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**Security Audit of Mobile App as per OWASP L1**

**‘WBSAMB Permit Generation / e-Permit Trader App’**

**(com.neml.trdepg)**

**Cycle: 2**

Released on: 26-DEC-2019



**STQC IT SERVICES**

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Test carried out during: Oct 2019 – Dec 2019

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# Identification of App and its environment

# App:

**Brief Description:**

|  |  |
| --- | --- |
| Screenshot from 2019-10-15 12-26-48.png | As declared by the developer “e-Permit Trader App is an app used by trader to generate electronic permits for trades happened between states or markets or between state and market or vice versa.” |

**Cycle-1 [14-OCT-2019]:**

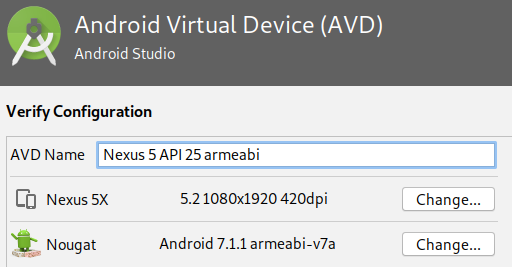
|  |  |
| --- | --- |
| Application name | WBSAMB Permit Generation |
| Package name | com.neml.trdepg |
| android:versionCode | 37 |
| android:versionName | 1.0.36 |
| android:minSdkVersion | 15 (Android 4.0.3 (ICE\_CREAM\_SANDWICH\_MR1)) |
| android:targetSdkVersion | 28 (Android 9 Pie) |
| MD5 | 84b074033d9f9250629093267a7c6ff8 |
| SHA1 | 6b4e1dd966a4bfc5d729e01ea6e00b7d09bc81ac |
| SHA256 | fc1f17926bf019a6dd9dd5d72e16acb0387237f17d5be55044da47fd558e644c |

**Cycle-2 [26-DEC-2019]:**

|  |  |
| --- | --- |
| Application name | WBSAMB Permit Generation |
| Package name | com.neml.trdepg |
| android:versionCode | 45 |
| android:versionName | 1.0.37 |
| android:minSdkVersion | 21 (Android 5.0 Lollipop) |
| android:targetSdkVersion | 28 (Android 9 Pie) |
| MD5 | 13cff953ab0107fa048c2f7f206bdae1 |
| SHA1 | b4a35a5023e6d3b7f1995f198923b55217dc7943 |
| SHA256 | 841b56863bb51560d46fac1fcd7dfa1aad16f0b63ebd0c793e4797ee93f014f0 |

# Emulator:

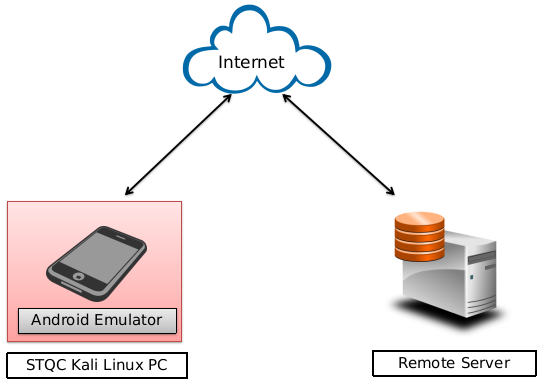
Android Virtual Device (API 25) with Architecture “armeabi-7a”



# Device:

Xiaomi Redmi 4 (Android N)

# Test Environment



# Test Methodology:

Testing has been carried out as per OWASP Mobile Application Security Requirement – Android for L1. L1 provides basic security in the following areas:

* Architecture, Design and Threat Modeling
* Data Storage and Privacy
* Cryptography
* Authentication and Session Management
* Network Communication
* Platform Interaction
* Code Quality and Build Settings

# Scope of Testing

|  |
| --- |
| The Mobile Application Security Verification Standard (MASVS) only covers security of the (client-side) mobile app and the network communication between the app and its remote endpoint(s), as well as a few basic and generic requirements related to user authentication and session management. It does not contain specific requirements for the remote services (e.g. web services) associated with the app, safe for a limited set of generic requirements pertaining to authentication and session management. However, MASVS V1 specifies that remote services must be covered by the overall threat model, and be verified against appropriate standards, such as the OWASP ASVS. The scope of testing was limited to the security testing of mobile app communicating with the App’s test server “uatservices.neml.in” only and did not cover any Network or Remote Host System level vulnerabilities assessment. Moreover, it does not include assessment of third party services. As per observation, the present App communicates with following third party services:   * libs/itextg-5.5.9-javadoc.jar * libs/itextg-5.5.9.jar * libs/core-3.2.1.jar * libs/itext-licensekey-1.0.4.jar * ACRA (Application Crash Reports for Android) * itextpdf |

# Tools used:

* Android Studio
* Mobile Security Framework
* Burp Suite
* Drozer
* Wireshark
* SQLite Browser

# Compliance Status

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cycle** | **Date** | **Number of Requirements** | **Complied** | **Not complied / inconclusive** | **Not Applicable** |
| Cycle-1 | 14-OCT-2019 | 43 | 7 | 28 | 8 |
| Cycle-2 | 26-DEC-2019 | 43 | 17 | 19 | 7 |
| Final |  |  |  |  |  |

# Report Summary

## Architecture, Design and Threat Modeling:

* App architecture document is insufficient. It needs to describe local storage, app components, remote data validation etc..

## Data Storage and Privacy:

* Data stored in local storage are not adequately protected against tampering / disclosure. These data may be manipulated for fraudulent purpose.

## Cryptography:

* Hardcoded hashed password, other keys found in local storage and in the App executable.

## Authentication and Session Management

* Session management mechanism could not be assessed whether it is stateful or stateless. User password is hashed without salting which is not recommended. Forgot password feature is not working.

## Network Communication

* TLS is implemented. However, the server certificate verification is not implemented properly.

## Platform Interaction

* Many unnecessary Serializable objects found which need to be removed from code.

## Code Quality and Build Settings

* Extra code for SIT needs to be removed. The "OWASP Dependency Check" tool needs to be run on the full android project and the generated HTML report needs to be provided.

