eTaal

Document

e-Transaction Aggregation & Analysis Layer

(http://nesd.nic.in)

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# TABLE OF CONTENTS

**CHAPTER 1: INTRODUCTION** .................................................................................................................. 1

**CHAPTER 1: 2: WHAT IS AN E-TRANSACTION** ...................................................................................... 1

**CHAPTER 3: HOW TO ACCESS THE DASHBOARD** ...................................................................................... 2

3.1 eTaal URL ............................................................................................................................................... 2

**CHAPTER 4: HOME PAGE** ....................................................................................................................... 3

4.1 Menu Tab ................................................................................................................................................ 4

4.2 Chart Tab & Chart ................................................................................................................................... 5

4.3 Date wise View ....................................................................................................................................... 5

**CHAPTER 5: CHARTS** .............................................................................................................................. 6

5.1 Service Wise Chart .................................................................................................................................. 6

5.2 Drilled-down Service Wise Chart ......................................................................................................... 7

5.3 State Wise Chart ..................................................................................................................................... 9

5.4 Drilled-down State Wise Chart (Service wise) ..................................................................................... 10

5.5 Other services details of State Wise Chart ............................................................................................ 11

5.6 Central Wise Chart ............................................................................................................................... 12

5.7 Drilled-down Central Wise Chart ....................................................................................................... 13

5.8 Year Wise Chart ..................................................................................................................................... 14

5.9 Category Wise Chart ............................................................................................................................ 15

5.10 Other Chart types .................................................................................................................................. 17

**CHAPTER 6: ANALYTICAL CHARTS** ...................................................................................................... 18

**CHAPTER 7: ARCHITECTURE** ................................................................................................................ 20

**CHAPTER 8: GUIDELINES** ..................................................................................................................... 21

8.1 Pre-requisites for participation in eTaal ................................................................................................. 21

8.2 Steps for creation of client connectors ............................................................................................... 21

8.3 Specifications of client connector ........................................................................................................ 21

8.4 Development & hosting environment .................................................................................................. 22

8.5 Post deployment steps ......................................................................................................................... 22

8.6 Sample code ......................................................................................................................................... 24
Chapter 1: Introduction

**eTaal** is a dashboard giving visual presentation based on aggregation of e-Transactions related to various e-Governance applications including Mission Mode Projects (MMPs) in the country. It facilitates quick analysis of transaction counts in graphical form (Bar Chart, PI Chart, Bubble Chart etc.) and also in tabular statements.

It serves as a single source for visualizing the consolidated picture of National/State level services offered through various e-Governance projects across the country.

e-Transaction statistics are obtained from various e-Governance applications in near real time manner through a web service.

Chapter 2: What is an e-Transaction?

A **transaction** in delivering a public service which uses Information Technology (IT) while also satisfying the following four conditions:

i. Service is requested through electronic means including mobile devices
ii. Workflow/approval process is electronic
iii. Database is electronic/digitized
iv. Service delivery is electronic.

is termed as e-Transaction.
Chapter -3: How to Access the Dashboard

To access eTaal Dashboard enter following URL:

http://nesd.nic.in

Following screen will be displayed:

![image](image-url)

eTaal Dashboard application is best viewed in Mozilla Firefox browser v3.6.19 or higher at resolution of (1366x768).

The user ID and Password which can be used to see a demonstration version of the application are as follows:

- **UserID**: guest
- **Password**: guest@123

Specific user-code and password has been given to various user departments and state centres who have joined the eTaal application and have committed to link their application to it.
In case you are not able to login, please open the website in new browser window. If problem continues, please send an e-mail to the website administrator at nesd@nic.in.

Chapter 4: Home Page

**HomePage:**
On successful login eTaal Home Page appears as shown below:

Menu tab, Chart tab, State wise chart & Options to change dates, chart type, drill down option.
4.1 Menu tab

(Home, Map, Analysis, Ticker Chart, Admin Corner Report, Logout).

