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1 Invantive Estate

Welcome to the Invantive Estate manual, Invantive Estate is a project management solution for projects of real estate companies. Invantive Software BV is also supplier of the product Invantive Vision. Invantive Vision is a project management solution especially suitable for architects, IT companies and service providers in secondment and consultancy.

Project development is a risky service. It consists of the development of real estate, in the form of terrains, building or other types of real estate, such as parking areas. Real estate development is an activity that can be performed in several ways:

- The development of a project is done within an legal entity, specifically established for this purpose. Several parties can work together within this entity on a basis of a contractual agreement. The entity has no other relevant activities or assets except the development of real estate project. Project development which makes use of a specialized legal entity has several benefits for the involved parties as there are clear agreements on cooperation, there's little risk to the interdependence of work on the project with other types of work within the mother companies and finally it forms a safety net for any financial debacle within the project as the negative consequences typically only have a legal impact on the unit itself. The financial risks for investors usually are limited to their input in the new legal entity. Such legal units are often to be recognized by the name which specifically refers to the to be executed project.

- The development of projects is the core activity of the legal unit. Within this legal unit several projects are executed simultaneously, with each project in its own stage and degree of completion. The financial investment happens for instance by acquiring resources from the capital market, from own resources or from a combination of both. Real estate developers such as ING Real Estate and AM belong to this category.

- The development of projects is not the core activity of the legal entity, but is according to
the accounting rules a profit center within the organization. This form is usually seen at large construction companies which also acquire ground and realize projects as part of their business and at their own risk.

Projects are known for the long period of time (up to twenty years) and the large investments involved. In order to safeguard the budget and to control risks in these difficult processes Invantive Estate has been developed. By making risks, budgetary deficits and insufficient cash flow earlier visible, the process can be steered in an earlier stage. In this way the project developer will try to minimize the budgetary deficits and turn budgetary excesses into a higher quality.

Invantive Estate has the following general characteristics:

- With your financial administrations as a base, Invantive Estate registers the realization from the general ledger per project and cost category.
- Invantive Estate provides reports for several management levels from which cost categories can be rolled up into bigger groups.
- Documents and tasks can be attached to financial records so that an integrated project file is created.
- Invantive Estate has a flexible security model with which you can for instance give project managers read and/or write access to solely their own projects.
- Unexpected incidents in the information security can be traced, based on an extensive audit trail.
- Reports are available in Adobe PDF format for optimal layout and distribution, and in Microsoft Excel format for analysis.
- Historical situations are easily accessible through the new timeline feature.
- Projects can be closed after which no changes are possible anymore.

The typical life cycle of a project includes the following phases:

- Acquisition of land according to the desired destination.
- Determining the revenues and costs of a project in the form of exposé or a total investment plan.
- The exposé specifies the budgets per cost category, if necessary detailed per contractual agreement, as shown in the below example:
After the exposé is approved the project will be started:

During the development and realization the financial administration records the actual numbers. The registration of the project results can take place by means of an automated interface or by manual input:
In addition, recent estimates, sales orders and sales are registered before they have led to an actual financial result. The next screen shows an example:

Based on this data, a risk model (standard or organization specific) calculates a forecast as a deviation from the project budget. The deviation makes visible what the project's actual financial status and risks are, in comparison to the exposé; exceedings are immediately shown, surpluses can be implemented elsewhere in order to compensate deficits:
With reference to the forecast a cash flow projection can be composed which also leads to a net current value calculation.

Extensive reports and possibilities to click on headlines to see details make it possible to analyse unexpected results:

During the project, possible administrative profits are registered based on the calculated status and the implemented value base such as IFRS.

Finally, after the project results are delivered the project is archived, after which you cannot change anything anymore.

In the next chapters the following topics are discussed:

- User interface: how to control the application
- All Form and Reports
- The MS Outlook User Interface
- Your Private User Interface
- Processes within Invantive Estate.
- Server
- The Installation
- Performance
1.1 Concepts

This chapter describes some general concepts.

1.1.1 Security

Invantive Estate offers a flexible model to protect the access to data. The security exists of an aggregate of two security mechanisms:

- Securing of access to data of projects (project security).
- Security of the access to functions like screens and reports (function security).

