Android Bluetooth Tutorial

**Bluetooth** is a way to exchange data with other devices wirelessly. Android provides Bluetooth API to perform several tasks such as:

* scan bluetooth devices
* connect and transfer data from and to other devices
* manage multiple connections etc.

Android Bluetooth API

The android.bluetooth package provides a lot of interfaces classes to work with bluetooth such as:

* BluetoothAdapter
* BluetoothDevice
* BluetoothSocket
* BluetoothServerSocket
* BluetoothClass
* BluetoothProfile
* BluetoothProfile.ServiceListener
* BluetoothHeadset
* BluetoothA2dp
* BluetoothHealth
* BluetoothHealthCallback
* BluetoothHealthAppConfiguration

BluetoothAdapter class

By the help of BluetoothAdapter class, we can perform fundamental tasks such as initiate device discovery, query a list of paired (bonded) devices, create a BluetoothServerSocket instance to listen for connection requests etc.

**Constants of BluetoothAdapter class**

BluetoothAdapter class provides many constants. Some of them are as follows:

* String ACTION\_REQUEST\_ENABLE
* String ACTION\_REQUEST\_DISCOVERABLE
* String ACTION\_DISCOVERY\_STARTED
* String ACTION\_DISCOVERY\_FINISHED

**Methods of BluetoothAdapter class**

Commonly used methods of BluetoothAdapter class are as follows:

* **static synchronized BluetoothAdapter getDefaultAdapter()** returns the instance of BluetoothAdapter.
* **boolean enable()** enables the bluetooth adapter if it is disabled.
* **boolean isEnabled()** returns true if the bluetooth adapter is enabled.
* **boolean disable()** disables the bluetooth adapter if it is enabled.
* **String getName()** returns the name of the bluetooth adapter.
* **boolean setName(String name)** changes the bluetooth name.
* **int getState()** returns the current state of the local bluetooth adapter.
* **Set<BluetoothDevice> getBondedDevices()** returns a set of paired (bonded) BluetoothDevice objects.
* **boolean startDiscovery()** starts the discovery process.

Android Bluetooth Example: enable, disable and make discovrable bluetooth programmatically

You need to write few lines of code only, to enable or disable the bluetooth.

**activity\_main.xml**

Drag one textview and three buttons from the pallete, now the activity\_main.xml file will like this:

*File: activity\_main.xml*

<RelativeLayout xmlns:androclass=*"http://schemas.android.com/apk/res/android"*

xmlns:tools=*"http://schemas.android.com/tools"*

android:layout\_width=*"match\_parent"*

android:layout\_height=*"match\_parent"*

tools:context=*".MainActivity"* >

<TextView android:text=*""*

android:id=*"@+id/out"*

android:layout\_width=*"wrap\_content"*

android:layout\_height=*"wrap\_content"*>

</TextView>

<Button

android:id=*"@+id/button1"*

android:layout\_width=*"wrap\_content"*

android:layout\_height=*"wrap\_content"*

android:layout\_alignParentLeft=*"true"*

android:layout\_alignParentTop=*"true"*

android:layout\_marginLeft=*"30dp"*

android:layout\_marginTop=*"49dp"*

android:text=*"TURN\_ON"* />

<Button

android:id=*"@+id/button2"*

android:layout\_width=*"wrap\_content"*

android:layout\_height=*"wrap\_content"*

android:layout\_alignLeft=*"@+id/button1"*

android:layout\_below=*"@+id/button1"*

android:layout\_marginTop=*"27dp"*

android:text=*"DISCOVERABLE"* />

<Button

android:id=*"@+id/button3"*

android:layout\_width=*"wrap\_content"*

android:layout\_height=*"wrap\_content"*

android:layout\_alignLeft=*"@+id/button2"*

android:layout\_below=*"@+id/button2"*

android:layout\_marginTop=*"28dp"*

android:text=*"TURN\_OFF"* />

</RelativeLayout>

**Provide Permission**

You need to provide following permissions in AndroidManifest.xml file.