Home – This is the landing page of eTaal which is being rendered after successful login. It shows different view of Services.

I. Map of India – It shows the distribution of state wise data of e-Transaction on map of India.

II. Analysis – It shows the different type of graphical analysis on e-Transaction data.

III. Ticker Chart – It is a gauge chart which shows the e-Transaction being delivered at particular date.

IV. Report – It shows different type of reports of eTaal.

V. Logout – This menu item logs the user out from the eTaal.
**4.2 Chart Tab & Chart**

A chart of transactions made in last seven days will be displayed. Initially State wise chart shall be displayed. Homepage shows up with five tabs, State Wise chart (selected by default) shows total number of transactions between two dates (Fromdate and ToDate) entered by user, chart shown on each tab comes up with drill down capability, so that data of each chart can be viewed in detail. Following are the tab option on Home page:

1. Central Wise Chart
2. State Wise Chart
3. Service Wise Chart
4. Year Wise Chart
5. Category wise Chart

One can click following tabs to view variety of charts.

<table>
<thead>
<tr>
<th>Tab Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central projects</td>
<td>Chart displays data of All India level projects providing consolidated transactions details, centrally.</td>
</tr>
<tr>
<td>State wise Projects</td>
<td>Chart displays data of IT projects running in states and state wise data is provided/ available.</td>
</tr>
<tr>
<td>Service wise Details</td>
<td>Chart displays Service wise data of transactions.</td>
</tr>
<tr>
<td>Year wise Chart</td>
<td>Year wise Transactions</td>
</tr>
<tr>
<td>Category wise Chart</td>
<td>Category wise Transactions, (all transactions can be categorized in 4 Categories A,B,C &amp; D)</td>
</tr>
</tbody>
</table>

**4.3 Date wise View**

1. Select required tab from home page.
2. Type From-Date & To-Date intext box or select dates from calendar (by clicking on calendar icon).
3. Click refresh button.
Chapter 5: Charts

5.1 Service Wise Chart
It displays consolidated count of e-Transaction Service Wise. It shows consolidated data of all the State and Central projects. We can click specific service to Drill Down to show “State Wise Chart of selected Service”. Following screenshot shows Service Wise Chart:

- Each 3D column bar represents a Service, identified by different color.
- Height of each column bar shows total transactions occurred in the Service, between two dates entered by the user.
- Same data can be viewed in pie chart and tabular data, by selecting Display Type in the drop-down list provided below the chart.
5.2 (a) List of Standard Services

Large number of services are being offered by various government departments/organizations in the country. However, the name of a particular service in one state may be different in different states. For example, the Record of Right (RoR) is known by different name in various states. For the ease of classification and presentation in a composite manner, following categories has been proposed so that data with respect to similar services can be grouped into these categories why showing the data at national level.

<table>
<thead>
<tr>
<th>SL#</th>
<th>Service Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Certificates</td>
</tr>
<tr>
<td>2</td>
<td>Licenses and Permits</td>
</tr>
<tr>
<td>3</td>
<td>Land Record &amp; Registration</td>
</tr>
<tr>
<td>4</td>
<td>Integrated Finance Management System</td>
</tr>
<tr>
<td>5</td>
<td>Commercial Tax</td>
</tr>
<tr>
<td>6</td>
<td>Utility Services and Bill Payment</td>
</tr>
<tr>
<td>7</td>
<td>Social Welfare &amp; Pension</td>
</tr>
<tr>
<td>8</td>
<td>Transport</td>
</tr>
<tr>
<td>9</td>
<td>Education</td>
</tr>
<tr>
<td>10</td>
<td>Public Distribution System</td>
</tr>
<tr>
<td>11</td>
<td>Agriculture &amp; Allied</td>
</tr>
<tr>
<td>12</td>
<td>Court and Judiciary</td>
</tr>
<tr>
<td>13</td>
<td>Health</td>
</tr>
<tr>
<td>14</td>
<td>Rural Development</td>
</tr>
<tr>
<td>15</td>
<td>Election</td>
</tr>
<tr>
<td>16</td>
<td>Police</td>
</tr>
<tr>
<td>17</td>
<td>Personnel and Admin</td>
</tr>
<tr>
<td>18</td>
<td>Grievance</td>
</tr>
<tr>
<td>19</td>
<td>RTI</td>
</tr>
<tr>
<td>20</td>
<td>Information Service</td>
</tr>
<tr>
<td>21</td>
<td>State Specific Services</td>
</tr>
<tr>
<td>22</td>
<td>Other Services</td>
</tr>
</tbody>
</table>
5.2 (b) Drilled-down Service Wise Chart