The aggregate means that:

- A user only has access to data in a function if he has access to the data as well as the function.
- A user can only change data (change, add or delete) in a function if he has writing rights on the project and also writing rights in the function.
- There is no security mechanism to secure access to data which do not belong to projects. The access to the functions decides if someone can see or change the data.
- Because of the aggregate, it is possible that a user can change data in one screen, but not in another.

Document security is described in

**Project Security**

Per project, it can be set if someone can have all data of that particular project:

- See
- Change

All data of that project means the project itself, and all other data like invoice lines, orders, revenues and project authorizations.

You can maintain the security in several ways:

- In the screen **Settings** you can indicate if everyone can see or change all projects.
- In the screen **Roles** you can indicate if all users with a role can see or change all projects.
- In the screen **Project Authorizations** you can indicate per aggregate of a project and user if someone can see or change the project.

On top of that, you can automatically maintain rights using profile options with the text `'-pae-'` in the code, so that a controller can get automatically reading and/or editing rights for the project where he is responsible for.

Notice: the user ‘system’ always has access to all projects.

**Function Security**

Per function, it can be set or someone:

- The screen can open
• Data can change in the screen

The function security is set through the screen Role Authorizations. Notice: the user 'system' always has access to all projects.

Security Documents

The security of the documents is arranged through the combination of project security and function security. There is an additional security mechanism because you can see documents with different types of data like Units, Orders and Revenues in the function Documents.

By giving access to the various types of functions for Documents you can determine who is allowed to see which documents. For example, the function 'Access to documents with Project.' yields access to documents with projects if you also have rights for the related project.

For background processes the function 'Access to documents with Background Process.' yields access to the related documents. However, here it is the case that you can always view and edit documents of background processes that you have requested yourself.

1.2 Invantive Estate Online

This chapter describes how the provided web user interface works.

1.2.1 User Interface

This chapter shows you how the basic functions of the web interface work. Here you learn to use the search function, how to navigate through the menu, how to change, add or remove data, how to add or remove documents and how to request data for further processing in Microsoft Excel or Adobe Acrobat PDF.

1.2.1.1 Start up and Login

Perform the following steps to start Invantive Estate:

• Open the ‘Start’ menu left under in your screen.

• Next, you enter the menu of ‘Programs’.

• Click once on Invantive Estate.

• The program opens in the browser and the login screen below appears.

• With the country flags on the right of the login screen you can choose the language of your preference. Once you have selected the language of your choice, the text in the login screen and other screens of Invantive Estate appears in the selected language.

• To be allowed to use Invantive Estate you have to fill in your username and password.

• After typing your username and password, click on the ‘Login button’.

Warning! Both username and password are capital sensitive. This means you must pay attention to using the right capital letters in your username and password. Without capital letter at the right places you will not get access to the program.

If you do not have an account yet, you can request for entrance by clicking the button ‘Request Entrance’. Next, you will arrive in the screen Request Entrance.
1.2.1.2 Request Access

This form allows you to request an access code for evaluation purposes if you have not already have one.
The meaning of the entry fields is:

- **Your Name**: Your full name.
- **Email Address**: The email address where the access credentials should be sent to.
- **Business**: The name of the company you work for.
- **Country**: The country of residence.
- **Reason of Request**: The reason why you wish access to Invantive Estate.
- **Possible Explanation**: A free textual explanation for the reason of your request.
- **No Competitor**: The confirmation that you will use the information received solely for the purposes described.
- **License Agreement**: The terms and conditions under which access is granted.
- **Opt-in**: The confirmation that Invantive may contact you by phone or through other communication channels.

### 1.2.1.3 Opening screen

Once you have logged in, the opening screen of Invantive Estate will appear. The opening screen can vary per user. The URL of the opening screen can be set in the submenu **My Preferences**.

The content of a screen in Invantive Estate has some fixed components:

- The title.
The filter.
- The menu.
- The crumb trail.
- Action buttons, if relevant for the screen.
- The logo of Invantive Software BV.

Besides of the fixed components, a screen in Invantive Estate contains some components which can be made hidden or visible as desired by the user. These display components are described in section Other Screens. The process of making visible or hiding is described in section View.

Title

The title of a screen in Invantive Estate consists of:
- The name of the screen.
- Information about the applied search filter or about the selection made in the screen.
- Possible warning if any input data has not been saved yet.

