# Quick Reference guide

# FLOW work force management


Power Systems Projects (Pty)

Rev 2.0.0.7

Quick Reference guide

# Contents

# Flow - Back-Office Quick Reference

## General Description

The *Flow* suite of programs provide a complete workforce management solution for enterprise-wide work flow management.

## Flow Components

The *Flow* suite consists of the following components:

- Flow Back-office: A windows application used by the administrator(s) of the system to define job card templates, business rules, project activities, data destinations and other administrative tasks.
- Flow Engine: A windows background service that runs on a server of the client to interact between the data sources of the enterprise and the work flow system. It creates job cards from measurement criteria on the enterprise data sources, create follow-up jobs, update the enterprise data-sources from job-card results, allocate jobs to personnel and manage project activities.
- Flow Web: A web portal for mobile workforce, office workforce, administrators and management. It provides a mobile work force solution for the optimising of performance and resources of field work, and management tools for office personnel.

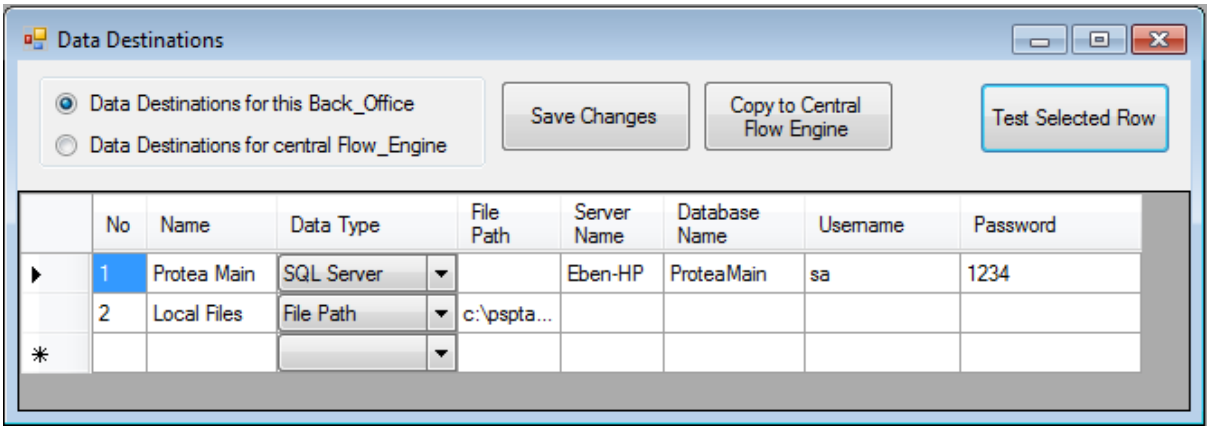
## Flow Concepts

Below is a list of key concepts used in the Flow process:

1. Work group: A functional section or division of an enterprise responsible for a ring-fenced discipline. A small enterprise might have a single work group, while large enterprise might have many work groups.
2. Data Destination: The definition of a database or file location used by the enterprise. It is used as input to the flow process, and also the destination for the delivery of results from the flow process.
3. Measurement Definition: Sometimes referred to as a "Import Definition"; a query on a data destination that provides rows for new job cards. It is a measurement definition because it measures shortcomings in the enterprise that requires an action to be taken.
4. Task Name: The header for a job card template. Every job type has its own job card template. The template consists of a number of fixed field names, common to all job types, and a number of user defined fields for the specific job type.
5. Premise: The data fields of jobs include a field for the measurement definition, and a field for Premise. The premise is a unique number or code for an address. The system allows only one active job per measurement definition per premise.
6. Page rule: The execution of a job is guided by page rules. The user defined fields of job cards are organised on pages. The execution of the job jumps between page numbers depending on the values entered according to page rules for the job type.

7. Business rule: A set of rules defining the follow-up actions on completed jobs, depending on the data collected during the execution of the job.
8. Export rule: A definition on how the data of the enterprise must be updated on job completion.
9. External Function: A definition to retrieve, update or insert data on or from an enterprise data destination. External functions take parameters from job card fields, and are used in export rules, letter templates, email templates and SMS templates.
10. Personnel Responsibilities: A matrix defining who is responsible for each job type in each geographical zone.
11. Activity: An activity is the main building block of a project. Activities have prerequisites of other activities, and can consist of one or many jobs.
12. Project: A set of activities to achieve a specific goal. A project has a planned start date and a planned completion date.

