Report and Dashboard Template 9.5.1
User Guide

Introduction

The Informatica Data Quality Reporting and Dashboard Template – for Informatica Data Quality 9.5.1, is designed to provide you a framework to capture reporting metrics for data quality issues. The template includes a database schema, sample data, mappings to load MRS data into dimension tables, sample reports and Dashboards illustrating DQ metrics and User Activity in the MRS. In addition it includes sample data to load into the schema to allow you to view the reports without having the system up and running and generating metrics.

This version of the Reporting and Dashboard template contains a number of new features including:

- **User Activity dashboard**
  - A mapping and application required to extract data about objects updated in the MRS. The User Activity Dashboard allows you to see what projects and objects users are updating in the MRS and keeps a fully auditable history or MRS changes over time.

- **Load DIM_RULES and DIM_MAPPING tables through mappings**
  - Mappings can be run on demand and will add or update any objects contained in the MRS into the Reporting schema tables.

- **Extract data from the Profile warehouse through demo mappings**
  - Demo mapping to extracts uniqueness information from profiles in the profile warehouse.

- **Use lookups to identify dimension values from the reporting schema**
  - Replace hard coded values to the dimension values in the reporting schema through use of lookups to reduce the need to know the coded value for each dimension and support more flexibility in assigning dimension values to specific rows of data that is being processed.

- **Support for parameters in the DQ Dashboard**
  - Get more flexibility in configuring the information displayed. In particular, configure the dial charts to display the DQ dimension you want to see or switch views to different dimensions. The trend charts support data parameters to allow you to select the time period you want to view.

- **Enhanced reporting schema**
  - A number of new dimensions have been added to the reporting schema to give you more control over how to model and view your data including job and project dimensions to support data migration efforts. Applications to help group entities and an application set up table to support creation of hyperlinks from the raw data to the application where is it installed.
Reporting and Dashboard Technical Overview

Reporting Schema

The following diagram outlines the Reporting Schema used by the template.
The schema utilizes a star schema format which captures aggregated pass/fail metrics for data quality tests across a number of dimensions.

<table>
<thead>
<tr>
<th>Table Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fact_Result</td>
<td>Base table in the schema for recording DQ metrics.</td>
</tr>
<tr>
<td>Fact_Drilldown</td>
<td>Table records key information for each record that fails a DQ test. The</td>
</tr>
<tr>
<td></td>
<td>table records primary key information of the source record to allow</td>
</tr>
<tr>
<td></td>
<td>trace back to the source.</td>
</tr>
<tr>
<td>DIM_DQDIMENSION</td>
<td>Stores dimension information related to data quality dimension such as</td>
</tr>
<tr>
<td></td>
<td>Completeness, consistency, conformity, etc. This table is prepopulated</td>
</tr>
<tr>
<td></td>
<td>with common data Quality dimensions.</td>
</tr>
<tr>
<td>DIM_FIELD</td>
<td>Stores information related to specific fields being evaluated. This table</td>
</tr>
<tr>
<td></td>
<td>has an enforced dependency on the DIM_ENTITY table.</td>
</tr>
<tr>
<td>DIM_ENTITY</td>
<td>Container object for all data fields that are part of the entity being</td>
</tr>
<tr>
<td></td>
<td>tested. For example, a field might refer to a person name, the entity</td>
</tr>
<tr>
<td></td>
<td>would be the contact. This table has an unenforced dependency on</td>
</tr>
<tr>
<td></td>
<td>DIM_APPLICATION.</td>
</tr>
<tr>
<td>DIM_APPLICATION</td>
<td>Container object encapsulating all entities that are part of an application</td>
</tr>
<tr>
<td></td>
<td>For example, Contact, Lead and Account are all parts of an application</td>
</tr>
<tr>
<td></td>
<td>such as Salesforce.com.</td>
</tr>
<tr>
<td></td>
<td>This table has an unenforced dependency with the</td>
</tr>
<tr>
<td></td>
<td>APPLICATION_SETUP table.</td>
</tr>
<tr>
<td>APPLICATION_SETUP</td>
<td>Stores details that allow url to be generated to open a web based</td>
</tr>
<tr>
<td></td>
<td>application on a specific record in conjunction with the</td>
</tr>
<tr>
<td></td>
<td>FACT_DRILLDOWN and FACT_RESULT tables.</td>
</tr>
<tr>
<td>DIM_JOB_CODE</td>
<td>Stores jobs and job codes that may be used to track mappings or applications</td>
</tr>
<tr>
<td></td>
<td>that are executed as part of a project. This table has an enforced</td>
</tr>
<tr>
<td></td>
<td>dependency on the DIM_PROJECT_CODES table.</td>
</tr>
<tr>
<td>DIM_PROJECT_CODES</td>
<td>Container object encapsulating all jobs that are part of a particular</td>
</tr>
<tr>
<td></td>
<td>project.</td>
</tr>
<tr>
<td>DIM_REPORTINGUNIT</td>
<td>Stores details or any business or reporting units in an organization</td>
</tr>
<tr>
<td></td>
<td>that are responsible for the quality of data in those businesses units.</td>
</tr>
<tr>
<td>DIM_MAPPINGS</td>
<td>Stores details of all mappings stored in the MRS and are run against DQ</td>
</tr>
<tr>
<td></td>
<td>rules. This table can be populated using mappings,</td>
</tr>
<tr>
<td></td>
<td>m_load_rule_and_mapping_dimensions and</td>
</tr>
<tr>
<td></td>
<td>m_load_dim_mappings_from_PWH, in the Dashboard and Reporting template.</td>
</tr>
<tr>
<td>DIM_RULES</td>
<td>Stores details of all rules and mapplets stored in the MRS. This table</td>
</tr>
<tr>
<td></td>
<td>can be populated using mapping,</td>
</tr>
<tr>
<td></td>
<td>m_load_rule_and_mapping_dimensions, in the Dashboard and.</td>
</tr>
</tbody>
</table>
Reporting template.