The title of a screen is shown in the title bar and in the tab of your browser window in which the screen is opened.

Below is an example in case a search filter has been applied. The title ‘Roles (FA)’ shows the name of the screen ‘Roles’ and the applied search filter ‘(FA)’. The applied search filter is
shown in parentheses.

The next screen shows an example when information is selected in the screen. The title ‘Roles: FA - Administration’ shows the name of the screen ‘Roles’ and also the name of the applied search filter ‘FA - Administration’. The symbol ‘:’ is used as separator between the name of the screen and the reference to the selected information.
While entering or modifying data, a ‘*’ is temporarily displayed at the end of the title of the window of the tab, and in the title of the browser. This is a warning for not saved information in a form. Next screen shows an example.

Filter

A user can have access to some of the projects or even to all projects. In general, however, you work only with a few - or just with one project. The filter helps you to filter data in reports and screens so that you can only see and edit the data of the projects where you have access to. To make it easy to put exactly one project in the filter, a drop box is shown in the right corner of each screen:
Behind the text ‘filter’ the selected filter is shown. As you can see that the filter of the example is ‘project Plein - Plein revisited’. The selected filter also shows the start and end date of the project.

The filter can be changed by using the drop box to select another project. The displayed information is updated immediately. You can change the filter in all screens where the dropbox is shown.

In the drop box all projects are displayed, the only applied filter is if a project is closed or not. This can be set in the submenu My Preferences [4]. There you will find a more comprehensive version of the setting of the filter. You can open the screen My Preferences [4] by selecting ‘Filter’.

The settings for the filter which you make in the screen My Preferences [4] will be deleted if you modify the filter in the head of a screen. The exception is the filter setting if the project is completed or not.

At the right side of the picklist, you can see the field ‘Travel Back To’. This field lets you specify the measurement date for which the data in the reports should be shown. If this field is empty, all reports will show the current situation.

The right bottom in the filter shows the number of projects whose details appear on the screens and reports. In the above image one project in the filter is selected and it shows ‘1 Project’. In the picture below no project in the filter is selected and the total number ‘22 Projects’ appears.

The meaning of the other fields in the filter:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start Date</td>
<td>The start of the reporting date range. All data before this date are not reported. The start date can be set in My Preferences [4].</td>
</tr>
<tr>
<td>End Date</td>
<td>The end of the reporting date range. All data after this date are not reported. The end date can be set in My Preferences [4].</td>
</tr>
<tr>
<td>To Merge</td>
<td>Indicates if subprojects are merged or not. These settings are copied from My Preferences [4].</td>
</tr>
</tbody>
</table>

**Menu**

The content of the menu can differ per user. The available contents depend on your access rights as established in Role Authorisations [3] and User Roles [3]. The structure of the menu depends on organization-wide choices as set in Menus [3] and Menu Items [3].

**Crumb Trail**

Directly below the menu a ‘crumb trail’ is shown. With the crumb trail you can instantly click back to a previous screen. This functionality is similar to the multiple selection of the ‘back button’ in the browser. However with a crumb trail you can skip steps and you lose less screen space than when you display the history of the browser in a separate part of the screen.

If you open a window and execute a search query, the applied filter is also shown in the crumb trail. This makes it possible to quickly access previous screens with the preferred filter settings. The filter appears behind the screen name in parentheses.

When you open a window, execute a search query and then select a row from the search results, a reference to the selected information will be shown in the crumb trail. This makes it possible to quickly access previous screens that contain the information of your choice.
The selected information in the crumb trail is preceded by the symbol ‘:’.

The picture below shows that the last three screens that were opened were ‘Projects’ screens. First you can see that the screen ‘Projects’ was opened. In the crumb trail ‘Projects’ is shown. Then in the search filter the Project Code ‘Plein’ was specified. In the crumb trail ‘Projects (Plein)’ is displayed. After this the first row in the search results was selected. In the crumb trail the screen name with a reference to the selected row: ‘Projects: Plein - Plein revisited’, is displayed.

The length of the crumb trail depends on the number of web pages visited, but is never longer than ten. The maximum number of positions of a name of a web page in the crumb trail is 36.

