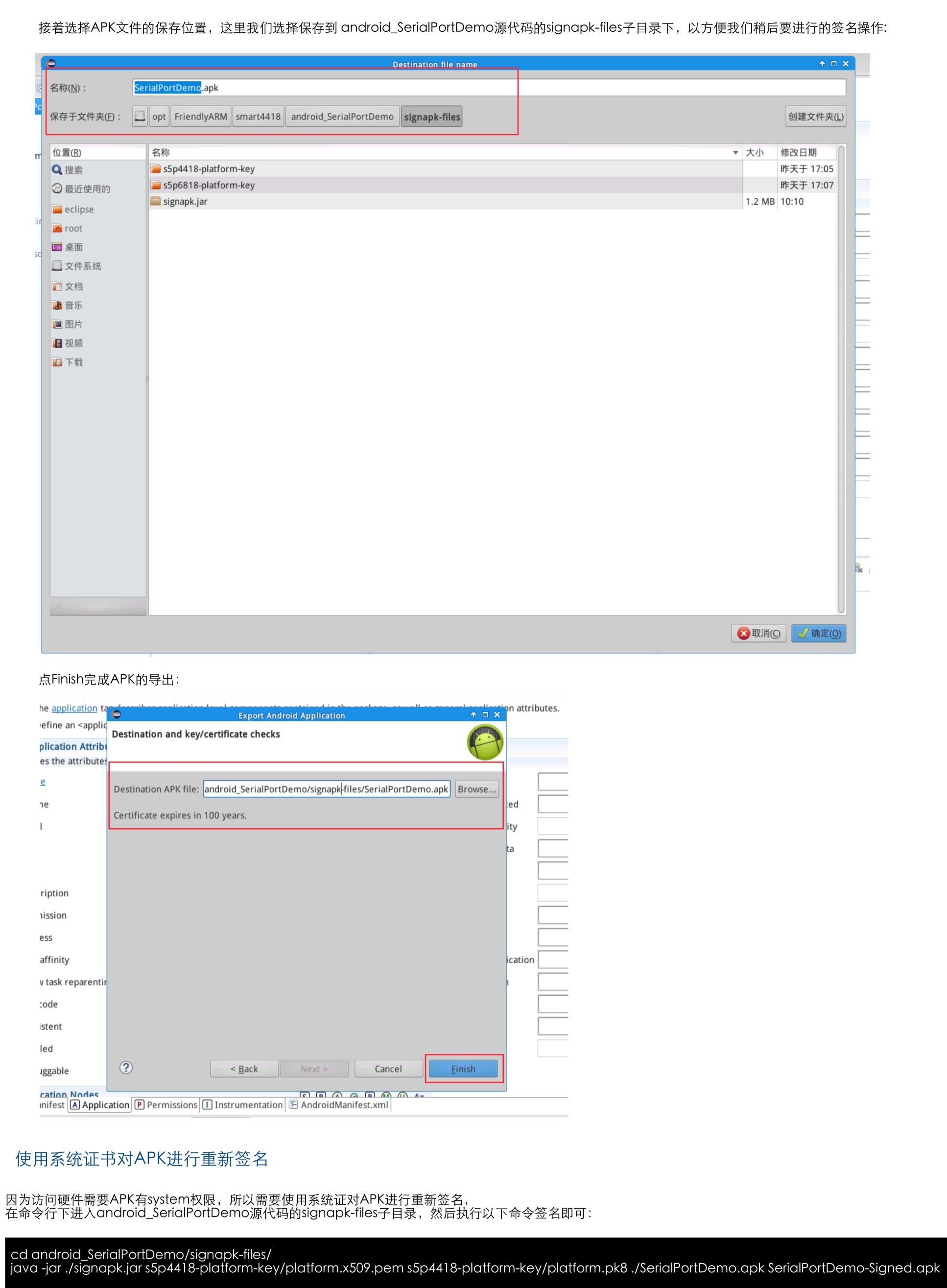
SerialPortDemo 串口示例源代码编译与部署说明 本文档适用于友善之臂 S5P4418,S5P6818系列开发板 更新日期: 2016/09/01 技术支持: support@friendlyarm.com 从github下载DEMO源代码,并用eclipse导入 先克隆DEMO的源代码: git clone https://github.com/friendlyarm/android\_SerialPortDemo.git 然后打开eclipse,在eclipse菜单File上选择Import导入项目,选择Existing Android Code Into Workspace, 我们把项目名称改为 SerialPortDemo: pplication tag describes application-level components contained in the package, as well as general application attr Import Projects e an <appli Select a directory to search for existing Android projects ation Attribu ne attributes Root Directory: /opt/FriendlyARM/smart4418/android\_SerialPortDemo Browse... Select an import source: Projects: type filter text Project to Import New Project Name Select All ▶ General ✓ /opt/FriendlyARM/smart441 SerialPortDemo Deselect All ▼ Android Existing Android Code Into Workspace Refresh CVS ion ▶ Git ☐ Copy projects into workspace Install Working sets Run/Debug Add project to working sets nity \$ Select... Working sets: k reparentir < Back Next > Cancel Finish < Back Cancel Finish Next > 编辑源代码,根据需要更改串口设备文件名称 DEMO要访问的串口设备写死在以下源代码文件的: src/com/friendlyarm/SerialPortDemo/SerialPortDataProcessView.java 你需要根据实际情况更改: Java - SerialPortDemo/src/com/friendlyarm/SerialPortDemo/SerialPortDataProcessView.java - Eclipse File Edit Refactor Source Navigate Search Project Run Window Help 😑 🔄 🤝 🔻 📴 🗖 🖟 SerialPortDataProcessView.java 😂 <sup>™</sup> Package Explorer 🌣 package com.friendlyarm.SerialPortDemo; ▼ SerialPortDemo [android\_SerialPortDemo master] Android 4.0.3 3⊕ import android.app.Activity; Android Dependencies public class SerialPortDataProcessView extends Activity implements OnClickListener {
 private static final String TAG = "SerialPort";
 private TextView fromTextView = null; **▼** # src ▶ ♣ com.friendlyarm.AndroidSDK ▼ 🔠 com.friendlyarm.SerialPortDemo private EditText toEditor = null; SerialPortDataProcessView.java private final int MAXLINES = 200; private StringBuilder remoteData = new StringBuilder(256 \* MAXLINES); 34 gen [Generated Java Files] private String devName = "/dev/ttyAMA2"; 邉 assets private int speed = 115200; bin private int dataBits = 8; 37 libs private int stopBits = 1; private int devfd = -1; P Pres 40 signapk-files @Override android-source-patch.tgz public void onDestroy() { 📝 Android.mk timer.cancel(); 43 if (devfd != -1) { 44 AndroidManifest.xml 在 S5P4418 开发板上 (例如 NanoPi2/NanoPi M2/NanoPi2 Fire/NanoPC-T2),串口对应的设备名称如下: UART2 -> 未驱动 UART3 -> /dev/ttyAMA2 UART4 -> /dev/ttyAMA3 在 S5P6818 开发板上 (例如 NanoPi M3/NanoPC-T3),串口对应的设备名称如下: UART2 -> 未驱动 UART3 -> /dev/ttySAC3 UART4 -> /dev/ttySAC4 编译DEMO源代码,并导出apk文件 在Package Explorer上点击项目名称,保证其处于选中状态: <u>File Edit Refactor Source Navigate Search Project Run Window Help</u> 🗏 😉 🤝 🔻 🔲 🗖 🗖 SerialPortDemo Manii <sup>♯</sup> Package Explorer 🏻 ▼ 2 SerialPortDemo [android\_SerialPortDemo master] Android Manifes **▼** # src ▼ Application Toggle ► 📠 com.friendlyarm.AndroidSDK The application tag o com.friendlyarm.SerialPortDemo ✓ Define an <applicati</p> **▼** Application Attribute gen [Generated Java Files] Defines the attributes sp ▼ ➡ Android 4.0.3 ▶ 🚾 android.jar - /opt/android-sdk-linux/platforms/android-15 <u>Name</u> ▼ ➡ Android Dependencies Theme ▶ 🚾 annotations.jar - /opt/android-sdk-linux/tools/support Label 🔓 assets 