364](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1364) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartVoiceRecognitionManager");

[1369](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1369) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartGestureLauncher");

[1373](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1373) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartSensorNotification");

[1377](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1377) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartContextHubSystemService");

[1381](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1381) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartDiskStatsService");

[1397](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1397) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartTimeZoneRulesManagerService");

[1403](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1403) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartNetworkTimeUpdateService");

[1413](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1413) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartCommonTimeManagementService");

[1422](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1422) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("CertBlacklister");

[1432](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1432) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartEmergencyAffordanceService");

[1438](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1438) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartDreamManager");

[1442](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1442) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("AddGraphicsStatsService");

[1448](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1448) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("AddCoverageService");

[1454](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1454) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartPrintManager");

[1460](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1460) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartCompanionDeviceManager");

[1465](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1465) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartRestrictionManager");

1469 traceBeginAndSlog("StartMediaSessionService");

1473 traceBeginAndSlog("StartMediaUpdateService");

1478 traceBeginAndSlog("StartHdmiControlService");

1485 traceBeginAndSlog("StartTvInputManager");

1491 traceBeginAndSlog("StartMediaResourceMonitor");

1497 traceBeginAndSlog("StartTvRemoteService");

1502 traceBeginAndSlog("StartMediaRouterService");

1512 traceBeginAndSlog("StartFingerprintSensor");

1517 traceBeginAndSlog("StartBackgroundDexOptService");

1525 traceBeginAndSlog("StartPruneInstantAppsJobService");

1534 traceBeginAndSlog("StartShortcutServiceLifecycle");

1538 traceBeginAndSlog("StartLauncherAppsService");

1542 traceBeginAndSlog("StartCrossProfileAppsService");

1548 traceBeginAndSlog("StartMediaProjectionManager");

1554 traceBeginAndSlog("StartWearConfigService");

1558 traceBeginAndSlog("StartWearConnectivityService");

1562 traceBeginAndSlog("StartWearTimeService");

1568 traceBeginAndSlog("StartWearLeftyService");

1573 traceBeginAndSlog("StartWearGlobalActionsService");

1579 traceBeginAndSlog("StartSliceManagerService");

1585 traceBeginAndSlog("StartCameraServiceProxy");

1591 traceBeginAndSlog("StartIoTSystemService");

1597 traceBeginAndSlog("StartStatsCompanionService");

1605 traceBeginAndSlog("EnterSafeModeAndDisableJitCompilation");

1612 traceBeginAndSlog("StartJitCompilation");

1618 traceBeginAndSlog("StartMmsService");

1623 traceBeginAndSlog("StartAutoFillService");

1630 traceBeginAndSlog("MakeVibratorServiceReady");

1638 traceBeginAndSlog("MakeLockSettingsServiceReady");

1649 traceBeginAndSlog("StartBootPhaseLockSettingsReady");

1650

**Bootphase: PHASE\_LOCK\_SETTINGS\_READY = 480**  mSystemServiceManager.startBootPhase(SystemService.PHASE\_LOCK\_SETTINGS\_READY);

1653 traceBeginAndSlog("StartBootPhaseSystemServicesReady");

#### Bootphase：PHASE\_SYSTEM\_SERVICES\_READY = 500

1654 mSystemServiceManager.startBootPhase(SystemService.PHASE\_SYSTEM\_SERVICES\_READY);

1657 traceBeginAndSlog("MakeWindowManagerServiceReady");

1684 traceBeginAndSlog("MakePowerManagerServiceReady");

1693 traceBeginAndSlog("MakePackageManagerServiceReady");

1697 traceBeginAndSlog("MakeDisplayManagerServiceReady");

1709 traceBeginAndSlog("StartDeviceSpecificServices");

1713 traceBeginAndSlog("StartDeviceSpecificServices " + className);

1723 traceBeginAndSlog("StartBootPhaseDeviceSpecificServicesReady");

#### Bootphase：PHASE\_DEVICE\_SPECIFIC\_SERVICES\_READY = 520

1724 mSystemServiceManager.startBootPhase(SystemService.PHASE\_DEVICE\_SPECIFIC\_SERVICES\_READY);