# Test Report

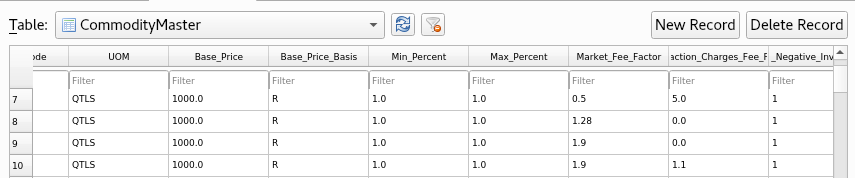
| No | Requirement | Status | Remarks |
| --- | --- | --- | --- |
|  | Architecture, Design and Threat Modeling | | |
|  | Whether all application components are identified and are known to be needed | Cycle-1: Not Complied.  Cycle-2: Inconclusive. | [Cycle-1: 14-OCT-2019]   * Following activities were identified in the documentation: * SplashActivity: displays logo on Splash Screen * LoginActivity: Trader Login with credentials * SettingsActivity: developer needs to declare purpose. * MenuActivity: developer needs to declare purpose * PurchaseRequestActivity: Trader can enter purchases with purchased information and commodity details. * ViewPurchaseRequestsActivity: displays the details of Purchases made by the trader from android & web * PermitGenerationActivity: Permit generation facilitates traders to generate the permits within & outside state. * ImportPermitGenerationActivity: Licensed Consignee inside the state and Consignor outside the state can generate import permit * ViewPermitActivity: allows viewing records of the permits generated from android & web by the trader. * ViewProfileActivity: displays details of trader * SupportActivity: developer needs to declare purpose * ViewBalanceActivity: allows trader to view Ledger balance * ViewInventoryPositionActivity: developer needs to declare purpose * InventoryTrackingActivity: developer needs to declare purpose * ExportPermitGenerationActivity: Licensed Consignor within state and Consignee outside the state can generate export permit. * SelfPermitGenerationActivity: When the same trader is acting as a Consignor and Consignee, Self permit is drawn. * FundsPositionActivity: developer needs to declare purpose * FundsLedgerActivity: Trader can use the Funds Ledger feature to view their own balances and transaction details. * ViewVirtualAccountActivity: Logged In user can view the details of virtual account that are associated with the board’s bank account.   **[Cycle-2: 26-DEC-2019]**  Developer has explained:   * Menu Activity: The menu activity is used to show the various menu which provides functionalities. * Support Activity: The support activity is used to share the new features implemented in the latest version and also helps to open the team viewer for quick support. * ViewInventoryPosition Activity: This is used to show the inventory of commodities as per market fee paid and unpaid. * InventoryTrackingActivity: This is used to show the tracking of inventory according to commodity and date, i.e., how much of inventory is debited or credited. * FundsPositionActivity: Trader can view central as well as local overall ledger balance and available balance.   Developer needs to declare the purpose of  **Services:** com.neml.trdepg.networkmanager.ContextInitiationService  **Content Provider:**  android.support.v4.content.FileProvider also |
|  | Whether the security controls are never enforced only on the client side, but on the respective remote endpoints | Cycle-1: Not Complied.  Cycle-2: Not Complied. | [Cycle-1: 14-OCT-2019]  No documentation regarding data validation at remote end point has been provided.  [Cycle-2: 26-DEC-2019]  Technical details of data validation at remote end point not provided. |
|  | Whether a high-level architecture for the mobile app and all connected remote services has been defined and security has been addressed in that architecture | Cycle-1: Not Complied.  Cycle-2: Not Complied. | [Cycle-1: 14-OCT-2019]  No documentation received regarding remote services used in the App (like SMS, Payment Gateway etc).  [Cycle-2: 26-DEC-2019]  Same as above. Developer submitted ‘EPermit Trader App Architecture’ which does not include information regarding above services. |
|  | Whether the data considered sensitive in the context of the mobile app is clearly identified | Cycle-1: Not Complied.  Cycle-2: Not Complied. | [Cycle-1: 14-OCT-2019]  Developer needs to declare sensitivity of all fields stored in the following local storages (given in Annexure):   1. Shared Preferences:    1. com.neml.trdepg\_preferences.xml    2. EPermit.xml 2. SQLite DB:    1. EPermitGeneration.db3 3. Files being stored to External Storage.   **[Cycle-2: 26-DEC-2019]**  Same as above. Developer declares that only password of the user is sensitive data. No other sensitive data is present.  However, it is found that SQLite Table **CommodityMaster (containing commodity wise base price, market fee factor, transaction charge fee),** and key store passwords are also stored locally.  So, the developer / stakeholder need to review it further. |
|  | Data Storage and Privacy | | |
|  | Whether the system credential storage facilities are used appropriately to store sensitive data, such as user credentials or cryptographic keys. | Cycle-1: Not complied.  Cycle-2: Not complied. | [Cycle-1: 14-OCT-2019]   * Password (which has been declared as sensitive by developer) is being stored in clear text in shared preferences “EPermit.xml”, it is not erased even after logout. Token / Session (as required in V4.2 or V4.3) based approach needs to be used to remember login sessions. * Developer needs to clarify the purpose of Keystore object being used.   Proper storage of other sensitive data could not be assessed due to insufficient information in respect of V1.4  **[Cycle-2: 26-DEC-2019]**  **Shared Preferences:**  “EPermit.xml” contain password as hardcoded. App local storage should not be used to store credential information. Also, the contents are not cleared even after logout. Token / Session (as required in V4.2 or V4.3) based approach needs to be used to remember login sessions.  **SQLiteDatabases:**  Developer needs to clarify the protection in place for all master data that are stored locally in database EPermitGeneration.db3:   * User\_Master * Trader\_Details * MarketMaster * CommodityMaster * CommodityPackageMaster * PurchaseRequestDetails * PurchaseRequestCommodityDetails * ConsigneeDetails * PermitDetailsHeader * PermitCommodityDetails * SellerType * BalanceBook * Payments * Transactions * StateList * DistrictList   For instance, SQLite Table CommodityMaster (containing commodity wise base price, market fee factor, transaction charge fee) needs to be protected from tampering.  **Files in local storage:**  Crash Reports Log file E-permitGenerationAppEncrypted are logging PWD, PWDSHA256, IMEI and other information and being shared. Also, information being shared is in decrypted form.  **Key Store Objects:**  Passwords for Key Store objects "keystoreAndroid.pfx" which is "123456" and for "star\_neml\_in\_win.pfx" which is "Neml@1123" were found hardcoded in the App resources and thus distributed with the App.  Also, it has been observed that PrivateKey myPrivateKey = pkEntry.getPrivateKey(); is being accessed. Developer may clarify the purpose of fetching the private keys from the key store.  Also another password for “aes\_algo\_instance\_for\_log\_encryption" which is “QuitHacker@98#!12345!@#$” was found hardcoded in the App resources and thus distributed with the App. |
|  | Whether no sensitive data is written to application logs. | Cycle-1: Not complied  Cycle-2: Not complied | [Cycle-1: 14-OCT-2019]  Many logging functions are present in the compiled APK related to the following classes need to be removed.   * android.util.Log * System.out.print * Logger.log   [Cycle-2: 26-DEC-2019]  Log files stored to external storage:  E-Permit Generation Logs are being shared with the following email users: [android@neml.in](mailto:android@neml.in), "arindam.sanyal@neml.in", "koushik.das@neml.in", [rintu.roy@neml.in](mailto:rintu.roy@neml.in).  “E-Permit Generation/Logs” contain userid, hashed password values (PWD, PWDSHA256), IMEI and other information.  Application Crash Reports are being shared with the following email users: [android@neml.in](mailto:android@neml.in). Developer may declare if any sensitive information is being shared in the logs.  App policy document needs to include who are the users to get this log.  Crash Reports Log file E-permitGenerationAppEncrypted are logging PWD, PWDSHA256, IMEI and other information and being shared. Also, information being shared is in decrypted form. |
|  | Whether no sensitive data is shared with third parties unless it is a necessary part of the architecture. | Cycle-1: Inconclusive.  Cycle-2: Complied. | [Cycle-1: 14-OCT-2019]  List of third party dependencies is found in ‘build.gradle’. This needs justification from developer why each of these is required for functionalities. If required, then whether any sensitive data is shared.   * ('libs/bcpg-jdk15on-1.58.0.0.jar') * ('libs/bcpkix-jdk15on-1.58.0.0.jar') * ('libs/core-1.58.0.0.jar') * ('libs/itextg-5.5.9-javadoc.jar') * ('libs/itextg-5.5.9.jar') * ('libs/prov-1.58.0.0.jar') * ('libs/core-3.2.1.jar') * ('libs/itext-licensekey-1.0.4.jar') * Spongy Castle * ACRA (Application Crash Reports for Android) * itextpdf   Any unnecessary third party dependencies need to be removed.  **[Cycle-2: 26-DEC-2019]**  Unnecessary third party libraries have been removed. Developer has declared the use of the existing third party libraries.   * ('libs/itextg-5.5.9-javadoc.jar'): This is used for itext pdfs. * ('libs/itextg-5.5.9.jar'): This is also used for generating itexy pdfs. * ('libs/core-3.2.1.jar'): This jar consists the Zxing library which is used for barcode image processing. ZXing (“zebra crossing”) is a barcode image processing library which is used to generate the barcode of permits. * ('libs/itext-licensekey-1.0.4.jar'): The license key library is a jar that is added to project. This library is used to load and validate your license key. This library will also enable the functionality in the iText 7 add-ons if there is an appropriate entry in the license key file. * ACRA (Application Crash Reports for Android): This is used to send the crash report to developers whenever application gets crashed. * itextpdf : Apache iText is an open-source Java library that supports the development and conversion of PDF documents which helps to create, read and manipulate the pdf. |