在eclipse菜单File上选择Export...: Java - SerialPortDemo/AndroidManifest.xml - Eclipse Edit Refactor Source Navigate Search Project Run Window Help Open File... ☐ SerialPortDemo Manifest 🏻 Close Ctrl+W Android Manifest Application Shift+Ctrl+W Close All ▼ Application Toggle Save Ctrl+S The application tag describes application-level components contained in the package, 🗒 Save As... ✓ Define an <application> tag in the AndroidManifest.xml Save All Shift+Ctrl+S Revert ▼ Application Attributes Defines the attributes specific to the application. Move... Rename... F2 d-15 <u>Name</u> Refresh Theme Convert Line Delimiters To Label @string/app\_name Print... Ctrl+P @drawable/icon Icon Switch Workspace Restart Logo 🔤 Import.. Description Export... Permission Properties Alt+Enter Process 1 AndroidManifest.xml [SerialPortDemo] Task affinity 2 SerialPortSettingsActivity.java [iT...] 3 SerialPortDataProcessView.java [iTe...] Allow task reparenting 4 PWMTestingActivity.java [iTest/src/...] Has code Exit Persistent android-source-patch.tgz Enabled 选择Export Android Application: Java - SerialPortDemo/AndroidManifest.xml - Eclipse File Edit Refactor Source Navigate Search Project Run Window Help 🕒 🥞 🤝 🔻 🔲 🔲 🔯 SerialPortDemo Manifest 🖾 ▼ 💦 > SerialPortDemo [android\_SerialPortDemo master] Android Manifest Application **▼** 🌁 src ▼ Application Toggle ▶ 🛵 com.friendlyarm.SerialPortDemo Export ✓ Define an <applic</p> ▶ 📠 com.friendlyarm.Utils ▼ Application Attribute gen [Generated Java Files] Defines the attributes ▼ ➡ Android 4.0.3 ▶ 🔤 android.jar - /opt/android-sdk-linux/platforms/android-15 <u>Name</u> Select an export destination: ▼ ➡ Android Dependencies Theme × type filter text ▶ 🚾 annotations.jar - /opt/android-sdk-linux/tools/support Label 邉 assets General bin Icon 🔻 🛂 libs Export Android Application Logo Generate Gradle build files armeabi Description 🔻 🋂 res drawable Java Permission drawable-hdpi ▶ 🗁 Run/Debug Process drawable-ldpi Tasks drawable-mdpi Task affinity ication drawable-xhdpi Allow task reparentir layout Has code values ▶ <a> signapk-files</a> Persistent android-source-patch.tgz Cancel < Back Next > Finish Enabled 📝 Android.mk Debuggable AndroidManifest.xml project.properties ■ Manifest A Application P Permissions I Instrumentation AndroidManifest.xml README.md 🔐 Problems @ Javadoc 😫 Declaration 🖃 Console 🛭 12016-00-01 10:12:42 - SerialPortDemol adh is running normally 选择项目SerialPortDemo: Java - SerialPortDemo/AndroidManifest.xml - Eclipse File Edit Refactor Source Navigate Search Project Run Window Help 😑 🔄 🤝 🔻 🗖 🗖 🔯 SerialPortDemo Manifest 🛭 <sup>♯</sup> Package Explorer ¤ ▼ 🔐 > SerialPortDemo [android\_SerialPortDemo master] Android Manifest Application **▼** # src **▼** Application Toggle The application ta com.friendlyarm.SerialPortDemo **Export Android Application ↑** □ X ✓ Define an <applic</p> ▶ 📠 com.friendlyarm.Utils **Project Checks** ▼ Application Attribute gen [Generated Java Files] Performs a set of checks to make sure the application can be exported. Defines the attributes ▼ ➡ Android 4.0.3 ▶ 👼 android.jar - /opt/android-sdk-linux/platforms/android-15 <u>Name</u> Select the project to export: ▼ ➡ Android Dependencies Project: SerialPortDemo Browse... ed Theme ▶ 🔤 annotations.jar - /opt/android-sdk-linux/tools/support No errors found. Click Next. Label 🔓 assets bin Icon ▼ 

