

Mobile Application Development System Permissions

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Permissions

Retrieving list of contacts

Manifest entry sufficient less than API 23 (Marshmallow)

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

Permissions

Retrieving list of contacts

Beginning with API 23 (Marshmallow):

- Users grant permissions to app while app running.
- Not when app installed.
- System permissions classified as *normal* & *dangerous*.
- *normal* : no risk to privacy
- *dangerous* : allow access confidential data.

Permissions

Manifest declaration effects

Device 5.1 or lower & target SDK 22 or lower:

- Dangerous permissions must be granted install time.
- Else install not allowed.

Device 6.0 or greater & target SDK 23 or higher:

- Must list dangerous permissions in app at runtime.
- User may allow or deny.
- For api 23 & greater user may revoke later.

Permissions

Retrieving list of contacts

On **all** versions Android declare both normal and dangerous permissions in manifest.

- Example *dangerous* permissions
 - CONTACTS
 - LOCATION

```
<!-- Manifest entry: Dangerous permission -->  
<uses-permission  
  android:name="android.permission.READ_CONTACTS"/>
```

Permissions

Retrieving list of contacts

On **all** versions Android declare both normal and dangerous permissions in manifest.

- Example *normal* permissions
 - INTERNET
 - RECEIVE_BOOT_COMPLETED

```
<!-- Manifest entry: Normal permission -->  
<uses-permission  
  android:name="android.permission.INTERNET"/>
```

Permissions

Retrieving list of contacts

Manifest entry sufficient to enable *normal* permissions

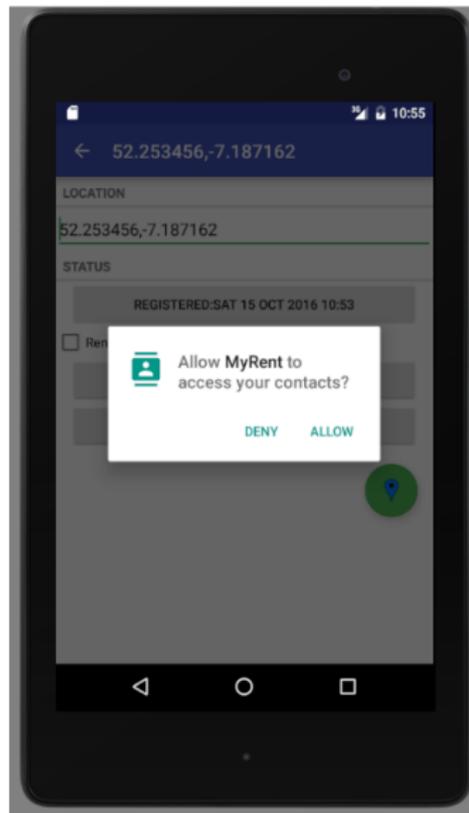
```
<uses-permission android:
  name="android.permission.INTERNET" />
<uses-permission android:
  name="android.permission.ACCESS_NETWORK_STATE" />
<uses-permission android:
  name="android.permission.CHANGE_WIFI_STATE" />
```

Permissions

Retrieving list of contacts

Manifest entry necessary but not sufficient to enable *dangerous* permissions.

- Check if permission exists to read contacts.
- If necessary request permission.
- Deny or Allow access.
- Read contact once permission granted.

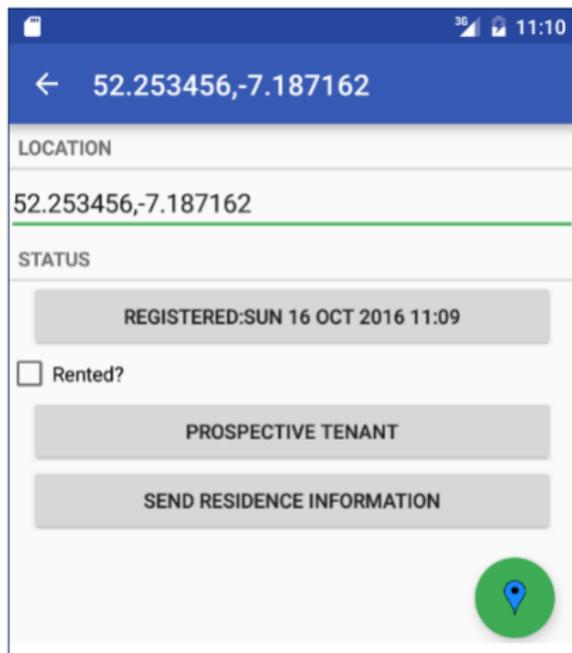


Permissions

MyRent lab - NUC emulator

Create or open existing Residence details view

- Select Prospective Tenant button

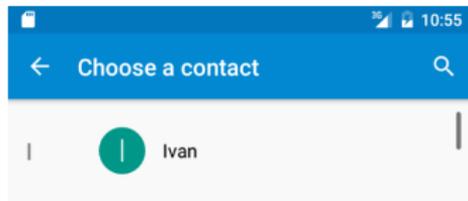


Permissions

MyRent lab - NUC emulator

Automatically switched to external Contacts app

- Select a contact.
- Create contact if none.