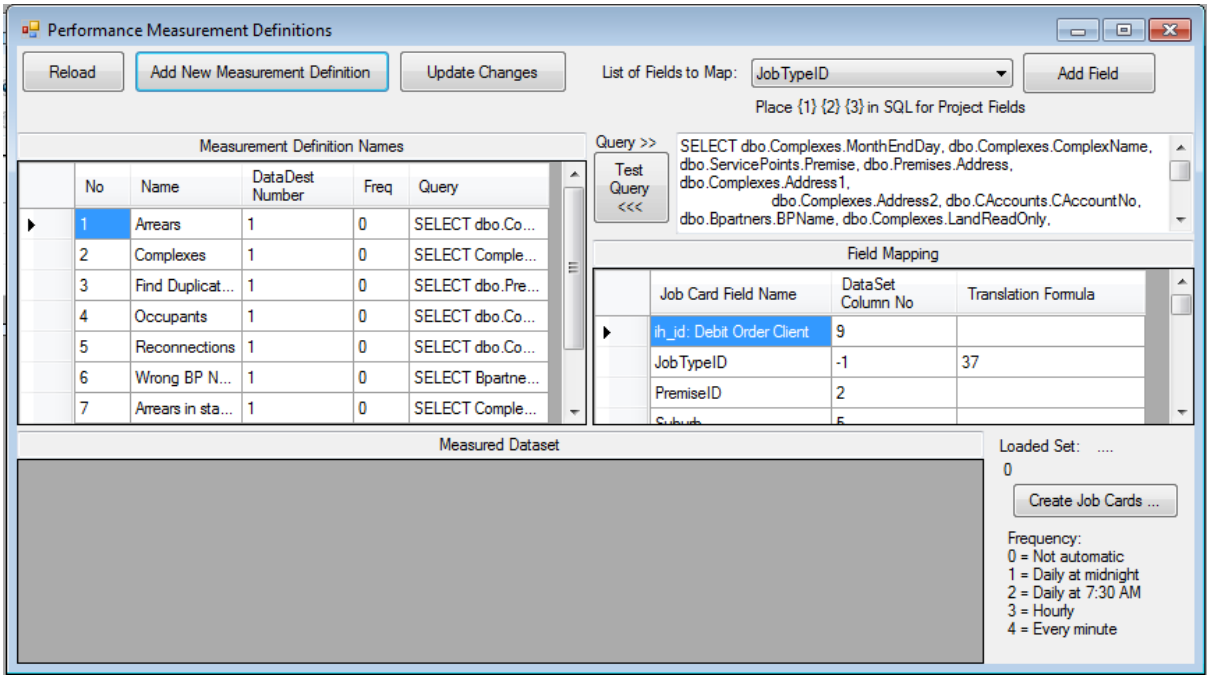
## Data Destinations




Data destinations define the data sources of the enterprise that must integrate with the job flow process. Any number of data destinations can be defined with the following detail:

- Name: A simple name to recognize the data source in the list.
- Data Type: Can be SQL server, MS Access, MySQL or a flat file.
- File Path: Needs only to be specified for flat file typs data sources.
- ServerName, DatabaseName, UserName and Password: must be specified for SQL Server and MYSQL databases. The full file path must be specified for an MS Access database in the DatabaseName column.

# Measurement Definitions




Each measurement definition must contain the following information:

1. Name: A simple reference to recognise the definition in a list.
2. Data destination number: The number of a enterprise data source from which data rows will be imported.
3. Frequency: Values greater than zero will result in automatic continuous imports by the Flow Engine.
4. Query. An SQL query that selects the rows for new job cards. In the case of a flat-file data destination, the query must contain the file name.

The measurement definition must be tested with the TEST QUERY button. It retrieves the rows from the enterprise data source into the Measured Dataset in the bottom of the screen. The next step is to map the fields of the measured dataset to the fields of the job card. Field mapping is performed by adding rows to the Field Mapping area in the centre if the screen. Add a field mapping row by

1. Select a job card field name from the drop down list on the top-right of the screen.
2. Press the ADD FIELD button. This will add a row in the field mapping area.
3. Enter the column number of the measured dataset that must be mapped to the job card field in the column marked "Dataset Column No"
4. If the job card field must be populated with a fixed value (not from a column in the measured set), the Dataset Column No must remain -1, and the fixed value entered in the "Translation Formula" column.
5. The Translation Formula must be set to "Now" or "Today" if the job card field must be set to today's date.