**<uses-permission** android:name="android.permission.BLUETOOTH" **/>**

**<uses-permission** android:name="android.permission.BLUETOOTH\_ADMIN" **/>**

The full code of AndroidManifest.xml file is given below.

*File: AndroidManifest.xml*

<?xml version=*"1.0"* encoding=*"utf-8"*?>

<manifest xmlns:androclass=*"http://schemas.android.com/apk/res/android"*

package=*"com.example.bluetooth"*

android:versionCode=*"1"*

android:versionName=*"1.0"* >

<uses-sdk

android:minSdkVersion=*"8"*

android:targetSdkVersion=*"16"* />

<uses-permission android:name=*"android.permission.BLUETOOTH"* />

<uses-permission android:name=*"android.permission.BLUETOOTH\_ADMIN"* />

<application

android:allowBackup=*"true"*

android:icon=*"@drawable/ic\_launcher"*

android:label=*"@string/app\_name"*

android:theme=*"@style/AppTheme"* >

<activity

android:name=*"com.example.bluetooth.MainActivity"*

android:label=*"@string/app\_name"* >

<intent-filter>

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

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

</intent-filter>

</activity>

</application>

</manifest>

**Activity class**

Let's write the code to enable, disable and make bluetooth discoverable.

*File: MainActivity.java*

**package** com.example.bluetooth;

**import** android.os.Bundle;

**import** android.app.Activity;

**import** android.view.Menu;

**import** android.app.Activity;

**import** android.bluetooth.BluetoothAdapter;

**import** android.content.Context;

**import** android.content.Intent;

**import** android.os.Bundle;

**import** android.util.Log;

**import** android.view.View;

**import** android.widget.Button;

**import** android.widget.TextView;

**import** android.widget.Toast;

**public** **class** MainActivity **extends** Activity {

**private** **static** **final** **int** *REQUEST\_ENABLE\_BT* = 0;

**private** **static** **final** **int** *REQUEST\_DISCOVERABLE\_BT* = 0;

@Override

**protected** **void** onCreate(Bundle savedInstanceState) {

**super**.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

**final** TextView out=(TextView)findViewById(R.id.out);

**final** Button button1 = (Button) findViewById(R.id.button1);

**final** Button button2 = (Button) findViewById(R.id.button2);

**final** Button button3 = (Button) findViewById(R.id.button3);

**final** BluetoothAdapter mBluetoothAdapter = BluetoothAdapter.*getDefaultAdapter*();

**if** (mBluetoothAdapter == **null**) {

out.append("device not supported");

}

button1.setOnClickListener(**new** View.OnClickListener() {

**public** **void** onClick(View v) {

**if** (!mBluetoothAdapter.isEnabled()) {

Intent enableBtIntent = **new** Intent(BluetoothAdapter.*ACTION\_REQUEST\_ENABLE*);

startActivityForResult(enableBtIntent, *REQUEST\_ENABLE\_BT*);

}

}

});

button2.setOnClickListener(**new** View.OnClickListener() {

@Override

**public** **void** onClick(View arg0) {

**if** (!mBluetoothAdapter.isDiscovering()) {

//out.append("MAKING YOUR DEVICE DISCOVERABLE");

Toast.*makeText*(getApplicationContext(), "MAKING YOUR DEVICE DISCOVERABLE",

Toast.*LENGTH\_LONG*);

Intent enableBtIntent = **new** Intent(BluetoothAdapter.*ACTION\_REQUEST\_DISCOVERABLE*);

startActivityForResult(enableBtIntent, *REQUEST\_DISCOVERABLE\_BT*);

}

}

});

button3.setOnClickListener(**new** View.OnClickListener() {

@Override

**public** **void** onClick(View arg0) {

mBluetoothAdapter.disable();

//out.append("TURN\_OFF BLUETOOTH");

Toast.*makeText*(getApplicationContext(), "TURNING\_OFF BLUETOOTH", Toast.*LENGTH\_LONG*);

}

});

}

@Override

**public** **boolean** onCreateOptionsMenu(Menu menu) {

// Inflate the menu; this adds items to the action bar if it is present.

getMenuInflater().inflate(R.menu.activity\_main, menu);

**return** **true**;

}

}

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