**Action Buttons**

Action buttons make it easier to navigate within the application. They are shown in the part of the screen where you can ‘enter or change’ data. With action buttons relevant screens can be opened without using the menu. For example, with the action buttons in the screen ‘Budgets’ you can easily navigate to the screens 'Invoice Lines', 'Orders', 'Revenues', etc..
If you select a search result in a screen and after that you click on an action button, then if possible, the same search result will appear in the screen that was opened with the action button. For example, after searching for a cost category ‘1000’ in the screen ‘Budgets’, the search filter will automatically be filled with ‘1000’ for cost category in the screen ‘Comment Deviation’.
Invantive Logo

The top left of each screen includes the Invantive Logo. Via the Invantive logo you can navigate to the home page of the application.

1.2.1.4 All other Screens

The content of the majority of the screens in Invantive Estate has some variable screen elements, besides of some fixed elements (see Openings screen). Variable display elements means that the user can turn them on or off as desired (see section View).

With variable screen elements you can search, add, modify and delete information. All screens work the same. This means that the way you perform actions is the same in the screens, although the contents of the screen depends on where you are. Invantive Estate has the following variable screen elements:

- Search
- Grid
- Create or Change
- Grid Details
- Data Entry Details

The functions of the variable screen elements are discussed in this chapter.

Search

The search function is available in most screens of Invantive Estate. The screen section where you can search is framed and has the same title as the window opened (in this case ‘Projects’). In the lower left part of the frame the ‘Search’ button is located next to a drop box where you can select the number of rows per page the Results should show.

To find information you need to fill in the search filter in the upper part of the frame. The search results will comply with the content of the search filter. To search on project code
‘103’ fill in the field ‘Code’ the value ‘103’ and click on ‘Search’.

In the list of search results only the project with project code ‘103’ is displayed.

Documents or texts are searched using the SQL operator ‘contains’. The SQL operator ‘contains’ checks whether the searched string is found.

The ‘%’ and ‘_’-characters have a special meaning in the search context.

The ‘%’ sign means ‘any string of characters’ and the ‘_’-sign stands for ‘exactly one single character’. If you do not know part of the word that you want to search on, then fill in the percent sign for the part that you don’t know. Every word in which the searched word appears, preceded and followed by text, will be included in the search results. For example ‘Maas% eik’ provides both ‘Maas aan de eik’ and ‘Winkel Maaseik’.

In the same way the ‘_’-character has a special meaning when used with searching and it stands for ‘any single character’. If for instance you search for ‘_aas’, you will find ‘Maas’ as well as ‘maas’.

Note that using ‘%’ and ‘_’ is only possible in text fields. They have no special function in fields where you enter an amount or date.

Warning! Searching is capital sensitive. ‘MAAS’ is something else than ‘Maas’ and will provide different search results.

**Grid**

The part of the screen where the search results are shown with the title ‘Search Results’ with behind it in parenthesis the number of rows that comply with the search filter.

The right side of the frame shows how many pages the search result contains and which page is currently displayed. Furthermore here are the buttons to navigate within the search results.
‘Search results’ contains columns that you can use to sort ‘Search results’. By clicking on a column head, the selection is sorted on the values in the selected column. If you click on the column header once more, the sorting will happen in the reverse order (descending instead of ascending).

The results and the search area are automatically hidden when a row under ‘Search results’ is selected. You can unhide them by clicking on the title ‘Search Results’.

If the grid contains only one row, this row will automatically be shown in the lower part of the screen where you can edit or delete data. In this way you do not have to search for this row, and then select it to be able to edit or delete the data in this row.

**Create or Change**

This section describes the types of data entry fields and how to add, change or delete data. Important tools to be used in this process are Forms.

**Input Types**

This section describes the field types you may encounter when entering or modifying data and what kind of data you can enter in the different field types.

As an example let's see ‘Projects’.
Entry Fields

An example of an entry field is the white box next to ‘Code’. In a field like this you can enter a ‘free text’. This means you can choose - within certain boundaries - what you fill in. In the example of ‘Code’ you can enter the project code which is assigned by the administration. When you enter text into a ‘free text field’ it gets a red border.