1750 traceBeginAndSlog("StartActivityManagerReadyPhase");

#### Bootphase：PHASE\_ACTIVITY\_MANAGER\_READY = 550

[1748](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1748) [mActivityManagerService](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mActivityManagerService).[systemReady](http://androidxref.com/9.0.0_r3/s?defs=systemReady&project=frameworks)(() -> {

[1749](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1749) [Slog](http://androidxref.com/9.0.0_r3/s?defs=Slog&project=frameworks).i([TAG](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#TAG), "Making services ready");

[1750](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1750) [traceBeginAndSlog](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#traceBeginAndSlog)("StartActivityManagerReadyPhase");

1751 mSystemServiceManager.startBootPhase(

1752 SystemService.PHASE\_ACTIVITY\_MANAGER\_READY);

1754 traceBeginAndSlog("StartObservingNativeCrashes");

1780 traceBeginAndSlog("StartCarServiceHelperService");

1785 traceBeginAndSlog("StartSystemUI");

1792 traceBeginAndSlog("MakeNetworkManagementServiceReady");

1804 traceBeginAndSlog("MakeIpSecServiceReady");

1811 traceBeginAndSlog("MakeNetworkStatsServiceReady");

1818 traceBeginAndSlog("MakeConnectivityServiceReady");

1825 traceBeginAndSlog("MakeNetworkPolicyServiceReady");

1835 traceBeginAndSlog("StartWatchdog");

1844 traceBeginAndSlog("PhaseThirdPartyAppsCanStart");

#### Bootphase：PHASE\_THIRD\_PARTY\_APPS\_CAN\_START = 600

1849 mSystemServiceManager.startBootPhase(

1850 SystemService.PHASE\_THIRD\_PARTY\_APPS\_CAN\_START);

1853 traceBeginAndSlog("MakeLocationServiceReady");

1860 traceBeginAndSlog("MakeCountryDetectionServiceReady");

1867 traceBeginAndSlog("MakeNetworkTimeUpdateReady");

1874 traceBeginAndSlog("MakeCommonTimeManagementServiceReady");

1883 traceBeginAndSlog("MakeInputManagerServiceReady");

1891 traceBeginAndSlog("MakeTelephonyRegistryReady");

1898 traceBeginAndSlog("MakeMediaRouterServiceReady");

1905 traceBeginAndSlog("MakeMmsServiceReady");

1913 traceBeginAndSlog("IncidentDaemonReady");

[1924](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1924) }, [BOOT\_TIMINGS\_TRACE\_LOG](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#BOOT_TIMINGS_TRACE_LOG));

[1925](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java" \l "1925) }

### (4)生命周期和bootphase

#### ① Service的开启

以AMS为例

[559](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#559) [mActivityManagerService](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mActivityManagerService) = [mSystemServiceManager](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#mSystemServiceManager).[startService](http://androidxref.com/9.0.0_r3/s?defs=startService&project=frameworks)(

[560](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/java/com/android/server/SystemServer.java#560) [ActivityManagerService](http://androidxref.com/9.0.0_r3/s?defs=ActivityManagerService&project=frameworks).[Lifecycle](http://androidxref.com/9.0.0_r3/s?defs=Lifecycle&project=frameworks).class).[getService](http://androidxref.com/9.0.0_r3/s?defs=getService&project=frameworks)();

/[frameworks](http://androidxref.com/9.0.0_r3/xref/frameworks/)/[base](http://androidxref.com/9.0.0_r3/xref/frameworks/base/)/[services](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/)/[core](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/)/[java](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/)/[com](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/)/[android](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/)/[server](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/)/[SystemServiceManager.java](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemServiceManager.java)

[45](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemServiceManager.java#45) // Services that should receive lifecycle events.