## Defining Workforce

The workforce tool opens a list of people / operational teams to whom jobs can be scheduled. Simply add a name to the list to enable the user to the web site.

## Work days and Holidays

The work day calendar shows the work days of a selected months. Holidays can be defined with a click on a workday. Work days are numbered from 1 to 22 (depending on the month), and excludes weekends and holidays.

Work days can be shown as general for the entire enterprise, or person / work team-specific. The Flow Engine scheduler will not schedule work for on holidays.

## Job Card Design

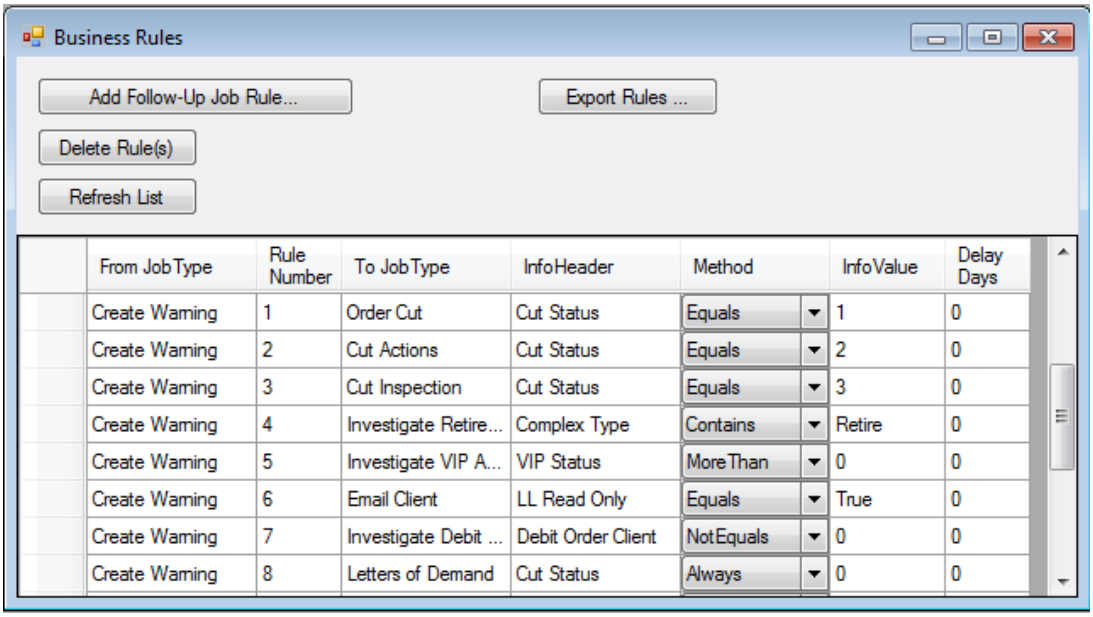
A cob card template must be configured for each task name. The following information is required:

1. Task Type ID: A number that uniquely refers to the template. Start at number 1, and allocate sequential numbers for each template. The number can never be changed.
2. Task Name: This will become the main heading of the job card. The word or phrase must be descriptive of a single task, e.g. "Deliver Final Demand".
3. Is Field: The tick-box next to task name refers to the main category of task, i.e. whether it is an office task or a field task. Field tasks are performed at the premise (address) defined on the job card, while office tasks are performed by office-bound personnel.
4. Minutes: The time that it takes to complete a typical job of this type.
5. Header Fields. All job cards have a number of standard fields, populated by the system, plus any number of user defined fields that must be populated by the person who performs the task. Click on the ADD FIELD HEADER button to add a user defined field for the selected task name. The following information must be provided for each user defined field:
    a. Page number. User defined fields are displayed on job card pages. Page 0 is the front page of the job card, and includes the fixed fields added by the system. Further fuser defined fields can be added to page 0, or on page number 1, 2, 3 etc. There must be one or more fields on a page. Fields must be grouped on pages for functionality of the process.
    b. Field Type: User defined fields may be one of the following field types:
        i. Text field: User can enter any string data
        ii. Numeric field: User can enter only numeric digits
        iii. Choice field: User gets a choice list as defined on the "Info-Option" portion for choice fields.
        iv. Label Field: The user defined field is populated from the Measurement Definition, and cannot be edited by the user.
    c. Rank: The order in which the user defined fields are displayed on the page.
6. Page rules. The user will be guided between pages of the job card to ensure mandatory fields are filled in depending on the situation found in the field. The job card might be designed to jump from page 1 to page 5 if the customer is not at home, or from page 1 to page 6 if the premises is not occupied. Add new page rules with the "Add New Page Rule"