**DIM_TIME**
Stores all calendar dates and various dimensions related to time and dates that user may want to use to analyze their data. Data is provided to populate this table up to Dec 31, 2021

**MRS_AUDIT_HISTORY**
Standalone table independent of the star schema. This is a denormalized view that stores updates to the MRS. This table is populated by mapping `m_load_mrs_audit_history` and executed via application: `app_mrs_audit_history`

The view VIEW_ALL_FACT_RESULTS combines data from most tables and can be used for most common queries against the schema. Tables not include in this view include FACT_DRILLDOWN and MRS_AUDIT_HISTORY.

### Data Quality Mappings

The Reporting and Dashboard template supplies a number of mappings to support usage of the template. The mappings are used for both practical and demo purposes.

<table>
<thead>
<tr>
<th>Mapping Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>m_load_mrs_audit_history</code></td>
<td>Mapping to load data from the MRS view MRX_OBJECT_SUMARY into the reporting schema table MRS_AUDIT_HISTORY. The mapping checks to see if the object and update time and new or the same as a previous entry. Any new entries are added to MRS_AUDIT_HISTORY. Entries that already exist are rejected.</td>
</tr>
<tr>
<td><code>m_load_rule_and_mapping_dimensions</code></td>
<td>Mapping to load data DIM_MAPPINGS and DIM_RULES tables with mapping and rule information from the MRS. If a rule or mapping already exists, information will be updated, if a rule or mapping is new then data is inserted into the above tables.</td>
</tr>
<tr>
<td><code>m_load_dim_mappings_from_PWH</code></td>
<td>Mapping to load DIM_MAPPINGS with profile that are stored in the MRS. If a profile already exists, information will be updated, if a rule is new, then data is inserted.</td>
</tr>
<tr>
<td><code>m_Evaluate_Address</code></td>
<td>Demo mapping to demonstrate loading the FACT_RESULT and FACT_DRILLDOWN tables. The mapping utilizes a number of lookups to obtain codes related to the various dimensions and evaluates the data source based on logic contained in the mapping itself.</td>
</tr>
<tr>
<td><code>m_Evaluate_Contact</code></td>
<td>Demo mapping to demonstrate loading the FACT_RESULT and FACT_DRILLDOWN tables. The mapping utilizes a number of lookups to obtain codes related to the various dimensions and evaluates the data source based on logic contained in the mapping itself.</td>
</tr>
<tr>
<td><code>m_Read_Uniqueness_from_PWH</code></td>
<td>Demo mapping to demonstrate loading the FACT_RESULT and FACT_DRILLDOWN tables. The mapping utilizes a number of lookups to obtain codes related to the various dimensions. This mapping accesses data stored in the profile warehouse and extracts uniqueness details for all profile and fields stored in there. In cases</td>
</tr>
</tbody>
</table>
where an entity and field contained in the profile match entries in DIM_FIELDS and DIM_ENTITY data will be written to the FACT_RESULT Table. If not, entries are rejected.