Service Wise Chart can be drilled down to get the state view. Following screenshot shows Drilled-down Service Wise Chart of the service ‘Land Records & Registration’.

Drilled-down Service Wise Chart to show State wise chart of Land Records & Registration.

Drilled-down Service Wise Chart to show State wise chart of the other services.
5.3 State Wise Chart

Following screenshot shows transactions (State Wise) in Column chart form. Only state wise tab comes with two type of drill down options (i.e. Standard service wise or Category Wise).

- Each 3D column bar depicts a state, identified by different color.
- Height of each column bar shows total transactions occurred in the state, between two dates entered by the user.
- Same data can be browsed in pie chart and tabular data, by selecting Display Type in the drop-down list provided below the chart.
- We can change time period for displaying data (Change From Date and To Date) and click on Refresh button.
5.4 Drilled-down State wise Chart (Service wise)

Following screenshot shows transactions (State Wise) in Column chart form. Only state wise tab comes with two type of drill down options (i.e. Standard service wise or Category Wise)

- Each 3D column bar depicts a state, identified by different color.
- Height of each column bar shows total transactions occurred in the state, between two dates entered by the user at earlier stage.
- Same data can be browsed in pie chart and tabular data, by selecting Display Type in the drop-down list provided below the chart.
5.5 Other Services details of State Wise Chart

Further in Service Wise Chart of a particular state we can see detailed view of other services in that particular state.

- Each 3D column bar depicts a state, identified by different color.
- Height of each column bar shows total transactions occurred in the state, between two dates entered by the user at earlier stage.
- Same data can be browsed in pie chart and tabular data, by selecting Display Type in the dropdown list provided below the chart
5.6 Central Wise Chart

Further in Central Wise Chart of services, where transaction data is provided centrally. Each service can be clicked to further drill-down for details.

- Each 3D column bar depicts a Service, identified by different color.
- Height of each column bar shows total transactions occurred in the Service, between two dates entered by the user at earlier stage.
- Same data can be browsed in pie chart and tabular data, by selecting Display Type in the drop-down list provided below the chart.
- Each service can be clicked to further drill-down for details.
5.7 Drilled-down Central Wise Chart
Central Wise Chart of services can be drilled-down by clicking on service name. Following is drilled-down chart of Health services.

- Each 3D column bar depicts a Service, identified by different color.
- Height of each column bar shows total transactions occurred in the Service, between two dates entered by the user at earlier stage.
- Same data can be browsed in pie chart and tabular data, by selecting Display Type in the drop-down list provided below the chart

State wise e-Transaction count of eHospital project
Hospital wise e-Transaction count of eHospital project

5.8 Year wise Chart
Following screenshot shows admin view of transactions (YearWiseChart) in Column Chart.
This chart can be further viewed in detailed view by drill down into:

- Months of selected year
- Then into weeks of selected month
- And finally into services in selected week of that month

5.9 Category wise Chart
Following screenshot shows Category wise view of transactions in Column Chart
Transactions are categorized on following categories:

<table>
<thead>
<tr>
<th>Category</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>All statutory/Non-statutory services in G2C, G2B segment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Payment of taxes by citizens (Income Tax/VAT etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Payment of subsidies/Scholarships/ Social welfare transfers (DBT etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Services delivered under PDS/Rural development schemes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Web based e-Gov transactions by citizen</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Utility Bill payments (Water bill, telephone bill, electricity bill, etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other B2C Transactions (e.g. ticket bookings, banking transactions, addition of mobile numbers in Do Not Call registry by Telecom service providers etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information access from various e-Governance Portals/Websites</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Downloading of forms</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enquiry (such as Passport Status, dail.gov.in service, Railway PNR enquiry, result of an examination etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5.10 Other Chart Types

**Pie Chart:** Following screen shot shows admin view of transactions (State Wise Chart) in Pie chart form.

- Each 3D Pie piece depicts states identified by different color.
- Size of each Pie Piece shows total transactions occurred in that State, during the period entered by user (by default last 7 days)
- Same data can be displayed in other two representation by selecting from the drop-down list provided under the chart.
Following screen shot shows admin view of transactions (state wise) in Tabular form:

![State Wise Chart](image)

Above screenshot shows list of states and total transaction number in simple tabular format.
Chapter 6 : Analytical Charts

Comparative Analysis: Increase in services since preceding month:

(i) Progress of the current year is shown automatically.

Graph shows monthly transactions difference between two years. This graph shows automatically by comparing current and previous year transactions.
(ii) To see progress comparison between two different years (month wise), select required year in both drop down lists.

This graph shows advanced view of comparison, in which graph shows month wise progress done in a selected years. User can select desired year from the dropdown list in which comparison has to be done.

Where in graph color depicts a year (Example: In the above graph 2011 year is shown in blue color and 2012 year is shown in yellow color). This graph is very useful in comparison analyses (especially when comparison is done in years).
Chapter 7: Architecture

eTaal is broadly categorized into following three components:

a. Dashboard Server Connector (DSC)

Dashboard Server Connector (DSC) runs as a service on Central Server and acts as watchdog to pull the e-Transaction count from various servers located at State and Centre.

b. Dashboard Client Connector (DCC)

Dashboard Client Connector (DCC) runs as a service on the Servers which is providing the e-Transaction count details.

c. eTaal Portal

eTaal Portal is a web portal to give view of dashboard.

Architecture of eTaal is given below:

In the architecture of eTaal drawn above, one DSC and multiple DCC exists. One DCC is for each application.
Chapter 8: Guidelines

This section provides guidelines for application administrator / developer to create Client Connector and deploy on their servers.

8.1 Prerequisites for participation in eTaal

d. Server on which the e-transaction data resides must be on Internet.

It is platform independent. The Server may be on any platform (Windows/Linux; SQL Server/Oracle/MySQL/PostGreSQL; .Net /Java/PHP etc.)

8.2 Steps for creation of Client Connector

Client Connector may be Web Service, WCF service or URL based data sharing application. Client Connector may be written in any language (C#, VB.Net, Java, PHP etc.).

Creation of Client Connector will consist of following steps:

i. Creation of Web Service or WCF service or URL based data sharing application

ii. Creation of ‘Stored Procedure’ in the database which will give count of e-Transaction to web connector

iii. Writing of the code to access stored procedure created to get the e-Transaction count.

8.3 Specifications of Client Connector

The specifications of Client Connector are given below:

Web Method Name: eTransactionCount

Input Parameters: The web method created for the purpose will have following parameters:
### SL # | Parameter Name | Format | Example
--- | --- | --- | ---
1 | TransactionDate | DD/MM/YYYY | 23/11/2012
2 | UserName | String | DeiTy
3 | Password | String | xYz$36F

**Response Type:** The web method will return either XML or dataset.

**Format of XML:**

```xml
<?xml version="1.0" encoding="utf-8" ?>
<NeSD>
    <response ServiceName="Driving Licence" ServiceCount="307" StateCode="10" />
    <response ServiceName="Vehicle Registration" ServiceCount="30" StateCode="10" />
    <response ServiceName="Birth Certificate" ServiceCount="47" StateCode="10" />
</NeSD>
```

**Format of dataset:**

This will have following set of data: LocationCode, ServiceCode, ServiceCount

**Error Code Returned by Service**

| SL # | Error Code | Error Description |
--- | --- | --- |
1 | -1 | Transaction Date parameter is missing |
2 | -2 | Wrong credentials |

**8.4 Development and hosting Environment**

a. Client Connector can be created in any of the programming language i.e. Java, C#, VB.Net, PHP etc.

b. It can be hosted on any web server i.e. IIS, Apache Tomcat etc.