|  | Whether the keyboard cache is disabled on text inputs that process sensitive data. | Cycle-1: Complied.  Cycle-2: Complied. | [Cycle-1: 14-OCT-2019]  Keyboard caching is not enabled for any password field.  **[Cycle-2: 26-DEC-2019]**  Remains complied. |
|  | Whether the clipboard is deactivated on text fields that may contain sensitive data. | Cycle-1: Not Complied.  Cycle-2: Complied. | [Cycle-1: 14-OCT-2019]  Clipboard needs to be disabled at password field of Login screen, forgot password form, change password form, self registration.  **[Cycle-2: 26-DEC-2019]**  The clipboard has been deactivated at mentioned fields. |
|  | Whether no sensitive data is exposed via IPC mechanisms. | Cycle-1: Complied.  Cycle-2: Complied. | [Cycle-1: 14-OCT-2019]  No exported content provider is present.  **[Cycle-2: 26-DEC-2019]**  Remains complied. |
|  | Whether no sensitive data, such as passwords and credit card numbers, is exposed through the user interface or leaks to screenshots. | Cycle-1: Complied.  Cycle-2: Complied. | [Cycle-1: 14-OCT-2019]  The password fields in login form, forgot password, self registration, and master key configuration fields has password properties as “textPassword”, so typed in characters are masked.  **[Cycle-2: 26-DEC-2019]**  Remains complied. |
|  | Cryptography | | |
|  | Whether the app does not rely on symmetric cryptography with hardcoded keys as a sole method of encryption. | Cycle-1: Not complied  Cycle-2: Not complied | [Cycle-1: 14-OCT-2019]  Hardcoded password is present in local storage as described in V2.1. It is vulnerable.  [Cycle-2: 26-DEC-2019]  Remains not complied. Refer V2.1. |
|  | Whether the app uses proven implementations of cryptographic primitives. | Cycle-1: Inconclusive  Cycle-2:  Not complied. | [Cycle-1: 14-OCT-2019]  Not enough information whether any cryptographic primitives are used. Developer needs to clarify purpose of hashing used for:  Utils.java:1346  digest = MessageDigest.getInstance("SHA-1");  [Cycle-2: 26-DEC-2019]  Developer declares that SHA1 mechanism is being replaced with SHA 256 for password protection. Plain hashing passwords does not necessarily ensure confidentiality (vulnerable to Rainbow tables attack). Mechanism for password protection needs to use Salting in addition to the hashed password approach. |
|  | Whether the app uses cryptographic primitives that are appropriate for the particular use-case, configured with parameters that adhere to industry best practices. | Cycle-1: Inconclusive  Cycle-2:  Not complied. | [Cycle-1: 14-OCT-2019]  Not enough information whether any cryptographic primitives are used.  [Cycle-2: 26-DEC-2019]  Refer V3.2 |
|  | Whether the app uses cryptographic protocols or algorithms that are widely considered deprecated for security purposes. | Cycle-1: Inconclusive  Cycle-2:  Complied. | [Cycle-1: 14-OCT-2019]  Not enough information whether any cryptographic primitives are used.  [Cycle-2: 26-DEC-2019]  Refer V3.2. The App uses SHA 256 for password hashing. |
|  | Whether the app re-uses the same cryptographic key for multiple purposes. | Cycle-1: Inconclusive  Cycle-2: Inconclusive | [Cycle-1: 14-OCT-2019]  Not enough information whether any cryptographic primitives are used.  [Cycle-2: 26-DEC-2019]  Developer needs to clarify:   * Forget password functionality does not trigger any further event. Not clear how forgot password is meant to work. * Further, developer declares that, “The app re-uses the same cryptographic key for multiple purposes. It is used for changing password as well. This is implemented in code. Firstly, it gets used while login, changing password and forget password.” Developer needs to clarify which key is reused. |
|  | Whether all random values are generated using a sufficiently secure random number generator. | Cycle-1: Not Applicable.  Cycle-2: Complied. | [Cycle-1: 14-OCT-2019]  As per static analysis, no random function is used.  [Cycle-2: 26-DEC-2019]  OK. App uses SecureRandom() method. |
|  | Authentication and Session Management | | |
|  | Whether the app provides users with access to a remote service, an acceptable form of authentication such as username/password authentication is performed at the remote endpoint. | Cycle-1: Inconclusive  Cycle-2: Inconclusive | [Cycle-1: 14-OCT-2019]  Inconclusive due to insufficient information regarding server side authentication. Unable to test the OTP feature present in forgot password as no password was received.  **[Cycle-2: 26-DEC-2019]**  Forget password functionality does not trigger any further event. Not clear how forgot password is meant to work. |
|  | Whether the remote endpoint uses randomly generated session identifiers, if classical server side session management is used, to authenticate client requests without sending the user's credentials. | Cycle-1: Inconclusive.  Cycle-2: Inconclusive. | [Cycle-1: 14-OCT-2019]  It is not clear whether session is managed using stateful or stateless mechanism. Developer needs to provide information about any server side storage of token information. Inconclusive due to insufficient information regarding server side authentication.  **[Cycle-2: 26-DEC-2019]**  If stateful session management is used as per developer, it may be clarified how session id is maintained at server side, to check whether the user was previously logged in. Also, developer needs to explain how the issued sessions are used to authenticate the client with server during subsequent accesses to the server after first time authentication. |
|  | Whether the remote endpoint uses server side signed tokens, if stateless authentication is used, to authenticate client requests without sending the user's credentials. | Cycle-1: Inconclusive.  Cycle-2: Inconclusive. | [Cycle-1: 14-OCT-2019]  It is not clear whether session is managed using stateful or stateless mechanism. Developer needs to provide information about any local storage of authentication token information. Inconclusive due to insufficient information regarding server side authentication.  **[Cycle-2: 26-DEC-2019]**  Developer may demonstrate the generation of instance id, its storage at client side after issue by server, its storage at server side for subsequent calls. |
|  | Whether the remote endpoint terminates the existing session when the user logs out. | Cycle-1: Not complied.  Cycle-2: Not complied. | [Cycle-1: 14-OCT-2019]  Shared preferences containing password is not cleared after logout. It is not clear whether session is managed using stateful or stateless mechanism.  [Cycle-2: 26-DEC-2019]  Shared Preferences is not still not cleared on logout, although developer has declared the same. Developer declares, “The remote endpoint do not perform any action when the user logs out.”. If stateful session mechanism is used server must invalidate old sessions on logout. |
|  | Whether a password policy exists and is enforced at the remote endpoint. | Cycle-1: Inconclusive.  Cycle-2: Complied. | [Cycle-1: 14-OCT-2019]  Inconclusive due to insufficient information regarding password policy being used.  [Cycle-2: 26-DEC-2019]  Complied as password policy is maintained during user registration in the web site which is out of scope of the App. |
|  | Whether the remote endpoint implements a mechanism to protect against the submission of credentials an excessive number of times. | Cycle-1: Inconclusive.  Cycle-2: Complied. | [Cycle-1: 14-OCT-2019]  Inconclusive due to insufficient information regarding presence of any protection against submission of credentials an excessive number of times.  [Cycle-2: 26-DEC-2019]  App was observed to lock the user after 5 unsuccessful login attempts. |
|  | Network Communication | | |
|  | Whether the data is encrypted on the network using TLS. The secure channel is used consistently throughout the app. | Cycle-1: Not Complied.  Cycle-2: Complied. | [Cycle-1: 14-OCT-2019]  App must strictly use TLSv1.2. Current App supports both UAT and Production. Sufficient network traffic could not be analyzed due to limitation of available emulator ARM architecture. Developer needs to bind another IMEI corresponding to a hardware Android device.  [Cycle-2: 26-DEC-2019]  App uses TLS. |
|  | Whether the TLS settings are in line with current best practices, as far as they are supported by the mobile operating system. | Cycle-1: Not Complied.  Cycle-2: Complied. | [Cycle-1: 14-OCT-2019]  Refer V5.1. Sufficient network traffic could not be analyzed.  [Cycle-2: 26-DEC-2019]  App uses TLS. |
|  | Whether the app verifies the X.509 certificate of the remote endpoint when the secure channel is established. Only certificates signed by a valid CA are accepted. | Cycle-1: Not Complied.  Cycle-2: Not Complied. | [Cycle-1: 14-OCT-2019]  The present version of app does not validate X.509 certificate details and hostname of remote endpoint.  [Cycle-2: 26-DEC-2019]  **Connection to NeML server:**  The “CustomSSLContext” class implements a mechanism for server certificate verification. However, it is not properly implemented as it uses a Custom SSL context which uses a password protected key store (whose password is hard coded and distributed with the App).  As per OWASP: to verify server certificate, it is recommended to extend SSLSocketFactory to make sure checkServerTrusted method is properly implemented so that server certificate is correctly checked. |
|  | Platform Interaction | | |