[46](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemServiceManager.java#46) private final [ArrayList](http://androidxref.com/9.0.0_r3/s?defs=ArrayList&project=frameworks)<[SystemService](http://androidxref.com/9.0.0_r3/s?defs=SystemService&project=frameworks)> [mServices](http://androidxref.com/9.0.0_r3/s?refs=mServices&project=frameworks) = new [ArrayList](http://androidxref.com/9.0.0_r3/s?defs=ArrayList&project=frameworks)<[SystemService](http://androidxref.com/9.0.0_r3/s?defs=SystemService&project=frameworks)>();

[47](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemServiceManager.java#47)

[120](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemServiceManager.java" \l "120) public void [startService](http://androidxref.com/9.0.0_r3/s?refs=startService&project=frameworks)(@[NonNull](http://androidxref.com/9.0.0_r3/s?defs=NonNull&project=frameworks) final [SystemService](http://androidxref.com/9.0.0_r3/s?defs=SystemService&project=frameworks) [service](http://androidxref.com/9.0.0_r3/s?refs=service&project=frameworks)) {

[121](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemServiceManager.java" \l "121) // Register it. AMS作为受生命周期控制的Service，将被注册保存

[122](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemServiceManager.java" \l "122) [mServices](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemServiceManager.java#mServices).[add](http://androidxref.com/9.0.0_r3/s?defs=add&project=frameworks)([service](http://androidxref.com/9.0.0_r3/s?defs=service&project=frameworks));

[123](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemServiceManager.java" \l "123) // Start it. 调用service的onstart方法启动service

[124](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemServiceManager.java" \l "124) long [time](http://androidxref.com/9.0.0_r3/s?defs=time&project=frameworks) = [SystemClock](http://androidxref.com/9.0.0_r3/s?defs=SystemClock&project=frameworks).[elapsedRealtime](http://androidxref.com/9.0.0_r3/s?defs=elapsedRealtime&project=frameworks)();

[125](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemServiceManager.java" \l "125) try {

[126](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemServiceManager.java" \l "126) [service](http://androidxref.com/9.0.0_r3/s?defs=service&project=frameworks).[onStart](http://androidxref.com/9.0.0_r3/s?defs=onStart&project=frameworks)();

[127](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemServiceManager.java" \l "127) } catch ([RuntimeException](http://androidxref.com/9.0.0_r3/s?defs=RuntimeException&project=frameworks) [ex](http://androidxref.com/9.0.0_r3/s?defs=ex&project=frameworks)) {

[128](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemServiceManager.java" \l "128) throw new [RuntimeException](http://androidxref.com/9.0.0_r3/s?defs=RuntimeException&project=frameworks)("Failed to start service " + [service](http://androidxref.com/9.0.0_r3/s?defs=service&project=frameworks).[getClass](http://androidxref.com/9.0.0_r3/s?defs=getClass&project=frameworks)().[getName](http://androidxref.com/9.0.0_r3/s?defs=getName&project=frameworks)()

[129](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemServiceManager.java" \l "129) + ": onStart threw an exception", [ex](http://androidxref.com/9.0.0_r3/s?defs=ex&project=frameworks));

[130](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemServiceManager.java" \l "130) }

[131](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemServiceManager.java" \l "131) [warnIfTooLong](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemServiceManager.java#warnIfTooLong)([SystemClock](http://androidxref.com/9.0.0_r3/s?defs=SystemClock&project=frameworks).[elapsedRealtime](http://androidxref.com/9.0.0_r3/s?defs=elapsedRealtime&project=frameworks)() - [time](http://androidxref.com/9.0.0_r3/s?defs=time&project=frameworks), [service](http://androidxref.com/9.0.0_r3/s?defs=service&project=frameworks), "onStart");

[132](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemServiceManager.java" \l "132) }

[133](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemServiceManager.java#133)

#### ② Service 的生命周期

以AMS为例

以LifeCycle继承SystemSevice进行生命周期监听

[2877](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java" \l "2877) public static final class *[Lifecycle](http://androidxref.com/9.0.0_r3/s?refs=Lifecycle&project=frameworks)* extends [SystemService](http://androidxref.com/9.0.0_r3/s?defs=SystemService&project=frameworks) {

[2878](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java" \l "2878) private final [ActivityManagerService](http://androidxref.com/9.0.0_r3/s?defs=ActivityManagerService&project=frameworks) [mService](http://androidxref.com/9.0.0_r3/s?refs=mService&project=frameworks);