**8.5 Post deployment steps**

a. The port on which the service is running is required to be opened for our eTaal Server Connector.

b. Share the URL of Web Service with User Name and Password to eTaal Administrator.
8.6 Sample Code in JAVA

```java
package in.nic.exchange.action;
import in.nic.exchange.db.EBConnection;
import java.sql.Connection;
import java.sql.PreparedStatement;
import java.sql.ResultSet;
import java.sql.SQLException;
import java.sql.Statement;
import java.text.SimpleDateFormat;
import java.util.ArrayList;
import java.util.Date;
import java.util.HashMap;
public class ExchangeWebService {
    public ArrayList<HashMap<String, Float>> countRegistrationsActivityWise(Date date) {
        Connection con = null;
        PreparedStatement pstmt = null;
        ResultSet rs = null;
        System.out.println("date = " + date);
        String query = "select name, sum(transactions) as total_trns from refactivity ra left join (select * from dashboard where trndate = ?) db on db.activity=ra.code group by ra.code,ra.name order by ra.code;";
        SimpleDateFormat formatter = new SimpleDateFormat("yyyy-MM-dd");
        String d = formatter.format(date);
        ArrayList<HashMap<String, Float>> result = new ArrayList<HashMap<String, Float>>() {
            HashMap<String, Float> map = null;
            try {
                con = DBConnection.getConnection("", ");
                pstmt = con.prepareStatement(query,
                        ResultSet.TYPE_SCROLL_INSENSITIVE, ResultSet.CONCUR_UPDATABLE);
                pstmt.setString(1, d);
                rs = pstmt.executeQuery(query);
                while (rs.next()) {
                    map = new HashMap<String, Float>();
                    map.put(rs.getString("name"), rs.getFloat("total_trns"));
                    result.add(map);
                }
            } catch (SQLException s) {
                s.printStackTrace();
            } catch (Exception e) {
                e.printStackTrace();
            } finally {
                try {
                    rs.close();
                    pstmt.close()
                    con.close();
                } catch (SQLException e) {
                    // ToDO Auto-generated catch block
                    e.printStackTrace();
                }
            }
        };
    }
}
```
public float countRegistrations(Date date) {
    Connection con = null;
    Statement stmt = null;
    ResultSet rs = null;
    System.out.println("date = " + date);
    String query = "select sum(transactions) as trns from dashboard where trndate="
    + date + ";
    SimpleDateFormat formatter = new SimpleDateFormat("yyyy-MM-dd");
    String d = formatter.format(date);
    System.out.println("date = " + date);
    try {
        con = DBConnection.getConnection("", ");
        stmt = con.createStatement(ResultSet.TYPE_SCROLL_INSENSITIVE, ResultSet.CONCUR_UPDATABLE);
        query += d + ";";
        rs = stmt.executeQuery(query);
        System.out.println("query = " + query);
        if (rs.next()) {
            return rs.getFloat("trns");
        } else {
            return 0;
        }
    }
    catch (SQLException sqle) {
        sqle.printStackTrace();
    }
    catch (Exception e) {
        e.printStackTrace();
    } finally {
        try {
            rs.close();
            stmt.close();
            con.close();
        } catch (SQLException e) {
            // TODO Auto-generated catch block
            e.printStackTrace();
        }
    }
    return 0;
}
For further information, please contact:

nesd@nic.in

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