|  | Whether the app only requires the minimum set of permissions necessary. | Cycle-1: Inconclusive.  Cycle-2: Complied. | [Cycle-1: 14-OCT-2019]  Developer needs to declare the purpose (with respect to the business requirement) of each of the following App permissions:  - android.permission.GET\_ACCOUNTS  - android.permission.READ\_PROFILE  - android.permission.READ\_CONTACTS  - android.permission.ACCESS\_WIFI\_STATE  - android.permission.ACCESS\_NETWORK\_STATE  - android.permission.READ\_PHONE\_STATE  - android.permission.INTERNET  - android.permission.INTERACT\_ACROSS\_USERS\_FULL  - android.permission.CAMERA  - android.permission.WRITE\_EXTERNAL\_STORAGE  - android.permission.READ\_EXTERNAL\_STORAGE  - android.permission.BLUETOOTH  - android.permission.BLUETOOTH\_ADMIN  - android.permission.WRITE\_SETTINGS  - android.permission.GET\_TASKS    Any unnecessary permission needs to be removed.  [Cycle-2: 26-DEC-2019]  Unnecessary permissions have been removed. Current App contains the following permissions:   * ACCESS\_NETWORK\_STATE: access information about networks and to check the internet * GET\_ACCOUNTS: get access to the account type and the account username * INTERACT\_ACROSS\_USERS\_FULL: access information about networks * INTERNET: open the sockets and to connect to the remote end * READ\_PHONE\_STATE: to retrieve the IMEI of device * WRITE\_EXTERNAL\_STORAGE: write the file of logs in external storage as well as to store the pdf files of permits * WRITE\_SETTINGS: write the file of logs in external storage as well as to store the pdf files of permits. |
|  | Whether all inputs from external sources and the user are validated and if necessary sanitized. This includes data received via the UI, IPC mechanisms such as intents, custom URLs, and network sources. | Cycle-1: Inconclusive.  Cycle-2: Inconclusive. | [Cycle-1: 14-OCT-2019]  Data received via UI:  This assessment remains inconclusive due to insufficient information. All server side validations need to be declared in V1.2.  Data received via Browsable:  No browsable intents are there.  Data received via exported Activities:  One activity is exported: " com.neml.trdepg.activities.SplashActivity", however it is the Splash Screen activity which does not receive any external data.  Data received via exported Broadcast Receivers:  No exported Broadcast Receivers.  Dynamic broadcast receivers:  No exported dynamic Broadcast Receivers found.  Data received via exported Content Providers:  No exported content providers.  **[Cycle-2: 26-DEC-2019]**  **Data received via UI:**  Subject to server side code verification. |
| * 1. s | Whether the app does not export sensitive functionality via custom URL schemes, unless these mechanisms are properly protected. | Cycle-1: Not Applicable.  Cycle-2: Not Applicable. | [Cycle-1: 14-OCT-2019]  Refer 6.2. The app doesn’t contain any browsable intent.  [Cycle-2: 26-DEC-2019]  Remains not applicable. |
|  | Whether the app does not export sensitive functionality through IPC facilities, unless these mechanisms are properly protected. | Cycle-1: Not Applicable.  Cycle-2: Not Applicable. | [Cycle-1: 14-OCT-2019]  Not applicable since methods ‘sendBroadcast’, ‘Notification’ were not found.  [Cycle-2: 26-DEC-2019]  Remains not applicable. |
|  | Whether the JavaScript is disabled in WebViews unless explicitly required. | Cycle-1: Not Applicable.  Cycle-2: Not Applicable. | [Cycle-1: 14-NOV-2019]  No Webview objects have been used in the App.  [Cycle-2: 26-DEC-2019]  Remains not applicable. |
|  | Whether the WebViews are configured to allow only the minimum set of protocol handlers required (ideally, only https). Potentially dangerous handlers, such as file, tel and app-id, are disabled. | Cycle-1: Not Applicable.  Cycle-2: Not Applicable. | [Cycle-1: 14-NOV-2019]  No Webview objects have been used in the App.  [Cycle-2: 26-DEC-2019]  Remains not applicable. |
|  | If the native methods of the app are exposed to a WebView, then whether the WebView only renders JavaScript contained within the app package. | Cycle-1: Not Applicable.  Cycle-2: Not Applicable. | [Cycle-1: 14-NOV-2019]  No Webview objects have been used in the App.  [Cycle-2: 26-DEC-2019]  Remains not applicable. |
|  | Whether object serialization, if any, is implemented using safe serialization APIs. | Cycle-1: Inconclusive.  Cycle-2: Inconclusive. | [Cycle-1: 14-OCT-2019]  The app uses several serializable object (following are few sample instances of classes which implements the serializable interface):   * ModelCommodityPackageMaster.java: * ModelMenu.java * ModelFundsPosition.java * ModelMarketMaster.java * ModelConsigneeDetails.java * ModelCommodityRule.java * ModelUPIObject.java * ModelFundsLedger.java * ModelInventory.java * ModelPermitTransactionMaster.java * ModelTransactionData.java * ModelPermitTransaction.java   Developer needs to declare if any sensitive data is being stored or transmitted by any of these serialized objects and the protections in place.    **[Cycle-2: 26-DEC-2019]**  Developer declares that, “We are using ModelPurchaseRequest and ModelPermit as serializable objects. The remaining objects are not needed as serializable objects. So have removed its serializable implementation.”  However many other such Serialization objects were found in code (Unnecessary Serializable objects needs to be removed from code.):   * ModelCommodityPackageMaster * ModelMenu * ModelFundsPosition * ModelMarketMaster * ModelConsigneeDetails * ModelCommodityRule * ModelUPIObject * ModelFundsLedger * ModelInventory * ModelPermitTransactionMaster * ModelTransactionData * ModelPermitTransaction * ModelCommodityInventory * ModelPermit * ModelSellerType * ModelCommodityMaster * ModelPurchaseRequest * ModelVirtualAccount * ModelFilter * ModelBalance * ModelMasterConsigneeData * ModelPurchaseCommodity * ModelTraderDetails * ModelPurchaseRequestResponse * ModelMasterData * ModelSupportMenuItem * ModelMasterConsignerData * ModelProfile * ModelPaymentStatus * PermitGenCodeGerenater * PurchaseRegCodeGerenater * CharacterHolder |
|  | Code Quality and Build Settings | | |
|  | Whether the app is signed and provisioned with valid certificate. | Cycle-1: Inconclusive  Cycle-2: Complied. | [Cycle-1: 14-OCT-2019]  App is signed with V1 signature schemes but not with V2 schemes. It is recommended to be signed with V2 scheme also.  Validity of certificate is more than 25 years.  **[Cycle-2: 26-DEC-2019]**  App is signed with V1 and V2 signature schemes. However there are still warnings in APK Signer verification logs. Details in annexure. It is recommended to resolve all warnings. |
|  | Whether the app has been built in release mode, with settings appropriate for a release build (e.g. non-debuggable) | Cycle-1: Complied.  Cycle-2: Complied. | [Cycle-1: 14-OCT-2019]  Debug flag is disabled for the App, as seen from AndroidManifest.xml  **[Cycle-2: 26-DEC-2019]**  Remains complied. |
|  | Whether debugging symbols have been removed from native binaries. | Cycle-1: Not Applicable.  Cycle-2: Not Applicable. | [Cycle-1: 14-OCT-2019]  No shared object files found in the App.  **[Cycle-2: 26-DEC-2019]**  Remains not applicable. |
|  | Whether debugging code has been removed, and the app does not log verbose errors or debugging messages. | Cycle-1: Not Complied.  Cycle-2: Inconclusive. | [Cycle-1: 14-OCT-2019]  Ref V2.2. All logging of messages as seen in V2.2 need to be removed.  **[Cycle-2: 26-DEC-2019]**  The App contains both SIT and UAT logic. As SIT is out of scope, logic / code related to that needs to be removed. |
|  | Whether all third party components used by the mobile app, such as libraries and frameworks, are identified, and checked for known vulnerabilities. | Cycle-1: Inconclusive.  Cycle-2: Inconclusive. | [Cycle-1: 14-OCT-2019]  Ref V2.3. Third party library listing is given in V2.3. Developer needs to provide information regarding vulnerability check of those libraries. Analysis of 3rd party dependencies needs to be done using tool "OWASP Dependency Check".  **[Cycle-2: 26-DEC-2019]**  Remains inconclusive. Report shared by developer was not generated as per requirement. The "OWASP Dependency Check" tool needs to be run on the full android project and the generated HTML report needs to be provided. |
|  | Whether the app catches and handles possible exceptions. | Cycle-1: Complied. Cycle-2: Complied. | [Cycle-1: 14-NOV-2019]  Exception handling logic has been added.  **[Cycle-2: 26-DEC-2019]**  Remain complied. |
|  | Whether error handling logic in security controls denies access by default. | Cycle-1: Complied.  Cycle-2: Complied. | [Cycle-1: 14-NOV-2019]  The sample code shows that error handling logic in security controls denies access by default.  **[Cycle-2: 26-DEC-2019]**  Remain complied. |
|  | Whether in unmanaged code, memory is allocated, freed and used securely. | Cycle-1: Not Applicable.  Cycle-2: Not Applicable. | [Cycle-1: 14-NOV-2019]  The App has been implemented in JAVA language so there is no instance of unmanaged code. So this requirement is not applicable.  **[Cycle-2: 26-DEC-2019]**  Remains not applicable. |
|  | Whether free security features offered by the toolchain, such as byte-code minification, stack protection, PIE support and automatic reference counting (ARC), are activated. | Cycle-1: Not Complied.  Cycle-2: Complied. | [Cycle-1: 14-OCT-2019]   * byte-code minification: The minifyEnabled tag is TRUE * stack protection : No issues related to missing stack protection in native binaries found. * PIE support: Not complied. The minimum SDK version for the App is API 15; it needs to be set to API 21 to enforce Position Independent Executable * Automatic reference counting: not applicable as the App has been coded in JAVA.   **[Cycle-2: 26-DEC-2019]**  The minimum SDK version has been set to API 21. |