[2879](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java" \l "2879)

[2880](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java" \l "2880) public [Lifecycle](http://androidxref.com/9.0.0_r3/s?refs=Lifecycle&project=frameworks)([Context](http://androidxref.com/9.0.0_r3/s?defs=Context&project=frameworks) [context](http://androidxref.com/9.0.0_r3/s?refs=context&project=frameworks)) {

[2881](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java" \l "2881) super([context](http://androidxref.com/9.0.0_r3/s?defs=context&project=frameworks));

[2882](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java" \l "2882) [mService](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java#mService) = new [ActivityManagerService](http://androidxref.com/9.0.0_r3/s?defs=ActivityManagerService&project=frameworks)([context](http://androidxref.com/9.0.0_r3/s?defs=context&project=frameworks));

[2883](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java" \l "2883) }

[2884](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java" \l "2884)

[2885](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java" \l "2885) @[Override](http://androidxref.com/9.0.0_r3/s?defs=Override&project=frameworks)

[2886](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java" \l "2886) public void [onStart](http://androidxref.com/9.0.0_r3/s?refs=onStart&project=frameworks)() {

[2887](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java" \l "2887) [mService](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java#mService).[start](http://androidxref.com/9.0.0_r3/s?defs=start&project=frameworks)();

[2888](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java" \l "2888) }

[2889](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java" \l "2889)

[2890](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java" \l "2890) @[Override](http://androidxref.com/9.0.0_r3/s?defs=Override&project=frameworks)

[2891](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java" \l "2891) public void [onBootPhase](http://androidxref.com/9.0.0_r3/s?refs=onBootPhase&project=frameworks)(int [phase](http://androidxref.com/9.0.0_r3/s?refs=phase&project=frameworks)) {

[2892](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java" \l "2892) [mService](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java#mService).[mBootPhase](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java#mBootPhase) = [phase](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java#phase);

[2893](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java" \l "2893) if ([phase](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java#phase) == [PHASE\_SYSTEM\_SERVICES\_READY](http://androidxref.com/9.0.0_r3/s?defs=PHASE_SYSTEM_SERVICES_READY&project=frameworks)) {

[2894](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java" \l "2894) [mService](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java#mService).[mBatteryStatsService](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java#mBatteryStatsService).[systemServicesReady](http://androidxref.com/9.0.0_r3/s?defs=systemServicesReady&project=frameworks)();

[2895](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java" \l "2895) [mService](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java#mService).[mServices](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java#mServices).[systemServicesReady](http://androidxref.com/9.0.0_r3/s?defs=systemServicesReady&project=frameworks)();

[2896](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java" \l "2896) }

[2897](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java" \l "2897) }

[2898](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java" \l "2898)

[2899](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java" \l "2899) @[Override](http://androidxref.com/9.0.0_r3/s?defs=Override&project=frameworks)

[2900](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java" \l "2900) public void [onCleanupUser](http://androidxref.com/9.0.0_r3/s?refs=onCleanupUser&project=frameworks)(int [userId](http://androidxref.com/9.0.0_r3/s?refs=userId&project=frameworks)) {

[2901](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java" \l "2901) [mService](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java#mService).[mBatteryStatsService](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java#mBatteryStatsService).[onCleanupUser](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java#onCleanupUser)([userId](http://androidxref.com/9.0.0_r3/s?defs=userId&project=frameworks));

[2902](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java" \l "2902) }

[2903](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java" \l "2903)

[2904](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java" \l "2904) public [ActivityManagerService](http://androidxref.com/9.0.0_r3/s?defs=ActivityManagerService&project=frameworks) [getService](http://androidxref.com/9.0.0_r3/s?refs=getService&project=frameworks)() {

[2905](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java" \l "2905) return [mService](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java#mService);

[2906](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java" \l "2906) }

[2907](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/am/ActivityManagerService.java" \l "2907) }

SystemService生命周期一览

[26](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "26)

[27](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "27)/\*\*

[28](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "28) \* The base class for services running in the system process. Override and implement

[29](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "29) \* the lifecycle event callback methods as needed.