Other Data Quality Objects

A number of other objects are provided along with the mappings. This section provides a brief overview of the other objects.

Unmanaged Reference Tables

A number of unmanaged reference tables are provided along that access the dimension tables in the star schema. These tables provide users with an interface to view and edit data in the dimension tables.

The following tables have corresponding reference table entries in the MRS:

<table>
<thead>
<tr>
<th>Table Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIM_DQDIMENSION</td>
</tr>
<tr>
<td>DIM_FIELD</td>
</tr>
<tr>
<td>DIM_ENTITY</td>
</tr>
<tr>
<td>DIM_APPLICATION</td>
</tr>
<tr>
<td>APPLICATION_SETUP</td>
</tr>
<tr>
<td>DIM_JOB_CODE</td>
</tr>
<tr>
<td>DIM_PROJECT_CODES</td>
</tr>
<tr>
<td>DIM_REPORTINGUNIT</td>
</tr>
<tr>
<td>DIM_MAPPINGS</td>
</tr>
<tr>
<td>DIM_RULES</td>
</tr>
<tr>
<td>DIM_TIME</td>
</tr>
</tbody>
</table>

Physical Data Objects

A number of physical data objects are available which link to database various database repositories including:

- Reporting schema used by the template
  - MRS_AUDIT_HISTORY
  - FACT_RESULT
  - FACT_DRILLDOWN
  - DIM_MAPPINGS
  - DIM_RULES
- MRS repository
  - Profile_List
Applications

One application, app_mrs_audit_history, executes the mapping m_load_mrs_audit_history. The application can be executed from the command line using scheduling software to allow you to capture a near-real-time update history of the MRS.

Logical Data Object

A logical data object, Fact_result_Insert, is provided to capture and control the aggregation and output of results and bad records into the FACT_RESULT and FACT_DRILLDOWN tables.

Dependencies from Other Projects

The Reporting and Dashboard template also has dependencies on 2 projects: Informatica_CRM_Template and Informatica_DQ_Content. These dependencies are provided as part of the installation package for the Reporting and Dashboard template. Depending on what content you have obtained from Informatica, you may need to add these dependencies to your repository or reuse/replace the content in your repository with your existing content or some combination of these 2 options.

Preconfigured Reports and Dashboards

The reporting and Dashboard Template provide a number of preconfigured reports and dashboard that are compatible with the reporting and Dashboard service available with IDQ. These reports and dashboards provide a basic guideline as to what types of information can be extract from the reporting schema and how it can be visualized.

The reporting schema does not have any dependencies on the Report and Dashboard service and will work with most BI tools on the market. However, the preconfigured reports will only work with the BI tool integrated with the IDQ reporting and Dashboard service.

An installation package is available to install all report and dashboard objects with minimal configuration requirements post install to get the reports up and running.

Copies of the report objects are also available to allow users to see the queries or make modifications to reports as required.

There are 2 dashboards in the template that can be used to drive access to all reports.

The first dashboard looks at the Data quality metrics that have been captured in the FACT_RESULT table. This dashboard can be accessed in the Reporting and Dashboard repository under the /organizations/organization_1/DQ_Dashboard_and_Reports folder.

Below is a screenshot of the DQ Dashboard. The dashboard has a number of parameters that can be configured to change what data is viewed at the dashboard level. Each dashboard object can also be drilled down into to see detail reports that provide deeper insights into the underlying data.
The flow of dashboard objects and reports is outlined in the diagram below:
The second dashboard presents information on user activity in the MRS. The dashboard can be found under the folder: /organizations/organization_1/User_Tracking. The dashboard is called User Metrics.

All objects on the dashboard provide different views of the activity in the MRS_AUDIT_HISTORY table and are controlled by a single set of parameters located at the top of the dashboard. Individual reports do not support any deeper drilldown.

The dashboard objects present views on which users are active in the MRS and when they have been updating object, what projects have been updated and when, and a detail view of the raw data that shows all information related to an updated object including object name, project name, object location, who created the object and who updated it.