# Annexure

## Shared preferences (Cycle-2)

|  |
| --- |
| **EPermit.xml** |
| generic:/data/data/com.neml.trdepg/shared\_prefs # cat EPermit.xml  <?xml version='1.0' encoding='utf-8' standalone='yes' ?>  <map>  <boolean name="\_isMasterKeyDone" value="true" />  <string name="\_centerID">STQC</string>  <string name="\_userMarket">STQC</string>  <string name="\_lastloggedinuserId">UTSTQCL00001</string>  <boolean name="\_isMasterDownloadDone" value="true" />  <string name="\_state">WB</string>  <boolean name="\_isLoginDone" value="true" />  <string name="\_language">English</string>  <string name="\_silentlogin">N</string>  <boolean name="\_isSettingsDone" value="true" />  <string name="\_userId">UTSTQCL00001</string>  <string name="\_instanceID">8T</string>  <string name="\_owner">PERMIT</string>  <boolean name="\_isUATConnected" value="true" />  <string name="\_organizationId">TSTQCL00001</string>  <string name="\_password">V3/AK9Hmycy0nycadhDt4I5A+f0</string>  <string name="\_errorfilepath">/storage/emulated/0/E-Permit Generation/Logs</string>  <int name="0" value="40002" />  <string name="\_businessServerIP">uatservices.neml.in</string>  <boolean name="\_featureMessage" value="true" />  <string name="\_permitGenLastShortId">1</string>  <string name=" ">uatservices.neml.in</string>  <int name="\_timeOut" value="30000" />  <int name="\_businessServerPort" value="40111" />  <string name="keyHash256Password">ti6463ycSGpmuCsbAEyA899Zf2/7DUeouNBP6fmyXC4</string>  <string name="\_lastInstalledVersion">1.0.37</string>  <string name="\_marketListLastSync">2019-11-21 09:57:15.146733</string>  </map> |

## SQLite Database (Cycle-2):



## Logs (Cycle-2):

|  |
| --- |
| E-Permit Generation/Logs |
| generic:/storage/emulated/0/E-Permit Generation/Logs/19-12-2019 # cat E-permitGenerationAppEncrypted\_19-12-2019\_logs.txt | grep PWD  12:58:04 : 19-12-2019 12:58:04 : TC=10014|RTYPE=UM|ID=UTSTQCL00001|PWD=V3/AK9Hmycy0nycadhDt4I5A+f0|PWDSHA256=ti6463ycSGpmuCsbAEyA899Zf2/7DUeouNBP6fmyXC4|IMEI=358240051111110|APP=PG|AV=1.0.37|OWN=PERMIT|STATE=WB|AGC=EP|ISSILENTLOGIN=N|~^ |

## APK Signer verification Log (Cycle-2)

|  |
| --- |
| Verifies  Verified using v1 scheme (JAR signing): true  Verified using v2 scheme (APK Signature Scheme v2): true  Verified using v3 scheme (APK Signature Scheme v3): false  Number of signers: 1  WARNING: META-INF/android.arch.core\_runtime.version not protected by signature. Unauthorized modifications to this JAR entry will not be detected. Delete or move the entry outside of META-INF/.  WARNING: META-INF/android.arch.lifecycle\_livedata-core.version not protected by signature. Unauthorized modifications to this JAR entry will not be detected. Delete or move the entry outside of META-INF/.  WARNING: META-INF/android.arch.lifecycle\_livedata.version not protected by signature. Unauthorized modifications to this JAR entry will not be detected. Delete or move the entry outside of META-INF/.  WARNING: META-INF/android.arch.lifecycle\_runtime.version not protected by signature. Unauthorized modifications to this JAR entry will not be detected. Delete or move the entry outside of META-INF/.  WARNING: META-INF/android.arch.lifecycle\_viewmodel.version not protected by signature. Unauthorized modifications to this JAR entry will not be detected. Delete or move the entry outside of META-INF/.  WARNING: META-INF/android.support.design\_material.version not protected by signature. Unauthorized modifications to this JAR entry will not be detected. Delete or move the entry outside of META-INF/.  WARNING: META-INF/com.google.android.material\_material.version not protected by signature. Unauthorized modifications to this JAR entry will not be detected. Delete or move the entry outside of META-INF/. |