Required fields

The fields that are marked with a ‘*’ are required. An example of such a field is the field ‘City’:

Amounts

All amounts are in Euros and will be written in the European way. This means that thousands are separated by a period and that the separation of whole and decimal numbers is shown by a comma. For instance: 123.456,78. If you use an American version of other software you have to pay attention to not change the way of writing numbers. The American way of noting numbers is the exact opposite of our way, for example 123,456.78.

If you enter a number with a decimal, you need to use the comma key (‘,’). All points are considered thousands separators and are not looked at regardless of the place of the number. An input of ‘8.5’ is therefore treated as ‘85’.

The amounts you enter are left aligned. This means these can be found on the left side of the field. If the amounts are already entered, they are automatically right aligned. If you, for example, in the screen section, where you can search, enter a number you will see that the number is left aligned.

Percentages

Furthermore, there are fields where a percentage is requested (such as ‘Estimated Success Percentage’). You do not need to enter the percentage sign here.

Dates

When asked for a date (Example: ‘Exposé Date’) then you are supposed to enter the date yourself. A date can be entered in multiple ways. Allowed input formats are:

- ddmm
- dmmmyy
- dmmmyyyy
- dd-mm-yyyy
- dd/mm/yyyy
- dd-mm-yy
- dd.mm.yy
- dd/mm/yy

The significance of the date format is as follows:
• ‘dd’ indicates a two digit format of the day of the month from ‘01’ to ‘31’.
• ‘mm’ indicates a two digit format of the month in the year where ‘01’ stands for January, ‘02’ stands for February .. etc..
• ‘yy’ indicates a two digit notation of the year, for example ‘09’ stands for the year ‘2009’.
• ‘yyyy’ indicates a four digit format of the year, for example ‘2009’.

You can also click on the calendar icon next to the input field:

A calendar appears:

Select the day by clicking on one of the numbers in the calendar. If you select ‘today’ automatically the current date will be used. You can change the month by clicking on one of the two most inside white arrows - in the image below. The arrow to the right means a month forward. The arrow to the left means a month backward.

You can change the year by clicking on the two outer arrows. The arrow to the right means a year forward. The arrow to the left means a year backward.

If you want more than only change the day, you have to ensure that you change the day at the end. This is because after changing the day you will come back to the menu.

**Times**

When asked to enter a time, the following input formats can be used:

• hhmm
• hmm
• mm
In this case the abbreviation ‘mm’ is minutes and not months as in the date format, ‘uu’ stands for hours.

**Date Time Fields**

In date/time fields, first the date is entered and subsequently the time. The distinction between date and time is indicated by a space. The above given input formats show the way the date and time can be entered.

**Drop Boxes**

With drop boxes only valid choices can be made. If you hover above the drop box with the mouse pointer for a moment, you can see how many values are inside. A drop box functions as follows: the field next to ‘Stage’ in the example below, is a drop box. As shown a value already was selected: ‘Acquisition’.

You can change the content of this drop box by clicking on the little square. This opens the drop box and it will get the shape of the following image:

Now you can choose five values, ‘Select value’, ‘Planning’, ‘Acquisition’, ‘Development’ and ‘Realization’. To choose you click on one of the possibilities. The drop box closes itself and your choice is recorded.

**Check boxes**

A final way to enter data in the screens is via check boxes. This is used when there are only two options: yes or no. If you check the box, you choose ‘yes’ and vice versa. An example of a check mark you can see in the image below:

The check is done by clicking on the white square or in the accompanying text or by selecting the white square with the cursor and then pressing the space bar. The field will look as follow:

**Forms**

The data in the screens of Invantive Estate is shown in forms. A form is a cohesive and
structured group of data. The use of forms makes it clear and easy to enter or edit data in the database.

In some screens, the data is shown in multiple forms. At the top of the screen the master form is shown with the detail forms below. The data in the detail forms are linked to the data in the master form. The use of master- and detail forms in one screen prevents that you have to open multiple screens when you need to change related data. Each (sub)form is characterized by a framed section of the screen with the title of the (sub)form shown in the left upper corner of the frame.

The section of a form where you can add, change or delete data, is framed and has the name ‘Create or Change’.

![Form Structure](image)

**Add New Data**

Open the screen where you would like to add new data. Enter the new information in the form and then select ‘Add’. The data is now saved. If you do not want to save the data, select ‘New’.