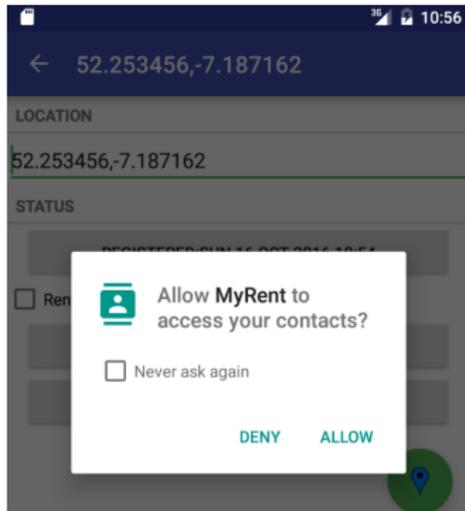


Permissions

MyRent lab - NUC emulator

On first attempt at reading contact:

- Allow or deny popup.
- Option to *Never ask again*

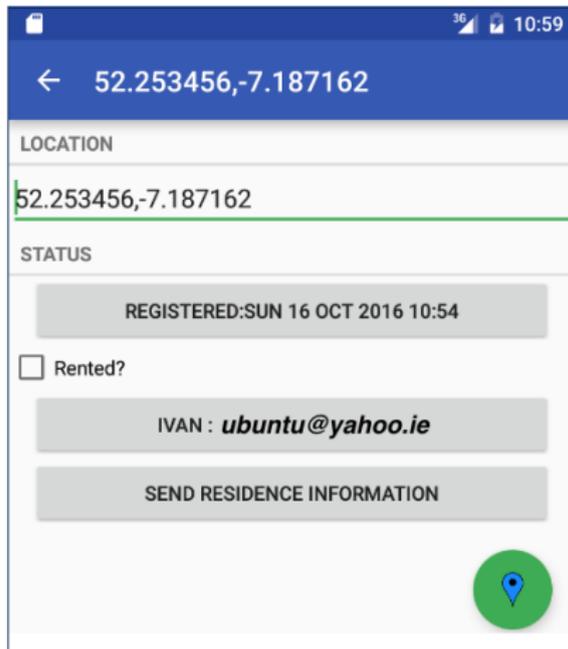


Permissions

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Read permission granted

- Email retrieved.
- Published as button label.



Permissions

MyRent lab - NUC emulator

Pseudocode

```
Check if permission exists.
```

```
  if so
```

```
    then read contact.
```

```
  else
```

```
    initiate callback to obtain user permission
```

```
If callback invoked
```

```
  wait for response
```

```
    if response grants permission
```

```
      read contact
```

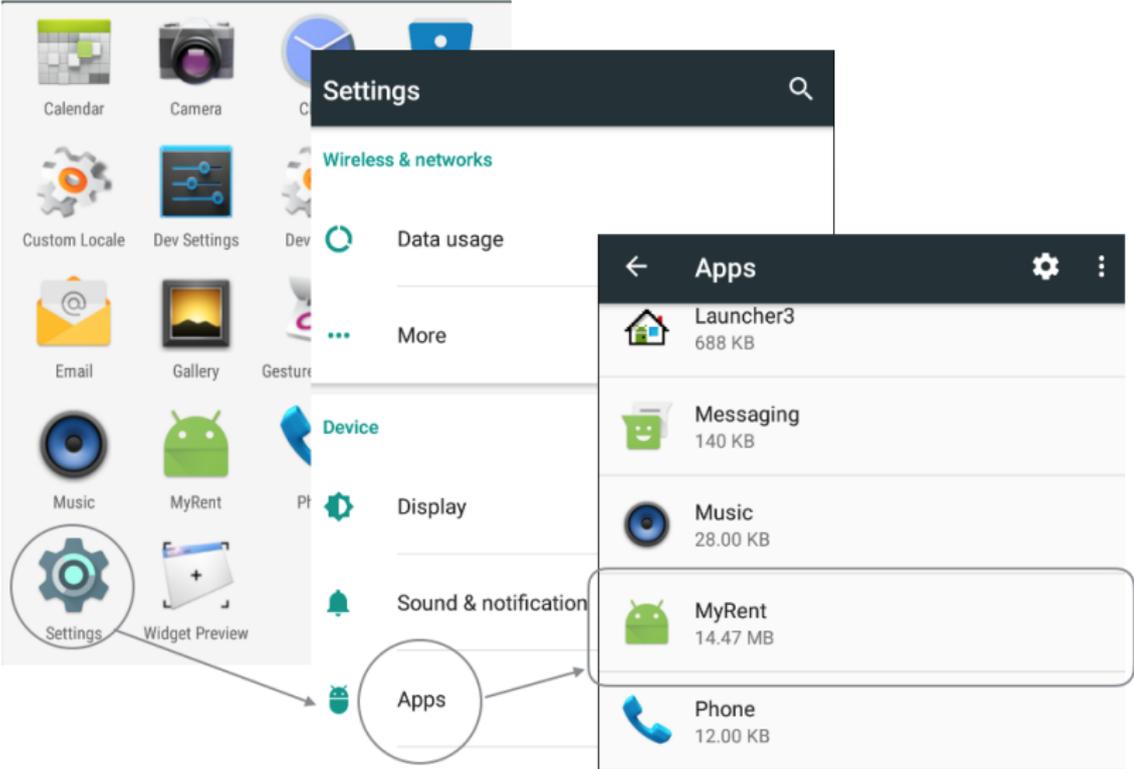
```
    else
```

```
      proceed without contact
```

```
Endif
```

