NfC Development Guide

version	Changed	date	change content
V1.0	ct	2018-11-21	

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Document Overview

NFC module interface description

For people

software developer

Software testers

Documentation purposes

Provide a reference for software developers

Development environment and tools

Development platform: win7 Ultimate 64

Development Tools: Android studio

Compiler environment: ndkr16B java 1.8

1.1 development environment and tools

Development platform: win7 Ultimate 64

Development Tools: Android studio 3.1

Compiler environment: ndkr16B java 1.8

1.2 know Android manifest file permissions and functions with NFC

NFC application development related to access rights to the NFC device, requiring minimum system version (Android 2.3.3 or later and supports this feature),

as well as deal with a range of settings such as NFC IntentFilter news, so we first Android Affirming the manifest file permissions and functions and a simple NFC-related knowledge.

1.3 NFC allows a device to access the hardware

<Uses-permission android: name = "android.permission.NFC" />

1.4 may be displayed in the NFC hardware in the android market

<Uses-feature android: name = "android.hardware.nfc" android: required = "true" />

Version 1.5 Minimum Requirements

NFC is Android2.3 (Level 10) began to support, so the minimum version requirements must be designated as 10.

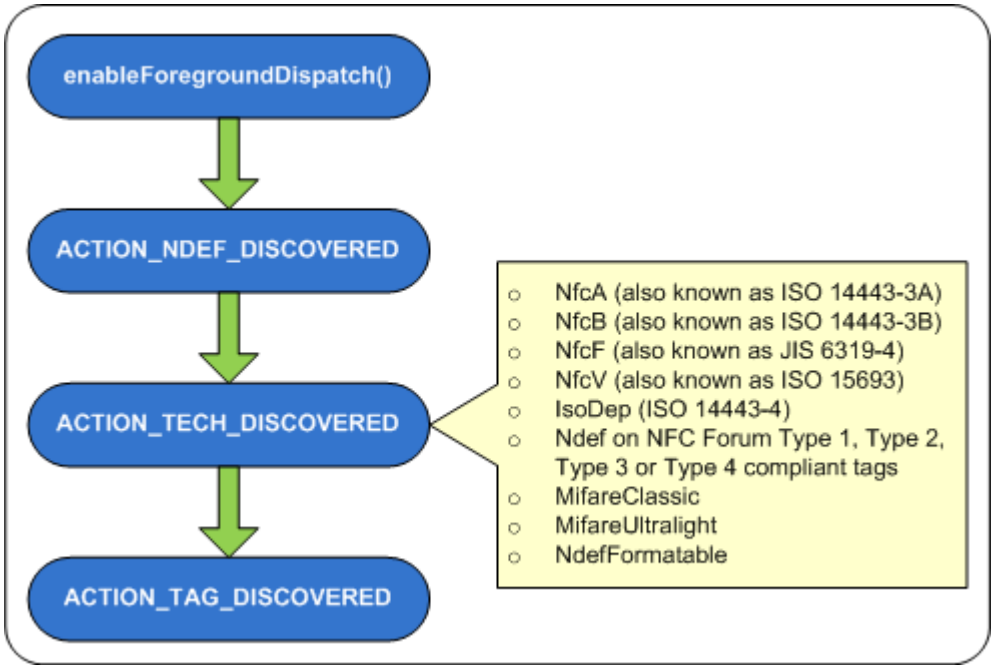
```
<uses-sdk
    android: minSdkVersion="10"
    android: targetSdkVersion="15" />
```

1.6 Android NFC messaging mechanism

When the device detects a Android NFC Tag, desirable behavior is triggered to process the most appropriate Activity Tag detected, because the NFC usually only work in a very short distance (<4cm), at this time if the user requires to select the appropriate application to handle Tag, it is easy to disconnect the communication between the Tag. So you need to choose the right deal only with Tag Intent filter type you want to read and write.

Android NFC messaging system supports two mechanisms: mechanisms and Reception Activity messaging mechanism Intent sent. These two methods are basically used to indicate the Intent-filter can handle Activity Tag type, one is described using the Android Manifest, it is declared by a code.

The following figure shows the detection when the Android Tag, priority of the message sent:



1.7 Intent delivery mechanism

When the system detects a Tag, Android Intent filter manifest system provides defined to select an appropriate process corresponding to the Activity Tag, when there are a plurality of corresponding Activity Tag type can handle, Activity selection window selected by the user is displayed:

1.8 Android development and deployment

1.8.1 AndroidManifest.xml in

```
<uses-sdk android:minSdkVersion="10" />
<uses-permission android:name="android.permission.NFC" />
<!-- 要求当前设备必须要有NFC芯片 -->
<uses-feature
    android:name="android.hardware.nfc"
    android:required="true" />
```

```
<activity android:name=".NFCard">

    <intent-filter>
        <action android:name="android.intent.action.MAIN" />

        <category android:name="android.intent.category.LAUNCHER" />
    </intent-filter>

    <!--当检测到一个NFC标签时，系统自动创建一个相关的Intent对象，含有响应intent filter的Activity将处理这个Intent TECH格式过滤标签-->
    <intent-filter>
        <action android:name="android.nfc.action.TECH_DISCOVERED" />
    </intent-filter>
    <meta-data
        android:name="android.nfc.action.TECH_DISCOVERED"
        android:resource="@xml/nfc_tech_filter" />

    <!--NDEF格式-->
    <intent-filter>
        <action android:name = "android.nfc.action.NDEF_DISCOVERED" />
        <data android:mimeType = "text/plain" />
    </intent-filter>
    <!--TAG格式-->
    <intent-filter>
        <action android:name="android.nfc.action.TAG_DISCOVERED"/>
        <category android:name="android.intent.category.DEFAULT"/>
    </intent-filter>
</activity>
```

nfc_tech_filter.xml is filtered with a label, your own new xml folder under the res resource directory, create a file nfc_tech_filter.xml

roidManifest.xml × nfc_tech_filter.xml ×

```xml
<?xml version="1.0" encoding="utf-8"?>
<resources xmlns:xliff="urn:oasis:names:tc:xliff:document:1.2">
    <tech-list>
        <tech>android.nfc.tech.NfcA</tech>
    </tech-list>
    <tech-list>
        <tech>android.nfc.tech.NfcB</tech>
    </tech-list>
    <tech-list>
        <tech>android.nfc.tech.NfcF</tech>
    </tech-list>
    <tech-list>
        <tech>android.nfc.tech.NfcV</tech>
    </tech-list>
    <tech-list>
        <tech>android.nfc.tech.Ndef</tech>
    </tech-list>
    <tech-list>
        <tech>android.nfc.tech.NdefFormatable</tech>
    </tech-list>
    <tech-list>
        <tech>android.nfc.tech.IsoDep</tech>
    </tech-list>
    <tech-list>
        <tech>android.nfc.tech.MifareClassic</tech>
    </tech-list>
    <tech-list>
        <tech>android.nfc.tech.MifareUltralight</tech>
    </tech-list>
</resources>
```

1.8.2 Activity Code

For details, please refer to the provided demo