[30](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "30) \* <p>

[31](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "31) \* The lifecycle of a SystemService:

[32](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "32) \* </p><ul>

[33](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "33) \* <li>The constructor is called and provided with the system {**@link** Context}

[34](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "34) \* to initialize the system service.

[35](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "35) \* <li>{**@link** #onStart()} is called to get the service running. The service should

[36](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "36) \* publish its binder interface at this point using

[37](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "37) \* {**@link** #publishBinderService(String, IBinder)}. It may also publish additional

[38](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "38) \* local interfaces that other services within the system server may use to access

[39](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "39) \* privileged internal functions.

[40](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "40) \* <li>Then {**@link** #onBootPhase(int)} is called as many times as there are boot phases

[41](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "41) \* until {**@link** #PHASE\_BOOT\_COMPLETED} is sent, which is the last boot phase. Each phase

[42](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "42) \* is an opportunity to do special work, like acquiring optional service dependencies,

[43](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "43) \* waiting to see if SafeMode is enabled, or registering with a service that gets

[44](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "44) \* started after this one.

[45](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "45) \* </ul><p>

[46](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "46) \* NOTE: All lifecycle methods are called from the system server's main looper thread.

[47](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "47) \* </p>

[48](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "48) \*

[49](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "49) \* {**@hide**}

[50](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "50) \*/

/frameworks/base/services/core/java/com/android/server/SystemService.java

[133](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "133) \* Called when the dependencies listed in the **@Service** class-annotation are available

[134](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "134) \* and after the chosen start phase.

[135](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "135) \* When this method returns, the service should be published.

[136](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "136) \*/

[137](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "137) **public** **abstract** **void** **[onStart](http://androidxref.com/9.0.0_r3/s?refs=onStart&project=frameworks)**();

[138](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "138)

[139](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "139) /\*\*

[140](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "140) \* Called on each phase of the boot process. Phases before the service's start phase

[141](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "141) \* (as defined in the **@Service** annotation) are never received.

[142](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "142) \*

[143](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "143) \* **@param** phase The current boot phase.

[144](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "144) \*/

[145](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "145) **public** **void** **[onBootPhase](http://androidxref.com/9.0.0_r3/s?refs=onBootPhase&project=frameworks)**(**int** **[phase](http://androidxref.com/9.0.0_r3/s?refs=phase&project=frameworks)**) {}

[146](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "146)

[147](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "147) /\*\*

[148](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "148) \* Called when a new user is starting, for system services to initialize any per-user

[149](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "149) \* state they maintain for running users.

[150](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "150) \* **@param** userHandle The identifier of the user.

[151](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "151) \*/

[152](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "152) **public** **void** **[onStartUser](http://androidxref.com/9.0.0_r3/s?refs=onStartUser&project=frameworks)**(**int** **[userHandle](http://androidxref.com/9.0.0_r3/s?refs=userHandle&project=frameworks)**) {}

[153](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "153)

[154](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "154) /\*\*

[155](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "155) \* Called when an existing user is in the process of being unlocked. This

[156](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "156) \* means the credential-encrypted storage for that user is now available,

[157](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "157) \* and encryption-aware component filtering is no longer in effect.

[158](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "158) \* <p>

[159](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "159) \* While dispatching this event to services, the user is in the

[160](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "160) \* {**@code** STATE\_RUNNING\_UNLOCKING} state, and once dispatching is finished

[161](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "161) \* the user will transition into the {**@code** STATE\_RUNNING\_UNLOCKED} state.

[162](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "162) \* Code written inside system services should use

[163](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "163) \* {**@link** UserManager#isUserUnlockingOrUnlocked(int)} to handle both of

[164](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "164) \* these states.

[165](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "165) \*

[166](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "166) \* **@param** userHandle The identifier of the user.

[167](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "167) \*/

[168](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "168) **public** **void** **[onUnlockUser](http://androidxref.com/9.0.0_r3/s?refs=onUnlockUser&project=frameworks)**(**int** [**userHandle**](http://androidxref.com/9.0.0_r3/s?refs=userHandle&project=frameworks)) {}

[169](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "169)

[170](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "170) /\*\*

[171](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "171) \* Called when switching to a different foreground user, for system services that have

[172](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "172) \* special behavior for whichever user is currently in the foreground. This is called

[173](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "173) \* before any application processes are aware of the new user.