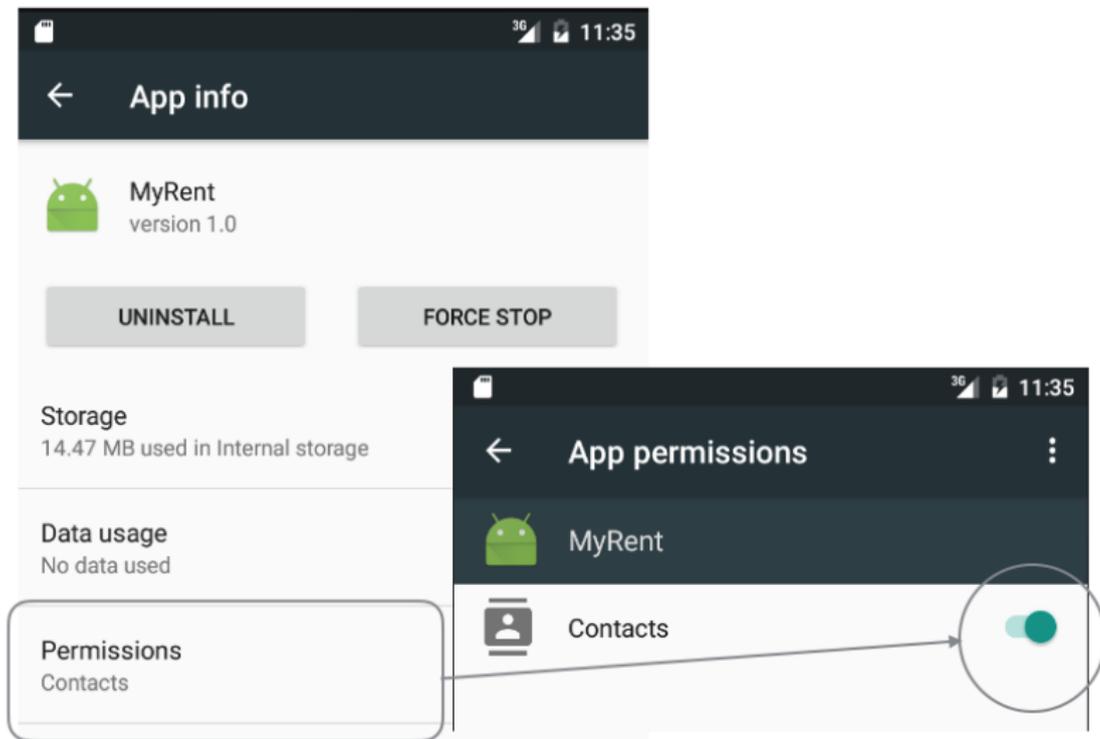
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MyRent lab - NUC emulator: Change permission in settings



Permissions

MyRent lab - NUC emulator: Change permission in settings



Referenced Material

1. Official Documentation: System Permissions

<https://goo.gl/TJS9U7>

[Accessed 2016-10-20]

2. Official Documentation: Normal Permissions

<https://goo.gl/rBqgAm>

[Accessed 2016-10-20]

3. ICTSkills Lab: MyRent-06 (Contacts & Email (Branch: permissions))

<https://github.com/wit-ictskills-2016/myrent-06.git>

[Accessed 2016-10-15]

Referenced Material

4. Runtime Permissions in Android 6.0 Marshmallow

<https://youtu.be/C81UdPVSzDk>

[Accessed 2016-10-16]

5. Everything every Android Developer must know about new Android's Runtime Permission

<https://goo.gl/6y1zuK>

[Accessed 2016-10-20]



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