button. Page rules must be ordered with the "Rank" attribute to obtain the desired flow in the execution of a job. Page rules are NOT applicable to the flow between jobs (that is defined with business rules).

## Business Rules

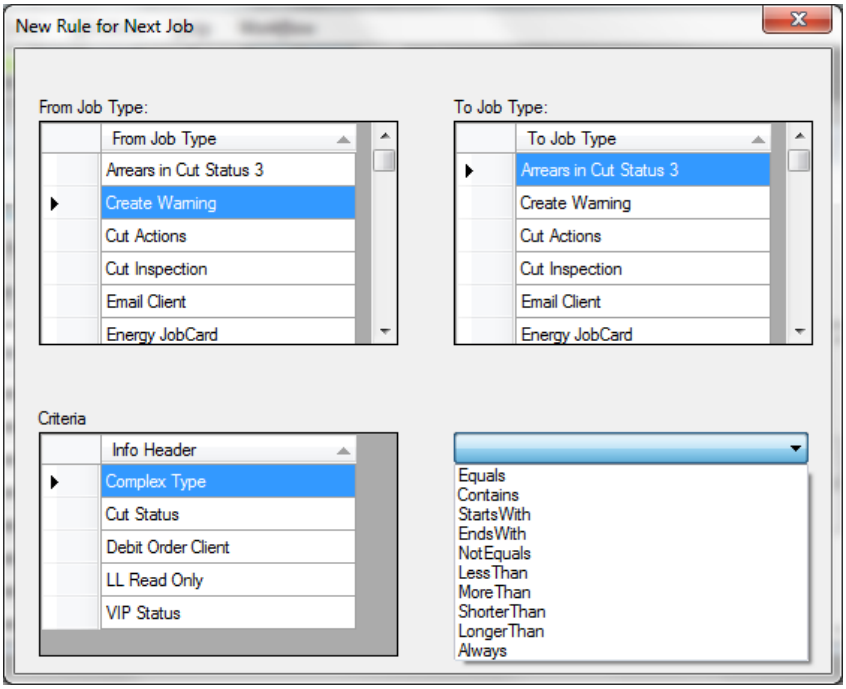
Job flow diagrams are implemented with business rules. An example is shown below for a job name "Create Warning":




| From Job Type | Rule Number | To Job Type | Info Header | Method | Info Value | Delay Days |
|---|---|---|---|---|---|---|
| Create Warning | 1 | Order Cut | Cut Status | Equals | 1 | 0 |
| Create Warning | 2 | Cut Actions | Cut Status | Equals | 2 | 0 |
| Create Warning | 3 | Cut Inspection | Cut Status | Equals | 3 | 0 |
| Create Warning | 4 | Investigate Retire... | Complex Type | Contains | Retire | 0 |
| Create Warning | 5 | Investigate VIP A... | VIP Status | More Than | 0 | 0 |
| Create Warning | 6 | Email Client | LL Read Only | Equals | True | 0 |
| Create Warning | 7 | Investigate Debit ... | Debit Order Client | Not Equals | 0 | 0 |
| Create Warning | 8 | Letters of Demand | Cut Status | Always | 0 | 0 |

The example shows that on completion of the job "Create Warnings", a next job will automatically created. The next job in this example will be one of eight possibilities depending on the contents of user defined fields.

