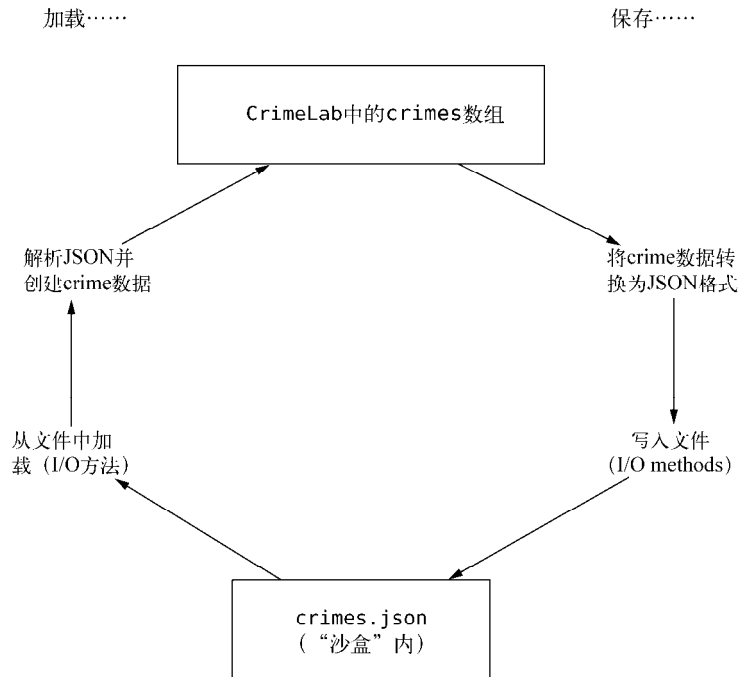


CriminalIntent  
JSON  
Android  
root  
/data/data  
CriminalIntent /data/data/com.bignerdranch.android.criminalintent  
Android API  
SD SD  
API

## 17.1 CriminalIntent

CriminalIntent  
17-1  
JSON JavaScript Object Notation  
services Android SDK  
JSON http://json.org  
JSON org.json  
JSON org.json  
Context I/O  
Android  
web



17-1 CriminalIntent

XML XML 26 Context I/O XML Android Java

java.io.File java.io.FileInputStream Context Application Activity Service

### 17.1.1 crime JSON

CriminalIntent CrimeLab JSON

CriminalIntentJSONSerializer Crime

1. CriminalIntentJSONSerializer Crime

CriminalIntentJSONSerializer JSON

com.bignerdranch.android.criminalintent java.lang.Object

CriminalIntentJSONSerializer 17-1 Eclipse

## 17-1 CriminalIntentJSONSerializer

```

public class CriminalIntentJSONSerializer {

    private Context mContext;
    private String mFilename;

    public CriminalIntentJSONSerializer(Context c, String f) {
        mContext = c;
        mFilename = f;
    }

    public void saveCrimes(ArrayList<Crime> crimes)
        throws JSONException, IOException {
        // Build an array in JSON
        JSONArray array = new JSONArray();
        for (Crime c : crimes)
            array.put(c.toJSON());

        // Write the file to disk
        Writer writer = null;
        try {
            OutputStream out = mContext
                .openFileOutput(mFilename, Context.MODE_PRIVATE);
            writer = new OutputStreamWriter(out);
            writer.write(array.toString());
        } finally {
            if (writer != null)
                writer.close();
        }
    }
}

```

CrimeLab

CriminalIntentJSONSerializer

Context

Context

saveCrimes(ArrayList<Crime>)

JSONArray

crime toJSON()

JSONArray

toJSON()

Crime

Context.openFileOutput(...)

Context.getFilesDir()

openFileOutput(...)

Java

java.io

Writer OutputStream OutputStreamWriter

openFileOutput(...)