## Source Code Identification Info (Cycle-2)

|  |  |
| --- | --- |
| MD5 Hash | Artefact |
| 13cff953ab0107fa048c2f7f206bdae1 | E-Permit Generation.apk |
| b0414044e91c33370b04e56eebe7f084 | Permit Generation/build.gradle |
| 857faf4b42fc9e324fb40b7223f2a94a | Permit Generation/gradlew |
| 9ed960be3cdf076e2d602e1a5742c3a1 | Permit Generation/settings.gradle |
| c7df39a6fdb0bcbfa78043a174198425 | Permit Generation/gradlew.bat |
| f2cfd364d993cf13f6be4b2f9d04754f | Permit Generation/Permit Generation.iml |
| af74b42996f9f7134d2f6c44ffa544ff | Permit Generation/local.properties |
| d41d8cd98f00b204e9800998ecf8427e | Permit Generation/.gradle/vcs-1/gc.properties |
| 4529323c5a74a845dae04a1d44d16176 | Permit Generation/.gradle/buildOutputCleanup/cache.properties |
| 24d5547ff25667f2f76983bb6ec10d63 | Permit Generation/.gradle/buildOutputCleanup/buildOutputCleanup.lock |
| d41d8cd98f00b204e9800998ecf8427e | Permit Generation/.gradle/5.4.1/gc.properties |
| 93b885adfe0da089cdf634904fd59f71 | Permit Generation/.gradle/5.4.1/fileChanges/last-build.bin |
| 820fa034ea6f16da03a0cb36751c1bc7 | Permit Generation/.gradle/5.4.1/fileHashes/fileHashes.lock |
| 451e0b3037c608b724985f74784e7bb7 | Permit Generation/gradle/wrapper/gradle-wrapper.jar |
| f7f24852f9a63fd5f7d78e2a58bbe010 | Permit Generation/gradle/wrapper/gradle-wrapper.properties |
| f138226218e37bfa88148f00c453b38b | Permit Generation/app/build.gradle |
| 89ea61ab8c68bf7f2e0928a37cf9d01d | Permit Generation/app/proguard-rules.pro |
| 66449e61d8d63502a8838abb8a6a0e2d | Permit Generation/app/libs/itextg-5.5.9-javadoc.jar |
| f89e72f30ebb86962db56b89b3546a75 | Permit Generation/app/libs/acra-4.5.0.jar |
| f62e0cbb7589e4e085a25f91fd2ee0e2 | Permit Generation/app/libs/itext-licensekey-1.0.4.jar |
| 45e31fec1bebd17da546cf7ec329d87b | Permit Generation/app/libs/core-3.2.1.jar |
| 56463ab5bbf7b88120de4af999421772 | Permit Generation/app/libs/itextg-5.5.9.jar |
| 9868c04775e2e468e0f83cb747347005 | Permit Generation/app/src/main/AndroidManifest.xml |
| ec39528141b96c7b011847c64dec670b | Permit Generation/app/src/main/java/com/neml/trdepg/EPermitGeneration.java |
| e72c2e9a929c6497469675ee7d467be7 | Permit Generation/app/src/main/java/com/neml/trdepg/listeners/AlertDialogListener.java |
| 4c291aa58a5bd70b4f090663e8a750eb | Permit Generation/app/src/main/java/com/neml/trdepg/listeners/RequestCallback.java |
| 52e5fc445f70a445bd55c3d935bf8568 | Permit Generation/app/src/main/java/com/neml/trdepg/listeners/ConnectionListener.java |
| 8707423c11790dfbd6ab77506c3148ca | Permit Generation/app/src/main/java/com/neml/trdepg/listeners/OnSyncSmsStateListener.java |
| 5961159f39dc3a3ef614f30089ecfe3d | Permit Generation/app/src/main/java/com/neml/trdepg/listeners/OnSMSTaskListener.java |
| 93c11d89444f7dace9af949ee5dbe66f | Permit Generation/app/src/main/java/com/neml/trdepg/listeners/OnSmsStateListener.java |
| 7099920e4ac0e676dc48060545b89762 | Permit Generation/app/src/main/java/com/neml/trdepg/listeners/OnSMSReceiveListener.java |
| 1cb981d6e132f4e989cf6bc5dd96487a | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelCommodityPackageMaster.java |
| 6a022d5f973fab7efd401f5ea3932955 | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelMenu.java |
| 9f7ae2ec55e67a6afb3caea4351e985e | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelFundsPosition.java |
| ac2b946aefb5500469cbd0ae82ec8f84 | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelMarketMaster.java |
| 0c556bcb75b5cee38dfd302d15987cff | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelConsigneeDetails.java |
| d0956b31eb087e421d4abce1771f50ff | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelCommodityRule.java |
| 60bb72d723745b7782bdd86eb0ad868c | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelUPIObject.java |
| 3d2587349a6ab09c27c3cb0d5c9170a6 | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelFundsLedger.java |
| 36ec05a7653fbb1be4b7a39dc8e07a9b | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelDistrict.java |
| 1724604b96d28e427cf62e25d7885eaf | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelFundsLedgerResponse.java |
| 3f9e51d44ec4c53572c0ca147e25d6a6 | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelInventory.java |
| 59e18ba3c14ac56c50c49ec0fc65b6b7 | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelConsigner.java |
| b081d7fbf1669f0cc6846b45deb7d606 | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelPermitTransactionMaster.java |
| a8382d6531ea34f3ac660a04d4530ab0 | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelTransactionData.java |
| 3c17d1c6663f1cb9249280ac9db66b73 | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelPermitTransaction.java |
| 03487f1b90bb8a8d7aed6f52b35be97c | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelPermitBill.java |
| a22b4ded2af647550c21d314c5ed0b9c | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelUPIDetails.java |
| 517251158298a072e8d2e8a5bc8650f1 | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelFundsLedgerRequest.java |
| 4c3d0476772e2b34dd777613416d7014 | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelCommodityInventory.java |
| cefbe5b4d2253e60d30b8e1c1336a60e | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelPermit.java |
| b27ed01ec33fcdc672a6d34b121c06e7 | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelSellerType.java |
| 1e55a375c85e63da9b0e63a53a2afbbc | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelCommodityMaster.java |
| 88da4ef2a5ffeebfb280f34190da8b26 | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelPurchaseRequest.java |
| 5eeaca6c6e465cef09d426198c4fe77c | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelVirtualAccount.java |
| e9765d958c1868cd6608e9ba6b0869dd | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelFilter.java |
| 630dfa68c24f849a6ae0c0ef0a66ecda | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelBalance.java |
| dc4a185e32cd9a3ca399acd29c607aa0 | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelState.java |
| 86e78f65cb054a75d1decea725c6804f | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelMasterConsigneeData.java |
| f6943fa6d944c57996f1e89af9c09bf4 | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelPurchaseCommodity.java |
| ad6034ebbb9e0689d96c504adff19326 | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelTraderDetails.java |
| 5b10f6d020a279fbbc1c8abdc0a9e745 | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelRegistration.java |
| 62330d275c738be175cd6db48b6c2d20 | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelInventoryTransaction.java |
| 61b54fcf28fefa0a8c27da94e45bd41b | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelPurchaseRequestResponse.java |
| 564833a3f2aa668b7b636a6785382f1b | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelMasterData.java |
| 6fcd4f5d0e4e6cab839701d620617f5d | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelSupportMenuItem.java |
| ecd0e0a2190dec36b2ab2a3f751319f8 | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelInventoryTrackingResponse.java |
| aaaa1ba1523e6cb496ed7a3d335649da | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelMasterConsignerData.java |
| 1ae623a84dd6ccac7ae794081b49efd9 | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelProfile.java |
| 988d6a1b8dab9d91cae80fc579d11421 | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelInventoryTrackingRequest.java |
| 376d575c9056ee7926266322139c48f5 | Permit Generation/app/src/main/java/com/neml/trdepg/models/ModelPaymentStatus.java |
| a579aff192cebfcb59360115ccaf539c | Permit Generation/app/src/main/java/com/neml/trdepg/adapters/DisplayDistrictAutoSuggestAdapter.java |
| c41e70302a5547e0aab400287dd0fad5 | Permit Generation/app/src/main/java/com/neml/trdepg/adapters/FundsLedgerListAdapter.java |
| 4f1d6ab84358af1f16ce4e2a5617fd7e | Permit Generation/app/src/main/java/com/neml/trdepg/adapters/ViewPurchaseRequestsPagerAdapter.java |
| 6f91ffed65655a7cd87c6baa09fb952e | Permit Generation/app/src/main/java/com/neml/trdepg/adapters/DisplayStateAutoSuggestAdapter.java |
| e4b75f4c956c10a8e608bdb42cbdc2e1 | Permit Generation/app/src/main/java/com/neml/trdepg/adapters/DisplayMarketAutoSuggestAdapter.java |
| 630227f7bd4f0bb4b3d13a873e9e1b60 | Permit Generation/app/src/main/java/com/neml/trdepg/adapters/CommodityForPermitListAdapter.java |
| 3304a09c6e12467a5d96db660581a86d | Permit Generation/app/src/main/java/com/neml/trdepg/adapters/ViewPermitPagerAdapter.java |
| cadb8b27f0ad27005dff1de757faa5bc | Permit Generation/app/src/main/java/com/neml/trdepg/adapters/DisplayConsigneeAutoSuggestAdapter.java |
| 6d799da8b2ac31586a144f9a809eddae | Permit Generation/app/src/main/java/com/neml/trdepg/adapters/MenuPagerAdapter.java |
| ce4eb17ecfbb5580bfd9678f25feef7d | Permit Generation/app/src/main/java/com/neml/trdepg/adapters/CommodityPurchaseListAdapter.java |