The following dialog must be completed for each new business rule:

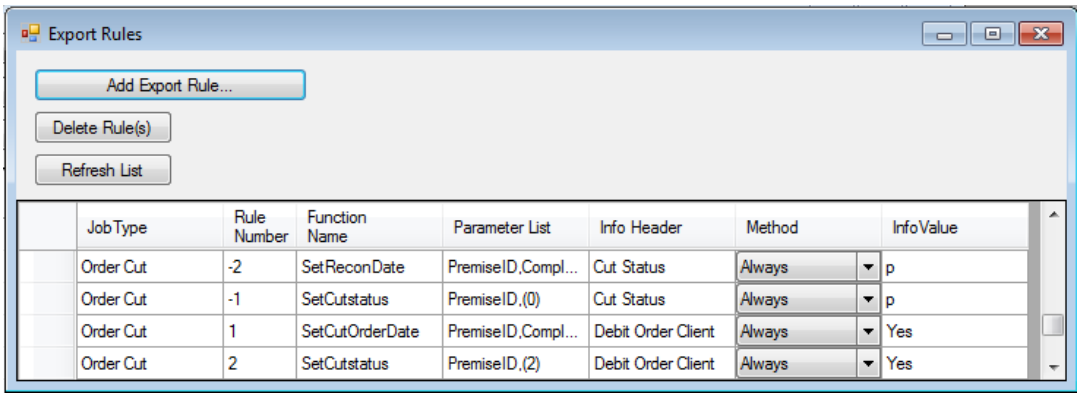



The rule defines the follow-up job as a derivative of the contents of a user defined field. Complicated rules can be built by eliminating possibilities in the order of executing rules.

Only one follow-up job will be created. If the criteria of rule 1 is met, the follow up job of that rule is created, and all further rules are ignored. If the criteria of rule 1 is not met, rule 2 is considered. The job will be scheduled for to be performed immediately, or after a number of days as defined by the value entered as "Delay Days".

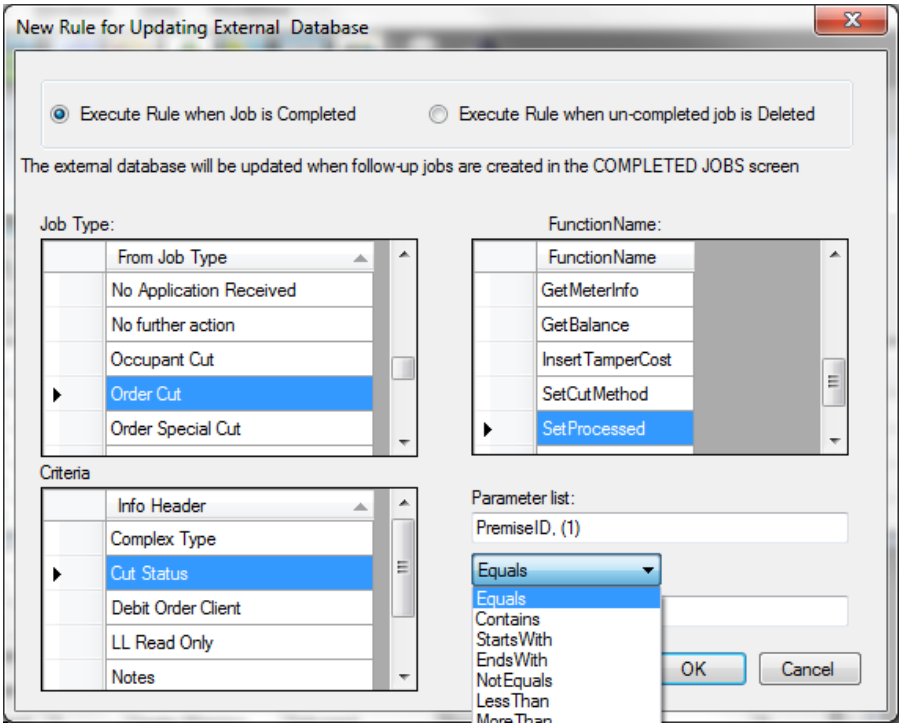
## Export Rules

Export rules define how the data destination of the enterprise will be updated on completion of a job, and how the data destination of the enterprise will be updated on the cancellation of a job.




The example above shows two rules (1 and 2) that must be executed when a job "Order Cut" is completed, and two rules (-1 and -2) that must be executed when a job "Order Cut" is cancelled.