Below is a view of the User Metric dashboard.
# Installation Steps

## Package Name

Informatica_Report_Dashboard_951.zip

## Package Contents

### Report_Content
- JasperReports
- OracleDDL

### Resources
- Report_Files
- Reporting_Data

### Template_Content
- Template_Sources

<table>
<thead>
<tr>
<th>Folder</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Report_Content</td>
<td>Contains Jasper Report import package and the DDL scripts used to create the Oracle database tables, views and sequences used in the reporting schema.</td>
</tr>
<tr>
<td>Resources</td>
<td>Contains Jasper JRXML files under the Report Files folder. Raw files to allow users to customize the reports. Not required for base install of content or reports. Also contains optional data files that can be used by the users to populate the dimension tables. Data for the Fact Result table has also been provided to allow for a quick demonstration of the reports without setting up the test mappings. Data is provided in SQL Insert scripts.</td>
</tr>
<tr>
<td>Template_Content</td>
<td>Contains IDQ xml files and Reference data zip files to be installed in the MRS.</td>
</tr>
<tr>
<td>Template_Sources</td>
<td>Contains test data files to be copied to the DQ server. Use content installer to install.</td>
</tr>
</tbody>
</table>
Install Pre-requisites

Infrastructure

- Informatica Server 9.5.1
- Informatica Developer 9.5.1
- Jasper Reports Server 4.7 installed (Reporting and Dashboards Service in Informatica Domain)
- Oracle Database

Service and Database Configuration

- You configure services and database connections when you install Informatica Data Quality.
- Use Informatica Administrator to configure the following services:
  - Model Repository Service
  - Data Integration Service
  - Reporting and Dashboards Service
  - Analyst Service
  - Content Management Service

Note: Create the Informatica staging database and profile warehouse database connections before you configure Informatica services.

Installing the Reporting and Dashboard Template

The steps to install and configure the template components affect Informatica Data Quality and JasperReports.

To install a Reporting and Dashboard template, complete the following tasks:
1. Create the reporting schema in the Oracle database.
2. Install JasperReports.
3. Create the Reporting Dashboard connection.
4. Modify the data source in JasperReports Server to read report data from the custom schema in the Oracle database.

Step 1: Create the Reporting Schema

1. Open an SQL session and connect to the custom schema in the Oracle database.
   - Note: You can create a custom schema or connect to an existing schema in the Oracle database.
2. Run the following DDL scripts in the Oracle DDL directory:
   1. Dashboard_sequences_v2.sql
   2. Dashboard_tables_All_DDL_v2.sql
   3. VIEW_ALL_FACT_RESULTS.sql

Step 2: Create Views and Indexes in the MRS

1. Connect to the MRS schema
2. Run the following DDL scripts in the Oracle DDL directory:
   a. MRS_SUPPLEMENTAL_VIEWS.sql
   b. MRS_INDEXES_FOR_PERFORMANCE.sql

   Step 3: Install JasperReports

1. Log in to the machine that hosts the Data Integration Service.
2. Copy the files in the JasperReports folder to the following location:
3. %INFA_HOME%/jasperreports-server/buildomatic
4. Open a command prompt and navigate to the following location:
5. `%INFA_HOME%/jasperreports-server/buildomatic`
   a. Edit the default_master.properties file and enter the dbUsername and dbPassword parameters for the Report and Dashboard Service connection username and password.
   b. Open the import_script.bat file and review the INFA_HOME value.
6. On a Windows machine, verify that the INFA_HOME path identifies the Data Quality installation directory.
7. On a UNIX machine, set the INFA_HOME environment variable to the Data Quality installation directory. As this is a Windows batch file, some additional modifications will be required to make this compatible with Unix.
   a. Run the import_script.bat file.
8. When the install completes, you can find the reports in the JasperReports Server Repository in the subfolders under the following location: Organizations/Organization. The dashboards can be accessed under the DQ Dashboard and Reports and User Tracking folders.

**Step 4: Create the Reporting Dashboard Connection**

1. In the Administrator tool, click the Domain tab.
2. Click the Connections view.
3. In the Navigator, select the domain.
4. In the Navigator, click Actions > New > Connection. The New Connection dialog box appears.
5. In the New Connection dialog box, select Oracle as the connection type.
6. Enter the database connection properties to connect to the Oracle database where you have created the custom schema.