| a0bf2d70d0da278c15dd3aa3de5d582c | Permit Generation/app/src/main/java/com/neml/trdepg/adapters/DisplayCommodityAutoSuggestAdapter.java |
| 40ed0fa80ace3f34314b6be77788ded1 | Permit Generation/app/src/main/java/com/neml/trdepg/adapters/SupportMenuListAdapter.java |
| f3a38b58dd1f9d7d40bcabcf12d7dbcf | Permit Generation/app/src/main/java/com/neml/trdepg/adapters/InventoryTransactionListAdapter.java |
| 7700d5073ea2842f3df53305e672101e | Permit Generation/app/src/main/java/com/neml/trdepg/adapters/MenuListAdapter.java |
| 07c0e489a747be5861f1e4a32df5caec | Permit Generation/app/src/main/java/com/neml/trdepg/adapters/ViewPermitListAdapter.java |
| 260a893c932b274248e1e34d9a3ff1ed | Permit Generation/app/src/main/java/com/neml/trdepg/adapters/ViewPurchaseRequestListAdapter.java |
| b2d77eee5ec1cc21d0b499ce8da5b2b0 | Permit Generation/app/src/main/java/com/neml/trdepg/widgets/CirclePageIndicator.java |
| fa4813da0f49f495db8845db95c2cbfb | Permit Generation/app/src/main/java/com/neml/trdepg/algorithm/PermitGenCodeGerenater.java |
| 2398c609214aee724b86bdf68fc3dddd | Permit Generation/app/src/main/java/com/neml/trdepg/algorithm/PurchaseRegCodeGerenater.java |
| 7f04b66b2877dce0e1fb0dd9a97f28e9 | Permit Generation/app/src/main/java/com/neml/trdepg/algorithm/CharacterHolder.java |
| b5af83c93c5b5e68e966a7884f95f125 | Permit Generation/app/src/main/java/com/neml/trdepg/utils/DecimalFilter.java |
| cdd57d7606b85a9e3f6de68726e652db | Permit Generation/app/src/main/java/com/neml/trdepg/utils/PermitBillGeneration.java |
| 1d187c620357db85a53b2747a8c5f410 | Permit Generation/app/src/main/java/com/neml/trdepg/utils/Utils.java |
| 3af0af1b1962a257347cf68ac0f8231b | Permit Generation/app/src/main/java/com/neml/trdepg/utils/Constants.java |
| e633cc80efe69af7fedcdd727ab57db9 | Permit Generation/app/src/main/java/com/neml/trdepg/utils/DialogUtils.java |
| dab20066a22bbe4c5cf86a5bc0c480ec | Permit Generation/app/src/main/java/com/neml/trdepg/tasks/RouteTask.java |
| f2ecc045065eeb9c520b6f1c669cd116 | Permit Generation/app/src/main/java/com/neml/trdepg/tasks/UpdatePaymentStatusTask.java |
| 516ff7080117e45f5e7638eeb8a77c50 | Permit Generation/app/src/main/java/com/neml/trdepg/tasks/PendingPurchaseTask.java |
| 27216a2bea9bb227fb80bc2d151a0e89 | Permit Generation/app/src/main/java/com/neml/trdepg/tasks/FundsPositionTask.java |
| 72cb520d10b655be8c5521f67242155a | Permit Generation/app/src/main/java/com/neml/trdepg/tasks/DownloadMasterDataTask.java |
| 6f368b9096e33a5aa2bcd7454dbe251e | Permit Generation/app/src/main/java/com/neml/trdepg/tasks/SendPermitGenerationTask.java |
| 65bce4d20f715b6e202c4f1318051a19 | Permit Generation/app/src/main/java/com/neml/trdepg/tasks/DownloadTransactionTask.java |
| a125d55be2ef50f98e7b544cae85b193 | Permit Generation/app/src/main/java/com/neml/trdepg/tasks/FetchCommodityInventoryDetailsTask.java |
| 50ed60c3e8436237ecb73a0c048496c5 | Permit Generation/app/src/main/java/com/neml/trdepg/tasks/FetchConsigneeDetailsTask.java |
| 6ec72a60d6cc2e7ee2c30d3805bd9245 | Permit Generation/app/src/main/java/com/neml/trdepg/tasks/InventoryTrackingTask.java |
| a9647a0533abf9977766c67ca2f252b0 | Permit Generation/app/src/main/java/com/neml/trdepg/tasks/ChangePasswordTask.java |
| bc09b06c6fc5c8d2f9a9b76e61a91a75 | Permit Generation/app/src/main/java/com/neml/trdepg/tasks/FetchAliasDetailsTask.java |
| e74e8a8bbb6064d19011f483f7ab6fc5 | Permit Generation/app/src/main/java/com/neml/trdepg/tasks/FundsLedgerTask.java |
| 775d857b0fe6285f10bb3e7c5b3d7a8c | Permit Generation/app/src/main/java/com/neml/trdepg/tasks/VirtualAccountTask.java |
| e5363581d233730c3a238df10a4a3aec | Permit Generation/app/src/main/java/com/neml/trdepg/tasks/ForgotPasswordTask.java |
| 20cef99c75405ed5734d49b10e9fa224 | Permit Generation/app/src/main/java/com/neml/trdepg/tasks/SecondaryConnectionTask.java |
| 2f66ae15bcde4ea31890ca79f896c4b1 | Permit Generation/app/src/main/java/com/neml/trdepg/tasks/PurchaseRequestTask.java |
| 99cc345f3cde922890269305cfe6fd6f | Permit Generation/app/src/main/java/com/neml/trdepg/tasks/PrimaryConnectionTask.java |
| eb21201b33464ef5e424eca5b52d45b7 | Permit Generation/app/src/main/java/com/neml/trdepg/tasks/FetchBalanceTask.java |
| 5f06c96f1c7d67a658b32a586ec18c49 | Permit Generation/app/src/main/java/com/neml/trdepg/tasks/InventoryPositionTask.java |
| 9fdd708a88ed2112095ffa37746d7f64 | Permit Generation/app/src/main/java/com/neml/trdepg/parser/decoder/OrderPaymentStatusDecoder.java |
| 2fddc7c59e097478be07d7ab790393f9 | Permit Generation/app/src/main/java/com/neml/trdepg/parser/decoder/ChangePasswordDecoder.java |
| e7a736158f80e8309b871d7d7be7f88f | Permit Generation/app/src/main/java/com/neml/trdepg/parser/decoder/PurchaseRequestDecoder.java |
| bd75743e338ee2dab62dbd3d1bb88735 | Permit Generation/app/src/main/java/com/neml/trdepg/parser/decoder/FetchCommodityInventoryDecoder.java |
| 7e3f09c329ea80a498e5899614fd8bb7 | Permit Generation/app/src/main/java/com/neml/trdepg/parser/decoder/InventoryTrackingDecoder.java |
| f490025750e76b67c99c680b38ecd282 | Permit Generation/app/src/main/java/com/neml/trdepg/parser/decoder/FundsPositionDecoder.java |
| 23a3a13eb0d1b599a1c4fe1e2f2f8234 | Permit Generation/app/src/main/java/com/neml/trdepg/parser/decoder/PendingPurchaseDecoder.java |
| 57a10bf160c41aa7a05d6c54ab044d5a | Permit Generation/app/src/main/java/com/neml/trdepg/parser/decoder/ForgotPasswordDecoder.java |
| b9fa70f54455f39cbb28be06cab80d6b | Permit Generation/app/src/main/java/com/neml/trdepg/parser/decoder/DecoderLastTransaction.java |
| 999d2ccc6e52de1874f73b38ce058aa3 | Permit Generation/app/src/main/java/com/neml/trdepg/parser/decoder/FetchBalanceDecoder.java |
| 14fbd82f7109f1c1548e4d351d840aaa | Permit Generation/app/src/main/java/com/neml/trdepg/parser/decoder/SendPermitGenerationDecoder.java |
| 787cf7912c6cfe6a5092cd0b8d4b5886 | Permit Generation/app/src/main/java/com/neml/trdepg/parser/decoder/FundTrackingDecoder.java |
| 61fe17b00f77130d7bdd09c567291cf3 | Permit Generation/app/src/main/java/com/neml/trdepg/parser/decoder/FundsLedgerDecoder.java |
| 4b224156f1ac0c8e6facf2aedfa16851 | Permit Generation/app/src/main/java/com/neml/trdepg/parser/decoder/InventoryPositionDecoder.java |
| 228361047728b65a34b736807a41163e | Permit Generation/app/src/main/java/com/neml/trdepg/parser/decoder/DecoderDownloadTransactionData.java |
| 3a795f0bfd8af0e13a78c71908850126 | Permit Generation/app/src/main/java/com/neml/trdepg/parser/decoder/UPIResponseDecoder.java |
| 48f73cae65afc81ccdb4d9c7164c589d | Permit Generation/app/src/main/java/com/neml/trdepg/parser/decoder/FetchAliasDecoder.java |
| 39f65c33c10a359e7a597eca7244d6ff | Permit Generation/app/src/main/java/com/neml/trdepg/parser/decoder/VirtualAccontDecoder.java |
| cf28b5f655a33ed8dc2d3c6c9388d7db | Permit Generation/app/src/main/java/com/neml/trdepg/parser/decoder/MastersDownloadDecoder.java |
| e38ce53c37b12a4c37abc042298f8af4 | Permit Generation/app/src/main/java/com/neml/trdepg/parser/decoder/FetchConsigneeDetailsDecoder.java |
| 87cd5fc46e9c3742f76aea5fe5a56a93 | Permit Generation/app/src/main/java/com/neml/trdepg/parser/decoder/DecodeRegistration.java |
| 46590346d19ce394d368261d13f70e51 | Permit Generation/app/src/main/java/com/neml/trdepg/parser/encoder/VirtualAccountEncoder.java |
| 43de00d86eaefecfeb06154e7f3a077c | Permit Generation/app/src/main/java/com/neml/trdepg/parser/encoder/FetchBalanceEncoder.java |
| 78ec26a2072df66975560efc78fc934e | Permit Generation/app/src/main/java/com/neml/trdepg/parser/encoder/Registration.java |
| e43ec4b171b3005b7b4560f576f667a1 | Permit Generation/app/src/main/java/com/neml/trdepg/parser/encoder/FetchCommodityInventoryRequest.java |
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| 22cd6ac6ee713953904a944fa2e3e1ae | Permit Generation/app/src/main/java/com/neml/trdepg/parser/encoder/FetchConsigneeRequest.java |
| f443746bf731a26660c187daf54aeb2b | Permit Generation/app/src/main/java/com/neml/trdepg/parser/encoder/InventoryTrackingEncoder.java |
| 805155378b4d65c677629acdadc197d7 | Permit Generation/app/src/main/java/com/neml/trdepg/parser/encoder/FundsLedgerEncoder.java |
| b6144fa7d5c243baf41cf1b19b5ee8ab | Permit Generation/app/src/main/java/com/neml/trdepg/parser/encoder/FetchAliasEncoder.java |
| 840dde8eaf8e348d878b588d95237627 | Permit Generation/app/src/main/java/com/neml/trdepg/parser/encoder/MasterDownloadRequest.java |
| a2f62b53654675aeec8695677888e805 | Permit Generation/app/src/main/java/com/neml/trdepg/parser/encoder/FundsPostionEncoder.java |
| 5f3ec1117e94807cfd86495cb5996cc0 | Permit Generation/app/src/main/java/com/neml/trdepg/parser/encoder/PaymentStatusEncoder.java |
| 9c41fb44e193faea911f7206b8888530 | Permit Generation/app/src/main/java/com/neml/trdepg/parser/encoder/PurchaseRequestEncoder.java |