libs Logo armeabi 🔻 🔓 res Description drawable Permission drawable-hdpi Process drawable-ldpi Task affinity drawable-mdpi drawable-xhdpi Allow task reparentir layout Has code alues > signapk-files Persistent android-source-patch.tgz Enabled 📝 Android.mk < Back Cancel Finish Next > Debuggable S > AndroidManifest.xml project.properties Application Nodes

Manifest A Application P Permissions I Instrumentation AndroidManifest.xml README.md Regional Problems @ Javadoc 😣 Declaration 🖃 Console 🖾 1204 COO 04 40:42:42 Carial Dart Dama Ladh ia running narmallu 这一步,Eclipse要求我们创建或选择自已的签名,这里我们选择Create new keystore, 填写key生成后保存的路径和密码,然后点next: Android Mannest Application **▼** Application Toggle The application tage **↑** □ X **Export Android Application** ✓ Define an <applic</p> Keystore selection ▼ Application Attribute Defines the attributes oid-15 <u>Name</u> O Use existing keystore Create new keystore Theme Browse... ity Location: /opt/serialportdemo.keystore Label Password: ••••• Icon Confirm: ••••• Logo Description Permission Process Task affinity ication Allow task reparenting Has code Persistent Enabled < Back Next > Cancel Finish Debuggable Application Nodes

