
Mobile Application Development

Auto-refresh cache from service using Retrofit

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Services

Learning objectives

How to automatically refresh cached data using subclassed:

- Retrofit HTTP client.
- BroadcastReceiver
- IntentService.

How to send global broadcasts using:

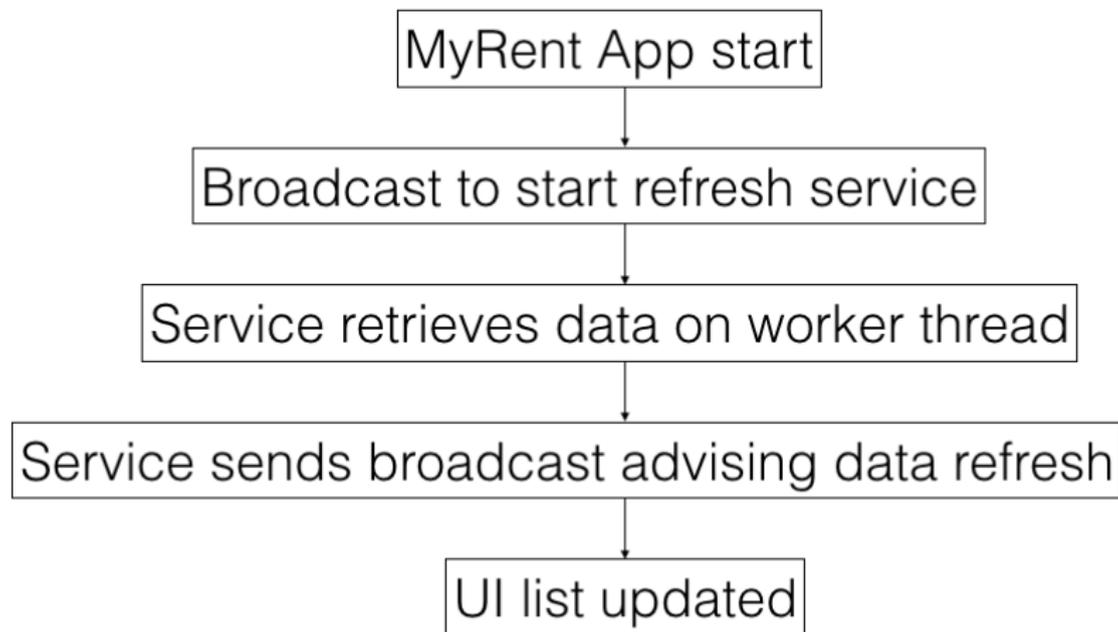
- sendBroadcast.

How to send local broadcasts using:

- LocalBroadcastManager.

Services

Data cache refresh - how it works



Services

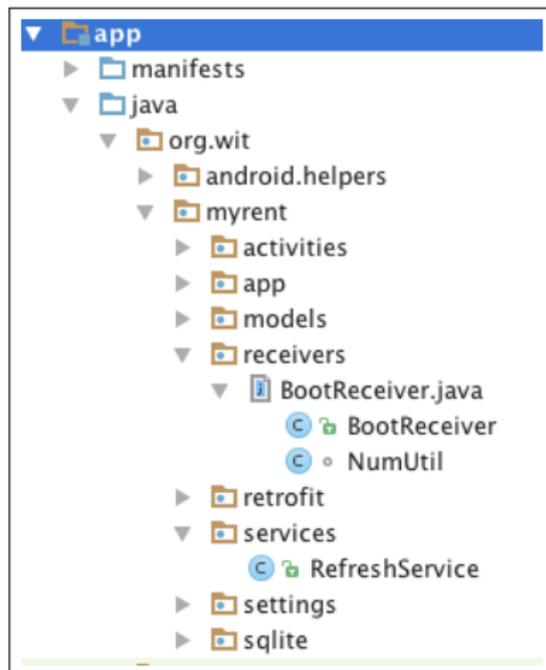
Refactored file structure

Receivers:

- BootReceiver
- NumUtil

Services

- RefreshService



Services

BroadcastReceiver

- We subclass BroadcastReceiver.
- **onReceive** invoked on device boot.
- We also invoke when app launches to facilitate debugging.

```
public class BootReceiver extends BroadcastReceiver
{
    ...
    @Override
    public void onReceive(Context context, Intent intent) {
        // sent intent to start refresh service
    }
}
```

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BroadcastReceiver

- Alarm triggers sending of intent.
- Alarm frequency obtained from settings.
- This intent starts refresh service.
- Refresh service updates local cache from cloud.

```
public class BootReceiver extends BroadcastReceiver
{
    . . .
    @Override
    public void onReceive(Context context, Intent intent)
    {
        // sent intent to start refresh service
    }
}
```

Services

RefreshService

- **onHandleIntent** invoked on worker thread.
- Call initiated in BootReceiver.

```
@Override
protected void onHandleIntent(Intent intent) {
    // Make network call to retrieve residences from cloud.
    // Broadcast an implicit intent to facilitate cache update elsewhere.
}
```

Services

Use HTTP client to make network call

```
protected void onHandleIntent(Intent intent) {  
    Call<List<Residence>> call  
        = (Call<List<Residence>>) app.residenceService.getResidences();  
    try {  
        Response<List<Residence>> response = call.execute();  
        app.portfolio.refreshResidences(response.body());  
        ...  
    }  
}
```

Services

RefreshService

- **onHandleIntent** invoked on worker thread.
- Call initiated in BootReceiver.

```
@Override
protected void onHandleIntent(Intent intent) {
    // Make network call to retrieve residences from cloud.
    Intent localIntent =
        new Intent(ResidenceListFragment.BROADCAST_ACTION);
    LocalBroadcastManager.getInstance(this)
        .sendBroadcast(localIntent);
}
```

Services

ResidenceListFragment inner class

```
private class ResponseReceiver extends BroadcastReceiver
{
    // Called Intent for which registered received.
    @Override
    public void onReceive(Context context, Intent intent)
    {
        adapter.residences = app.portfolio.residences;
        adapter.notifyDataSetChanged();
    }
}
```

References

Services

1. Official documentation: Services

<http://bit.ly/2feexEj>

[Accessed 2016-11-01]

2. Official documentation: BroadcastReceiver

<http://bit.ly/2feyyKV>

[Accessed 2016-11-01]



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