| 452daa0dd8e0ad83b2ff16e761dac103 | Permit Generation/app/src/main/java/com/neml/trdepg/parser/encoder/SendPermitGenerationEncoder.java |
| fd4ae0c8fddc4c8b14c11e5e2fa2d81b | Permit Generation/app/src/main/java/com/neml/trdepg/parser/encoder/ChangePasswordEecoder.java |
| f97f8a1ae8726ec56b9e60d6ac96721c | Permit Generation/app/src/main/java/com/neml/trdepg/parser/encoder/ForgotPasswordEncoder.java |
| 432d454aaa1494030d37edc626b5ec39 | Permit Generation/app/src/main/java/com/neml/trdepg/parser/encoder/InventoryPositionEncoder.java |
| e7875f3d3081111c9cc72913975a889d | Permit Generation/app/src/main/java/com/neml/trdepg/parser/encoder/DownloadTransactionEncoder.java |
| 7e2267415e438414bd9733b421c876ba | Permit Generation/app/src/main/java/com/neml/trdepg/activities/InventoryTrackingActivity.java |
| 6497b0f4eb046bd7727135ee0d66ddc0 | Permit Generation/app/src/main/java/com/neml/trdepg/activities/SelfPermitGenerationActivity.java |
| 4c626d016a9d379a9093b87d85001ee4 | Permit Generation/app/src/main/java/com/neml/trdepg/activities/ViewBalanceActivity.java |
| 1eb34e3c1912ef1e8f991f86688ad1b6 | Permit Generation/app/src/main/java/com/neml/trdepg/activities/SplashActivity.java |
| 08f969a15c4e998b4dd3304a7111925a | Permit Generation/app/src/main/java/com/neml/trdepg/activities/ExportPermitGenerationActivity.java |
| eec02fcd5b2a5c99f7bdc323d1d3ce41 | Permit Generation/app/src/main/java/com/neml/trdepg/activities/PermitGenerationActivity.java |
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| eabff422143d489ebe893e9db9636d21 | Permit Generation/app/src/main/java/com/neml/trdepg/activities/ViewPurchaseRequestsActivity.java |
| 579f382da509aef1419341db1d956a6c | Permit Generation/app/src/main/java/com/neml/trdepg/activities/SupportActivity.java |
| cce5b3df750fa0e06179332cd54ae0e5 | Permit Generation/app/src/main/java/com/neml/trdepg/activities/ViewVirtualAccountActivity.java |
| 1d8555a59113d92b361b2267d11bf194 | Permit Generation/app/src/main/java/com/neml/trdepg/activities/PurchaseRequestActivity.java |
| 8174f80f498183208d71b0c4bbcd1b34 | Permit Generation/app/src/main/java/com/neml/trdepg/activities/FundsLedgerActivity.java |
| 0f31e7154f918b28627799c9a6212ce1 | Permit Generation/app/src/main/java/com/neml/trdepg/activities/MenuActivity.java |
| cdd113cf6cd9bd578f28c206a56bb124 | Permit Generation/app/src/main/java/com/neml/trdepg/activities/ViewProfileActivity.java |
| de99ada3835d88775760bc2532f9f4ba | Permit Generation/app/src/main/java/com/neml/trdepg/activities/LoginActivity.java |
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| 8171c7890fa4a0870d9e959143abe5e5 | Permit Generation/app/src/main/java/com/neml/trdepg/activities/ImportPermitGenerationActivity.java |
| 7014579fa7767d0edf8e2ae98f57621a | Permit Generation/app/src/main/java/com/neml/trdepg/activities/ViewInventoryPositionActivity.java |
| a5df9fba407d91cdf9e444036e6f4a0f | Permit Generation/app/src/main/java/com/neml/trdepg/activities/ViewPermitActivity.java |
| 113c3f0334d95f5c9c5e7ed7496f795a | Permit Generation/app/src/main/java/com/neml/trdepg/exceptions/LotLimitException.java |
| 4c7d9c01121c4117174f072c220afa44 | Permit Generation/app/src/main/java/com/neml/trdepg/fragments/ViewPurchaseRequestFragment.java |
| 60f326aecace11464425da2e773c72f9 | Permit Generation/app/src/main/java/com/neml/trdepg/fragments/ViewPermitFragment.java |
| 2f99228cdef388ee0b4062eaec3e8cb6 | Permit Generation/app/src/main/java/com/neml/trdepg/fragments/MenuPageFragment.java |
| b1c63c5713fd16c24afd89ddd63f5637 | Permit Generation/app/src/main/java/com/neml/trdepg/database/AppPreferences.java |
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| 3c2f1db77fe61cce51a070a52246199f | Permit Generation/app/src/main/java/com/neml/trdepg/payment/UPIGateway.java |
| a358bd276054e35cc4d2e22d29971241 | Permit Generation/app/src/main/java/com/neml/trdepg/networkmanager/SecondaryRouteConnectionManager.java |
| 5b385f9544ed8f3fce230f6cbd48bf02 | Permit Generation/app/src/main/java/com/neml/trdepg/networkmanager/CertificateDetails.java |
| 88e014555c9ce3adc4c3e7e45179a6d8 | Permit Generation/app/src/main/java/com/neml/trdepg/networkmanager/ConnectionManager.java |
| 181739264cbf0a847fac0c6a1348ed26 | Permit Generation/app/src/main/java/com/neml/trdepg/networkmanager/PrimaryRouteConnectionManager.java |
| b00001c44a983e16a63a28205592ef34 | Permit Generation/app/src/main/java/com/neml/trdepg/networkmanager/CustomSSLContext.java |
| 352f719b7130c3f994d8635c60c062fb | Permit Generation/app/src/main/java/com/neml/trdepg/networkmanager/CertificateUtil.java |
| bfbf9edba5dc6e7ed751b233c0e42765 | Permit Generation/app/src/main/java/com/neml/trdepg/networkmanager/ContextInitiationService.java |
| 2aaff2bfce703cf5fed6574d64e9f1b4 | Permit Generation/app/src/main/java/com/neml/trdepg/networkmanager/utils/NetworkUtils.java |
| f528d4b8d8ee7e1bb65c233c8f851ce9 | Permit Generation/app/src/main/java/com/neml/trdepg/manager/file/FileManager.java |
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| 95ecacf5fd3f630964fcd0a469608a6e | Permit Generation/app/src/main/res/mipmap-hdpi/ic\_launcher.png |
| 1c59de75f029de82d906e332d1123a01 | Permit Generation/app/src/main/res/menu/menu\_permit\_generation.xml |
| fefcf1c90d3fbb1eb138ad64551a158e | Permit Generation/app/src/main/res/menu/menu\_view\_permit\_activity.xml |
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| fc3e2f78e0644f39198d8f5b79e1afaa | Permit Generation/app/src/main/res/menu/menu\_home.xml |
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| 641f24cd1d9bdaa5befb200946bc1d33 | Permit Generation/app/src/main/res/menu/menu\_view\_purchase\_activity.xml |
| 9b87286ad3a5cf008029fd2c1e55e0cd | Permit Generation/app/src/main/res/menu/menu\_for\_sync\_transactions.xml |
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| 30ab88f471a237bccd8ac9b3d4d8338a | Permit Generation/app/src/main/res/layout/layout\_payment\_permit\_import.xml |
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| 8e58e7339950e486fac93bee91114e7e | Permit Generation/app/src/main/res/layout/layout\_support\_list\_item\_img\_text.xml |
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| 081380cde71ba989a9fa469b96778761 | Permit Generation/app/src/main/res/layout/layout\_view\_last\_transactions\_list\_items.xml |
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| a0b53144810a37c4fa30709a03a5d415 | Permit Generation/app/src/main/res/layout/layout\_funds\_ledger\_tracking.xml |
| b0df9007de15621a77b961ba48441fb6 | Permit Generation/app/src/main/res/layout/layout\_view\_permit\_list\_items.xml |
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| e7ed264cb400a2feb77c0e238681286e | Permit Generation/app/src/main/res/layout/layout\_other\_permit\_generation.xml |
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| e5294f71d50a8efdc4328361e348563f | Permit Generation/app/src/main/res/layout/layout\_send\_email.xml |
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| f247f5f45cfaf17a17c08fabcfba2d9d | Permit Generation/app/src/main/res/layout/layout\_add\_commodity\_details\_for\_self\_permit.xml |
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| 1b26de6a7b14409f33ac23b95784c02c | Permit Generation/app/src/main/res/layout/layout\_view\_inventory\_position\_child\_item.xml |
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| a4d3bd570190c4da6b950e8dcc10010e | Permit Generation/app/src/main/res/layout/layout\_upi\_payment.xml |
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| c2e9fec322ad56465813af5536051e06 | Permit Generation/app/src/main/res/layout/layout\_add\_commodity\_details\_for\_export\_permit.xml |
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| 5646cf295086aa2d11bdee7a94f5edd0 | Permit Generation/app/src/main/res/layout/layout\_payment\_permit.xml |
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| 8bc75d1a8269f0c8bfef28d3026bb2bc | Permit Generation/app/src/main/res/anim/right\_out.xml |
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| a729065e033ca4a39e564ca6de6ccb22 | Permit Generation/app/src/main/res/anim/left\_in.xml |
| 83fc41211f4fdde8b2b24efab89636f9 | Permit Generation/app/src/main/res/anim/right\_in.xml |
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| 63e66bc8acf9da1ae5709caf74d7d69d | Permit Generation/app/src/main/res/values-xhdpi/dimens.xml |
| 4cfea330328c6d01709e4ebc2424858a | Permit Generation/app/src/main/res/mipmap-xhdpi/ic\_launcher\_round.png |
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| 57ebdb03b2b4e39bf341951a4b1449d0 | Permit Generation/app/src/main/res/values/rawres.xml |
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| e9e1b64a01daa4c987b8fb1e927d8273 | Permit Generation/.idea/runConfigurations.xml |
| 310374161d30cfcf6217b4bb9063032f | Permit Generation/.idea/modules.xml |
| feb0a5c614f89eb42214487ea098b144 | Permit Generation/.idea/codeStyles/Project.xml |