The following dialog must be completed for each new business rule:

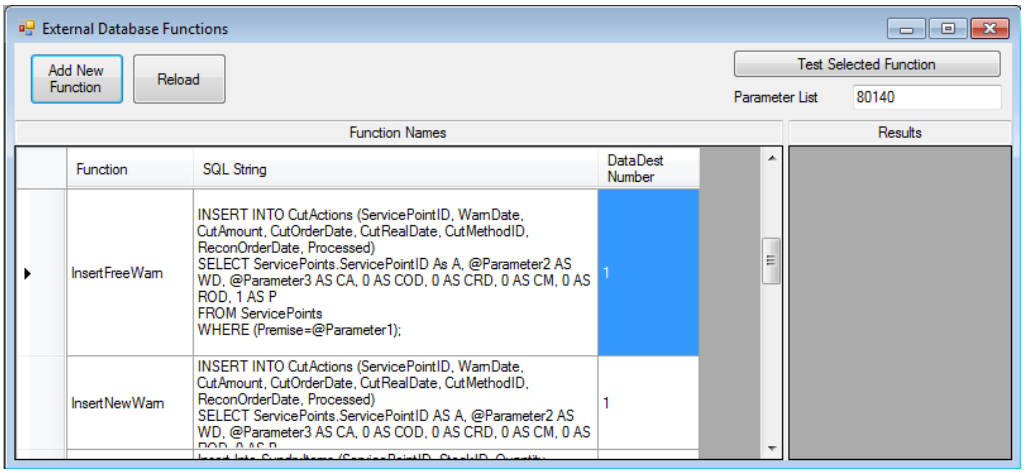



The rule identifies which External Function (see below) must be executed as a derivative of the contents of a user defined field. The external function requires parameters from the completed job. The example shows an external function that requires two parameters, that will be populated from the PremiseID field of the completed job, and with the fixed value "1".

## External Functions

External functions are used for:

- Updating the different data destinations of the enterprise on job completion.
- Obtaining data from a data destinations of the enterprise to compile client letters, emails and SMS messages.




An external function consists of:

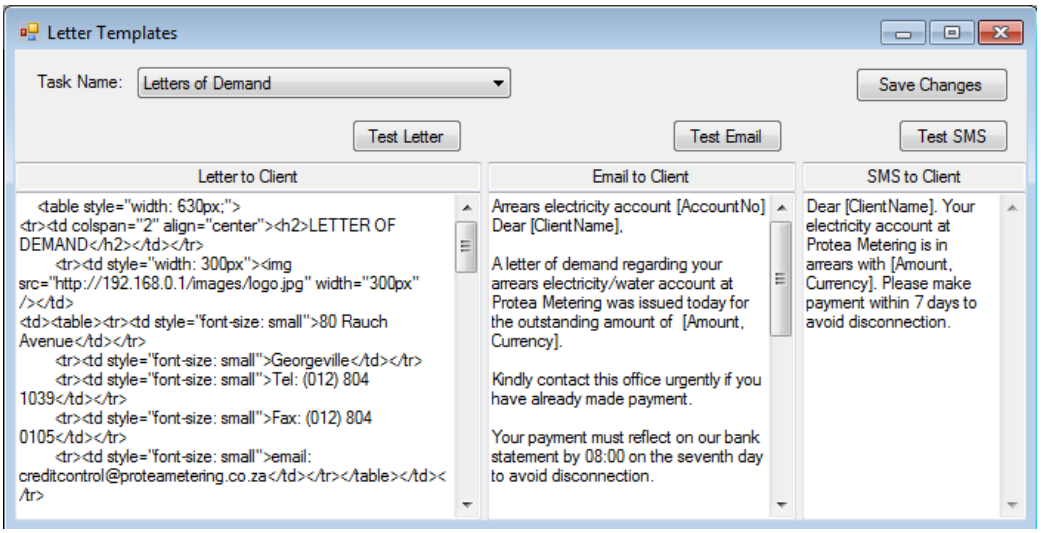
1. Function Name: The handle of the function as used in export rules, letters, emails and SMS definitions.
2. SQL String: The details of the data to be collected, or delivered. The string can contain sub-strings "@parameter1", "@oarameter2", etc, which will be replaced with the values supplied when the function is called.

