


Android Telephony
Introduction to Android Smartphone Programming

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31. Januar 2013





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Outline

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Telephony

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- Package *android.telephony* provides classes to monitor basic phone information, tools to manipulate phone numbers and to work with SMS[1].
- Most important class is *TelephonyManager*[4].
- Provides access to information about telephony services of the device.
 - For example network type or call state, which indicates idle or ringing.

```
Context.getSystemService(Context.TELEPHONY_SERVICE);
```

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- Very limited access to work with calls for security reasons.
- Possibility to place a call from activity if permissions are set.
- Extend Android manifest:

```
1 <uses-permission android:name="android.  
  permission.CALL_PHONE"></uses-permission>
```

- There are ways to interfere a bit more: Listen to phone state change to ringing and then mute phone.



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- How? Create *Intent* with predefined action.

```
1 try {  
2 Intent callIntent = new Intent(Intent.  
  ACTION_CALL);  
3 callIntent.setData(Uri.parse("tel:1234567"));  
4 startActivity(callIntent);  
5 } catch (ActivityNotFoundException e) { ... }
```



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- Extend Android manifest:

```
1 <uses-permission android:name="android.  
  permission.VIBRATE" />
```

- Use *AudioManager* to manipulate ringer mode.
- Get instance of *AudioManager*:

```
1 AudioManager Context.getSystemService(Context.  
  AUDIO_SERVICE)
```



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Example mute phone continued
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- Method to change the ringer mode used with parameters `RINGER_MODE_NORMAL`, `RINGER_MODE_SILENT` or `RINGER_MODE_VIBRATE`:

```
void AudioManager.setRingerMode(int ringerMode)
```



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SMS

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- Class `SmsManager` can be used to send and receive SMS from an application^[3].
- Extend Android manifest with needed permissions:
 - `android.permission.SEND_SMS`
 - `android.permission.RECEIVE_SMS`
 - `android.permission.READ_SMS`
 - `android.permission.WRITE_SMS`

```
1 <uses-permission  
2 xmlns:android="http://schemas.android.com/apk/  
   res/android"  
3 android:name="enter_permission_name_here">  
4 </uses-permission>
```



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SMS

How to use `SmsManager`
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- Receive reference to `SmsManager`

```
static SmsManager SmsManager.getDefault();
```

- Send message

```
void SmsManager.sendTextMessage(  
String destinationAddress,  
String srcAddress,  
String text,  
PendingIntent sentIntent,  
PendingIntent deliveryIntent);
```



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Calendar

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- To access the built-in calendar the Android manifest has to be extended[7]:

```
1 <uses-permission android:name="android.  
  permission.READ_CALENDAR">  
2 </uses-permission>
```

- Data can be accessed through a Content Provider and a Cursor.
- The Content Provider for the calendar has the following URI:

```
1 content://calendar/calendars
```



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Summary

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- Functionality to monitor phone information included in class *TelephonyManager*.
- Application can place calls, but not much more for security reasons.
- Muting phone when phone state changes to ringing allows more interference.
- *SmsManager* allows sending of SMS.



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