OutputStream

OutputStreamWriter

OutputStreamWriter                      JavaString  
 OutputStreamWriter  
 2.    Crime    JSON  
       JSON               mCrimes               JSON               Crime  
       Crime.java               toJSON()               JSON               Crime  
       JSONArray    JSONObject               17-2

17-2    toJSON()    Crime.java

```
public class Crime {

    private static final String JSON_ID = "id";
    private static final String JSON_TITLE = "title";
    private static final String JSON_SOLVED = "solved";
    private static final String JSON_DATE = "date";

    private UUID mId;
    private String mTitle;
    private boolean mSolved;
    private Date mDate = new Date();

    public Crime() {
        mId = UUID.randomUUID();
    }

    public JSONObject toJSON() throws JSONException {
        JSONObject json = new JSONObject();
        json.put(JSON_ID, mId.toString());
        json.put(JSON_TITLE, mTitle);
        json.put(JSON_SOLVED, mSolved);
        json.put(JSON_DATE, mDate.getTime());
        return json;
    }

    @Override
    public String toString() {
        return mTitle;
    }
}
```

JSONObject                      Crime                      JSON  
 3.    CrimeLab               crime  
       CriminalIntentJSONSerializer               JSON               Crime               crime  
       JSON  
                                  crime                      CrimeLab  
                                  crime                      CriminalIntent

SQLite 34

CrimeLab.java CriminalIntentJSONSerializer

crime saveCrimes()

17-3

## 17-3 CrimeLab

CrimeLab.java

```
public class CrimeLab {
    private static final String TAG = "CrimeLab";
    private static final String FILENAME = "crimes.json";

    private ArrayList<Crime> mCrimes;
    private CriminalIntentJSONSerializer mSerializer;

    private static CrimeLab sCrimeLab;
    private Context mAppContext;

    private CrimeLab(Context appContext) {
        mAppContext = appContext;
        mCrimes = new ArrayList<Crime>();
        mSerializer = new CriminalIntentJSONSerializer(mAppContext, FILENAME);
    }

    ...

    public void addCrime(Crime c) {
        mCrimes.add(c);
    }

    public boolean saveCrimes() {
        try {
            mSerializer.saveCrimes(mCrimes);
            Log.d(TAG, "crimes saved to file");
            return true;
        } catch (Exception e) {
            Log.e(TAG, "Error saving crimes: ", e);
            return false;
        }
    }
}
```

CriminalIntent

Toast

## 4. onPause()

saveCrimes() onPause()

17-4 onStop() onDestroy()

activity

17-4 onPause() CrimeFragment.java

```
...

@Override
public boolean onOptionsItemSelected(MenuItem item) {
    switch (item.getItemId()) {
        case android.R.id.home:
            NavUtils.navigateUpFromSameTask(getActivity());
            return true;
        default:
            return super.onOptionsItemSelected(item);
    }
}

@Override
public void onPause() {
    super.onPause();
    CrimeLab.get(getActivity()).saveCrimes();
}
}

CriminalIntent      crime      Home      activity      crime
                        LogCat
```

17.1.2 crime

JSONObject crime Crime.java 17-5

17-5 Crime(JSONObject) Crime.java

```
public class Crime {
    ...

    public Crime() {
        mId = UUID.randomUUID();
    }

    public Crime(JSONObject json) throws JSONException {
        mId = UUID.fromString(json.getString(JSON_ID));
        if (json.has(JSON_TITLE)){
            mTitle = json.getString(JSON_TITLE);
        }
        mSolved = json.getBoolean(JSON_SOLVED);
        mDate = new Date(json.getLong(JSON_DATE));
    }

    public JSONObject toJSON() throws JSONException {
        JSONObject json = new JSONObject();
        json.put(JSON_ID, mId.toString());
        json.put(JSON_TITLE, mTitle);
        json.put(JSON_SOLVED, mSolved);
        json.put(JSON_DATE, mDate.getTime());
        return json;
    }
}
```

CriminalIntentJSONSerializer.java

crime

loadCrimes()