## Letter templates

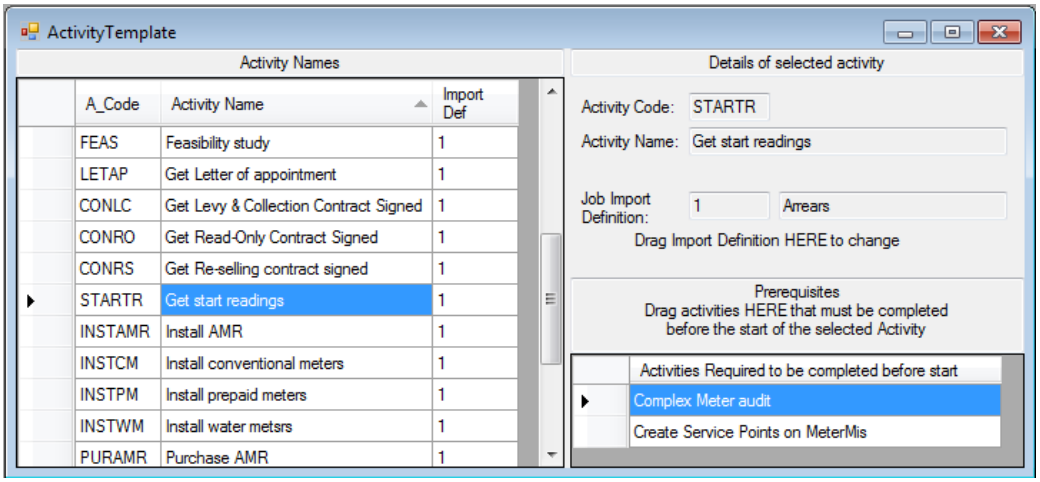
The Job card template makes provision to associate letters, emails and SMS text messages to task names. These documents can merge with fields from job cards, and from external functions that collect the merging information from an enterprise data destination.

The template for letters is written in HTML, making it possible to arrange the letter-text to fit on pre printed forms. The contents of the letter may include logo's and other graphics.

The template for letters, emails and SMS messages is shown below. The example shows details of a client letter associated with the task name "Letter of Demand".




## Activities



Activities are the building blocks of projects. The activity template is shown above:

The following information must be provided for the template of each activity:

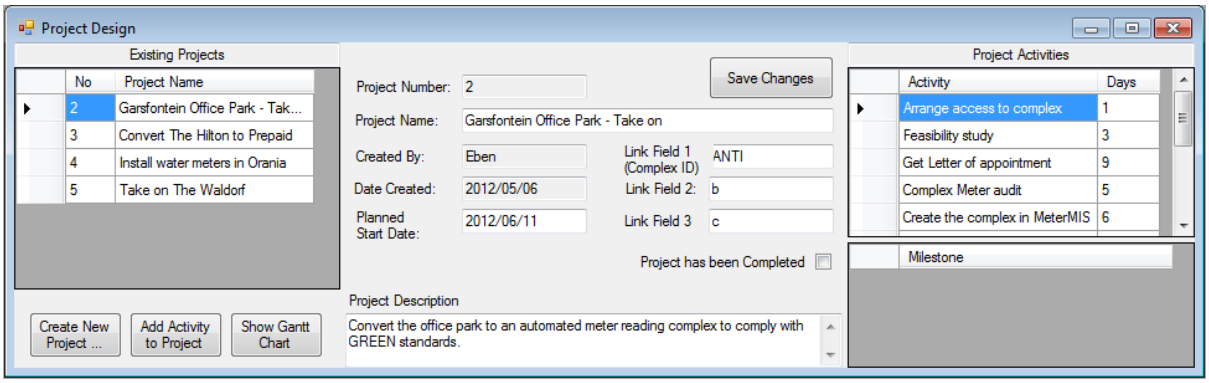
1. Activity code: A short code of no more than 8 characters as definition of the activity.
2. Activity Name
3. Import definition number: The number of an existing measurement definition that creates the job card(s) associated with the activity.
4. Prerequisites: A list of activities that must be completed before this activity can start.

The import definitions associated with the activity can be edited by dragging a measurement definition from the measurement definition screen, and dropping it in the import definition box of the activity template.

Prerequisites can be added by dragging activities into the prerequisite list.