Note: The connection name for the Reporting Dashboard connection must be unique.

**Step 5: Modify the Data Source in the JasperReports Server to Read Data from the Custom schema from the Oracle database**

1. Log in to JasperReports Server.
   - Note: The Administrator tool stores a copy of the Server URL under the Reporting and Dashboards Service.
2. Select View > Repository.
3. Go to Organizations > Organization > data_sources.
4. Select the Reporting Dashboard Schema entry.
5. Select Edit.
6. Modify the user name, password, and URL to the settings required for the Oracle database.

Note: The details you provide must match the database connection settings you created for the Reporting Dashboard in the Administrator tool.
Verifying the Reporting and Dashboard Template

You can install sample data to verify the operations of the Reporting and Dashboard template. To verify the operations of the Reporting and Dashboard template, complete the following steps:

1. Import XML data and reference data into the Model repository.
2. Install the demonstration source data. Use the Data Quality Content Installer to install the data.
3. Load the dimension tables.
4. Verify mapping operations in Informatica Developer.
5. Verify report operations in JasperReports.

Step 1: Import XML and Reference Data into the Model Repository

1. Open the Developer tool and connect to the Model repository.
2. If they do not already exist, create connections to the MRS, Reporting schema and Profile Warehouse.
3. Create a project named Informatica_Report_Template. Verify that the project is shared.
4. Import the XML file from the Template_Content folder to the Informatica_Report_Template project. Select the Import Object Metadata File (Advanced) option in the import wizard.
5. Select the reference data compressed file in the Template_Content folder when prompted by the import wizard. If the Model repository contains an Informatica_DQ_Content and Informatica_CRM_Template projects, use the dependencies from that project when you import the data. If the Informatica_DQ_Content and Informatica_CRM_Template projects are not present, use the dependencies in the XML file.

   Note: If you use the dependencies in the XML file and an Informatica_DQ_Content and Informatica_CRM_Template projects are present in the repository, you overwrite the configuration of the Informatica_DQ_Content and Informatica_CRM_Template projects.

Step 2: Install Demonstration Source Data

Use the Data Quality Content Installer to install the demonstration data files to the Informatica Data Quality services host machine.

1. Run the Data Quality Content installer executable file.
   a. On Windows, run Content_Installer_server.exe
   b. On UNIX, run Content_Installer_server.sh
   c. The install wizard starts. Enter the root directory of the Informatica services installation. This may be a remote directory. Browse to this directory if required.
2. Select the demonstration source data compressed file in the Template_Sources folder. When you install the demonstration source data files, enter the path to the directory where the installer writes these files.

Step 3: Load the Dimension Tables

1. In the Reporting and Dashboard installation package, browse to the following directory:

   Reporting Data/SQL Insert Scripts
   2. Open an SQL session.
   3. Load and run the following scripts in the Oracle database in which you created the custom schema:
      a. DIM_DODIMENSION_DATA_TABLE.sql
      b. DIM_APPLICATION_DATA_TABLE.sql
      c. DIM_ENTITY_DATA_TABLE.sql
      d. DIM_FIELD_DATA_TABLE.sql
      e. DIM_MAPPINGS_DATA_TABLE.sql
      f. DIM_PROJECT_CODES_DATA_TABLE.sql
      g. DIM_JOB_CODE_DATA_TABLE.sql
      h. DIM_REPORTINGUNIT_DATA_TABLE.sql
      i. DIM_RULES_DATA_TABLE.sql
      j. DIM_TIME_DATA_TABLE.sql

3. Run FACT_RESULT.sql and MRS_AUDIT_HISTORY_DATA_TABLE.sql to load the database tables with the result data without running the test mappings.
Step 4: Verify the Informatica Mappings

1. Open the Developer tool.
2. Open the project that contains the template mappings.
3. Run the mappings in the Address and Contacts folders.

Step 5: Verify the Reports

1. Open the JasperReports application.
2. Navigate to the organizations/organization/DQ Dashboard and Reports folder.
3. Run the DQ_Dashboard object.
4. Click the links in the report to open the drill-down reports linked to the Dashboard project.
5. Navigate to the organizations/organization/User Tracking folder.
6. Run the User Metrics object.