17-6

17-6 loadCrimes() CriminalIntentJSONSerializer.java

```

public CriminalIntentJSONSerializer(Context c, String f) {
    mContext = c;
    mFilename = f;
}

public ArrayList<Crime> loadCrimes() throws IOException, JSONException {
    ArrayList<Crime> crimes = new ArrayList<Crime>();
    BufferedReader reader = null;
    try {
        // Open and read the file into a StringBuilder
        InputStream in = mContext.openFileInput(mFilename);
        reader = new BufferedReader(new InputStreamReader(in));
        StringBuilder jsonString = new StringBuilder();
        String line = null;
        while ((line = reader.readLine()) != null) {
            // Line breaks are omitted and irrelevant
            jsonString.append(line);
        }
        // Parse the JSON using JSONTokener
        JSONArray array = (JSONArray) new JSONTokener(jsonString.toString())
            .nextValue();
        // Build the array of crimes from JSONObject
        for (int i = 0; i < array.length(); i++) {
            crimes.add(new Crime(array.getJSONObject(i)));
        }
    } catch (FileNotFoundException e) {
        // Ignore this one; it happens when starting fresh
    } finally {
        if (reader != null)
            reader.close();
    }
    return crimes;
}

public void saveCrimes(ArrayList<Crime> crimes) throws JSONException, IOException {
    // Build an array in JSON
    JSONArray array = new JSONArray();
    for (Crime c : crimes)
        array.put(c.toJSON());
}

```

ArrayList  
 finally  
 CrimeLab  
 crime  
 17-7

Java JSON  
 JSONObject  
 Context  
 string  
 ArrayList  
 ArrayList  
 reader.close()

CrimeLab  
 crime  
 ArrayList  
 CrimeLab.java

crime

17

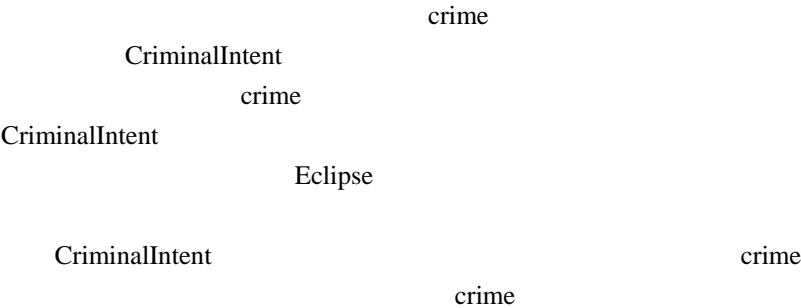
17-7 crime CrimeLab.java

```
public CrimeLab(Context appContext) {
    mAppContext = appContext;
    mSerializer = new CriminalIntentJSONSerializer(mAppContext, FILENAME);
    mCrimes = new ArrayList<Crime>();

    try {
        mCrimes = mSerializer.loadCrimes();
    } catch (Exception e) {
        mCrimes = new ArrayList<Crime>();
        Log.e(TAG, "Error loading crimes: ", e);
    }
}

public static CrimeLab get(Context c) {
    ...
}

...
```



17.2

android.os.Environment  
Context CriminalIntentJSONSerializer

17.3 Android Java I/O





	17.3	Android	Java I/O	249
Linux		ID		
Android	Java			
	APK	/data/app		com.bignerdranch.
android.criminalintent-1.apk	APK			
Android	root			
		Context	Context	
		Application	Activity	Service
Context	17-1			
	17-1	Context		

File getFilesDir()	/data/data/<packagename>/files
FileInputStream openFileInput(String name)	
FileOutputStream openFileOutput(String name, int mode)	
File getDir(String name, int mode)	/data/data/<packagename>/
String[] fileList()	/data/data/<packagename>/files openFileInput(String)
File getCacheDir()	/data/data/<packagename>/cache

Java	Java API	Java	java.io.File	java.io.FileInputStream
	Android	java.nio.*	Java API	Context