## Projects

A project is a set of activities, chosen to achieve a specific goal or set of goals.




Create a new project with the "Crete New Project" button on the Project Design screen. The following information is required:

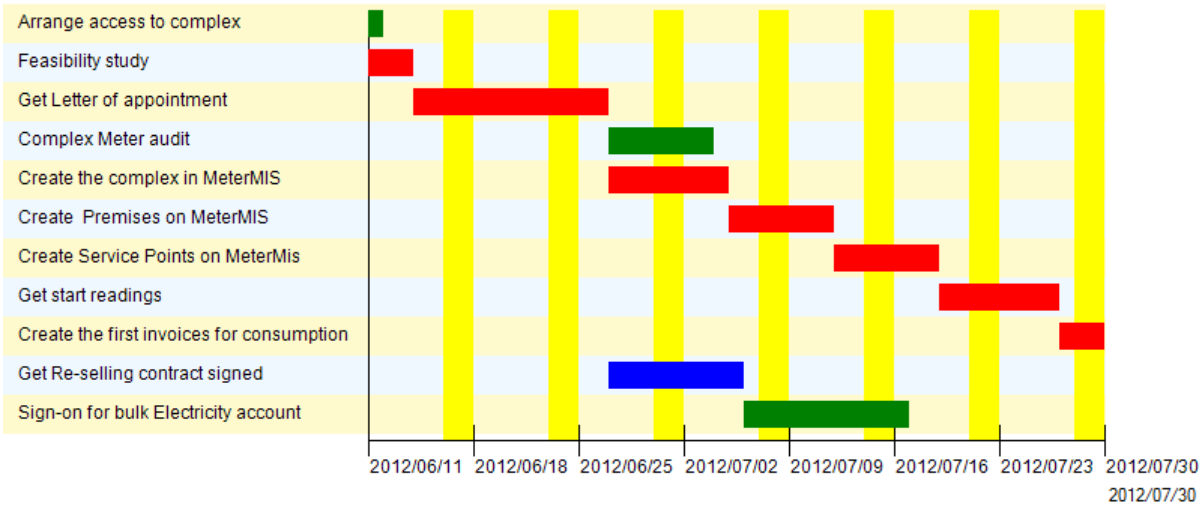
1. Project number: Automatically allocated by the system.
2. Project name.
3. Planned start date: The date on which the first activity must start.
4. Linkfield1, Linkfield2, Likfield3: Three optional text values that will be used to parameters to associate the project with data destinations of the enterprise. In most cases, only Linkfield1 will be used. For example, if the project pertains to the upgrading of a suburb, the suburb name or suburb-code as defined in the data destination of the enterprise, will be used as LinkField1. The import definitions of activities in the project can then contain a parameter which will be replaced by the contents of the link field. The parameters in import definitions for replacement with link fields must be defined as "{1}", "{2}", "{3}" for Linkfield1, Linkfield2, LinkField3 respectively. If the code for the suburb Manhattan is "MHTN" in the enterprise database, a project for this suburb will use this code as Linkfield1, and the measurement definition of activities used by the project might have query strings like " ...WHERE (Suburb-code = '{1}')".

5. Project activities: Click the *ADD ACTIVITY TO PROJECT* button to add an activity to the project. The selected project of the activity template will be added. A value for number-of-workdays must be specified as an estimation of how long it will take the complete the activity within the specific project.

When activities are added to project, the prerequisites of the activity are listed in the "milestone" box until the activities that delivers the required prerequisite is also added to the project. Activities for a project can be added in any order. A good strategy might be to start with the activity that delivers the eventual goal or desired result of the project. That activity will then list its pre-requisites, and as the activities that deliver these prerequisites are added, further prerequisites are listed. The project is then complete if the list of prerequisites is empty.

## Gantt Charts

The Project Design screen in the back-office provides a facility to display the activities of a project as a Gantt chart, like in the example below:




Gantt charts can be used as a powerful design tool for projects. It shows the inter-dependency of activities to each other, and the completion date of the projects. Week-ends are shown as vertical yellow lines. Activities span horizontally over the defined number of working days. Activities on the critical path is shown in red. The critical path is the series of activities that delivers on the project completion date. Activities not on the critical path with further activities reliant on its completion are shown in blue, while activities without further dependencies are shown in green.