[174](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "174) \* **@param** userHandle The identifier of the user.

[175](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "175) \*/

[176](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "176) **public** **void** **[onSwitchUser](http://androidxref.com/9.0.0_r3/s?refs=onSwitchUser&project=frameworks)**(**int** [**userHandle**](http://androidxref.com/9.0.0_r3/s?refs=userHandle&project=frameworks)) {}

[177](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "177)

[178](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "178) /\*\*

[179](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "179) \* Called when an existing user is stopping, for system services to finalize any per-user

[180](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "180) \* state they maintain for running users. This is called prior to sending the SHUTDOWN

[181](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "181) \* broadcast to the user; it is a good place to stop making use of any resources of that

[182](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "182) \* user (such as binding to a service running in the user).

[183](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "183) \*

[184](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "184) \* <p>NOTE: This is the last callback where the callee may access the target user's CE storage.

[185](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java#185) \*

[186](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java#186) \* **@param** userHandle The identifier of the user.

[187](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java#187) \*/

[188](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java#188) **public** **void** **[onStopUser](http://androidxref.com/9.0.0_r3/s?refs=onStopUser&project=frameworks)**(**int** [**userHandle**](http://androidxref.com/9.0.0_r3/s?refs=userHandle&project=frameworks)) {}

[189](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java#189)

[190](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java#190) /\*\*

[191](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java#191) \* Called when an existing user is stopping, for system services to finalize any per-user

[192](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java#192) \* state they maintain for running users. This is called after all application process

[193](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java#193) \* teardown of the user is complete.

[194](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java#194) \*

[195](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java#195) \* <p>NOTE: When this callback is called, the CE storage for the target user may not be

[196](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java#196) \* accessible already. Use {**@link** #onStopUser} instead if you need to access the CE storage.

[197](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java#197) \*

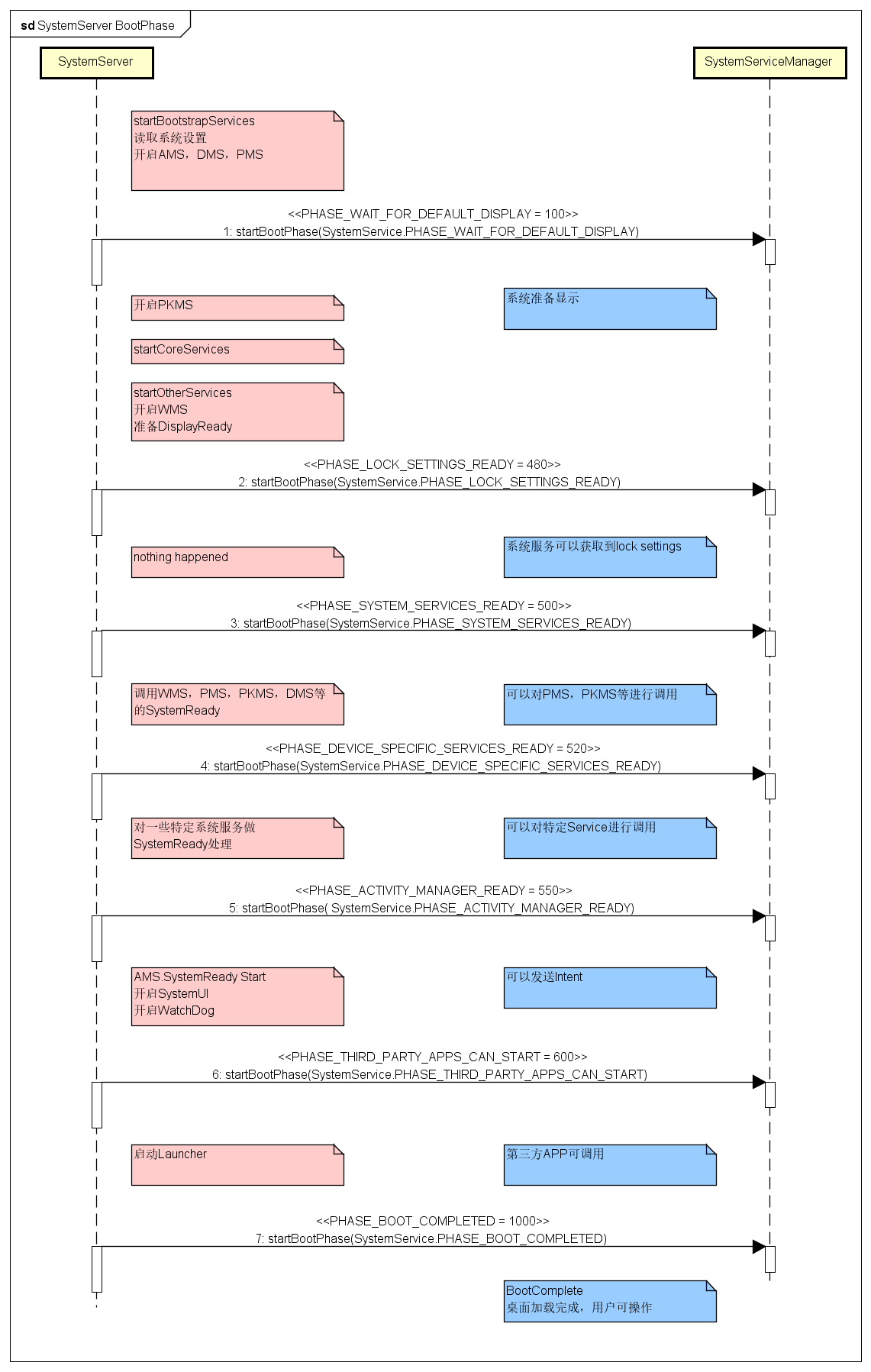
[198](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java#198) \* **@param** userHandle The identifier of the user.