Manifest Application Permissions I Instrumentation AndroidManifest.xml 🖳 Problems @ Javadoc 😉 Declaration 🖃 Console 🔀 [2016-09-01 10:12:42 - SerialPortDemo] adb is running normally. 继续参考下图完善签名信息,然后点next: Android Manifest Application **▼** Application Toggle Export Android Application ✓ Define an <applic</p> **Key Creation** ▼ Application Attribute Defines the attributes tforms/android-15 <u>Name</u> serialport-key Alias: ••••• Password: /tools/support Confirm: ••••• 100 Validity (years): Logo First and Last Name: FriendlyARM Description Organizational Unit: Permission Organization: Process City or Locality: Task affinity ication State or Province: Allow task reparenting Country Code (XX): Has code Persistent Enabled < <u>B</u>ack Next > Cancel Debuggable Application Nodes

Manifest Application Permissions I Instrumentation AndroidManifest.xml 🖳 Problems @ Javadoc 😉 Declaration 🖃 Console 🛭 Android 接着选择APK文件的保存位置,这里我们选择保存到 android\_SerialPortDemo源代码的signapk-files子目录下,以方便我们稍后要进行的签名操作: ↑ □ X Destination file name SerialPortDemo.apk 名称(<u>N</u>): opt FriendlyARM smart4418 android\_SerialPortDemo signapk-files 创建文件夹(L) 位置(R) ▼ 大小 修改日期 昨天于 17:05 Q 搜索 s5p4418-platform-key s5p6818-platform-key 昨天于 17:07 ② 最近使用的



注:上述命令是针对 S5P4418 开发板的,如果你是S5P6818开发板,请将命令中的s5p4418改成s5p6818即可。

然后找到com.friendlyarm.SerialPortDemo这个进程,如果前面的权限是如下所示,表明程序已经获得了 system 权限:

system 1610 112 com.friendlyarm.SerialPortDemo

u0\_a60 1905 138 com.friendlyarm.SerialPortDemo

在 boot 命令行模式下,先用 printenv 显示当前的变量值,其中 bootargs 变量的值就是 内核启动参数:

如果你并没有使用我们提供的最新的 Android 源代码,有可能会出现 SELinux 阻止你的程序访问串口,你可以通过在 内核启动参数 中

我们用 setenv bootargs 命令更改该变量的值,我们需要在原来的值的基本上,追加 androidboot.selinux=permissive

1) 安装APK,用microUSB线将电脑与开发板连接,用adb命令安装SerialPortDemo-Signed.apk:

以上是Android4的,如果是Android5,则略有不同,不过都表示已经是 system 权限:

更改方法是,在开发板上电时在串口终端上一直按回车进入 uboot 命令行模式,

运行与调试

2) 调试:

ps -Z

u:r:system\_app:s0

u:r:platform\_app:s0

3) 关闭 SELinux

adb install SerialPortDemo-Signed.apk

运行 SerialPortDemo后,在adb shell命令行模式下执行:

如果程序没有获得 system 权限,则打开串口设备会失败。

增加 androidboot.selinux=permissive 来解决。

記名相 saveenv 命令保存更改,最后用 reset 重启开发板即可:

| SSp4418# printenv | Pri