[199](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "199) \*/

[200](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "200) **public** **void** **[onCleanupUser](http://androidxref.com/9.0.0_r3/s?refs=onCleanupUser&project=frameworks)**(**int** **[userHandle](http://androidxref.com/9.0.0_r3/s?refs=userHandle&project=frameworks)**) {}

[201](http://androidxref.com/9.0.0_r3/xref/frameworks/base/services/core/java/com/android/server/SystemService.java" \l "201)

#### ③ bootphase



Bootphase在SystemService中定义

55 public static final int PHASE\_WAIT\_FOR\_DEFAULT\_DISPLAY = 100; // maybe should be a dependency?

56

57 /\*\*

58 \* After receiving this boot phase, services can obtain lock settings data.

59 \*/

60 public static final int PHASE\_LOCK\_SETTINGS\_READY = 480;

61

62 /\*\*

63 \* After receiving this boot phase, services can safely call into core system services

64 \* such as the PowerManager or PackageManager.

65 \*/

66 public static final int PHASE\_SYSTEM\_SERVICES\_READY = 500;

67

68 /\*\*

69 \* After receiving this boot phase, services can safely call into device specific services.

70 \*/

71 public static final int PHASE\_DEVICE\_SPECIFIC\_SERVICES\_READY = 520;

72

73 /\*\*

74 \* After receiving this boot phase, services can broadcast Intents.

75 \*/

76 public static final int PHASE\_ACTIVITY\_MANAGER\_READY = 550;

77

78 /\*\*

79 \* After receiving this boot phase, services can start/bind to third party apps.

80 \* Apps will be able to make Binder calls into services at this point.

81 \*/

82 public static final int PHASE\_THIRD\_PARTY\_APPS\_CAN\_START = 600;

83

84 /\*\*

85 \* After receiving this boot phase, services can allow user interaction with the device.

86 \* This phase occurs when boot has completed and the home application has started.

87 \* System services may prefer to listen to this phase rather than registering a

88 \* broadcast receiver for ACTION\_BOOT\_COMPLETED to reduce overall latency.

89 \*/

90 public static final int PHASE\_BOOT\_COMPLETED = 1000;