![Add New Data](image)

To prevent that you accidentally delete the data just entered without saving, the following message appears:

![Confirmation Dialog](image)

If you select ‘OK’, your data entry will disappear.

While entering or modifying data a temporarily asterisk (‘*’) will appear after the title of the tab window and in the title of the browser. This is a warning for not saved information in a Form.
Create or Change Data

Open the screen where you would like to create or change data. Search the desired data with Search. Then select the correct row in Search results. The screen section with the ‘Search results’ is now folded and in the screen section ‘Create or Change’ the selected data is shown. The data can be modified or deleted. Once you have adjusted the data, it can be saved by selecting ‘Save’. If you want to ignore the changes you have made and want to return to the screen where the results are displayed, select ‘New’.

In some screens multiple Forms are shown. Adjustments have to be made and saved for each separate form. In case you change multiple forms at the same time and then you select ‘Add’ in one form, the next message appears:

If you need to delete data, first search the concerning information (Searching), then select this information and then select the button ‘Delete’. You can only delete data if they are not used anywhere else.

Warning! You can only add, change and delete data if you have the rights to do so. If you have no rights to delete data, then the ‘Delete’ button will not be shown.

1.2.1.5 Reports

The menu option reports allows you to retrieve all kind of information about a project.

Formats

Every report is available in the Adobe Reader or Adobe Acrobat PDF format and in the Microsoft Excel XLS format. The information in both report formats (Excel and Acrobat) is exactly the same. The only difference is the layout in Microsoft Excel, which isn't as good as the layout in a PDF file. The program ‘Adobe Reader’ is free available on the Adobe Website.

Direct link
You can quickly edit data when you are viewing reports. The detail data that can be changed (orders, returns, and adjustments of cost) will have hyperlinks. By clicking on the desired hyperlink in the report, Invantive Estate will be opened automatically. In case you’re not logged in, Invantive Estate will ask you to log in. After you log in, Invantive Estate will open the screen that contains the source data which is used to produce the report (in case you have the required rights). If you have the rights to edit data, you can customize the numbers. Then you can update the report by a rerun. The report will now show the edited numbers.

1.2.1.6 Shortcuts

You can use many functions of the program by using shortcuts.

For the most occurring actions in every screen, you can use shortcuts. You will get no visual hints of this. The following shortcuts are available:

- **A**: Add.
- **S**: Save.
- **D**: Delete.
- **S**: Search.
- **C**: Filter.
- **K**: Focus on search.
- **I**: Focus on entry.
- **F**: First page of search results.
- **L**: Last page of search results.
- **P**: Previous page search results.
- **N**: Next page search results.
- **F2**: Open Menu, see Menu.

To use a shortcut, use the following code: ‘Alt’ + the corresponding letter. For example, if you want to add information, then type (after you have completed the data) Alt + T.

Note: for Firefox 2.0 and newer versions, you have to use the 'Alt' key together with the 'Shift' key and de desbetreffende letter.

1.2.1.7 Full Screen Option

The F11 key lets you run the application without showing the edges of the browser. To return to the browser you use the F11 key again.

1.2.1.8 Zoom In and Zoom Out

The following key combinations can be used to zoom in and out:

- **Zoom in**: Ctrl+Plus
- **Zoom out**: Ctrl+Minus
- **Zoom to 100%**: Ctrl+0

Instead of the ‘Plus’ or ‘Minus’ button you can also use the scroll wheel of the mouse while holding down the Ctrl key:

- **Zoom In**: Ctrl+scroll wheel move up
- **Zoom out**: Ctrl+scroll wheel move down

1.2.1.9 Roll Down and Roll Up

A screen in Invantive Estate has some fixed components. The section View describes the
menu options with which you can hide or unhide the appearance of these screen elements. Besides the option to hide or unhide, the information shown in these screen elements can be rolled up or rolled down.

The following image shows the information in the screen section ‘Processes (Restricted)’.

The arrow pointing up next to ‘Processes (Restricted)’ indicates that the information shown in this part of the screen can be rolled up. You can do this by clicking once on the text in the box. The following screen shows the result.

The arrow pointing down next to ‘Processes (Restricted)’ indicates that the information shown in this part of the screen can be rolled down. You can do this by clicking once on the text in the box. The information contained in this section of the screen appears again.
1.2.1.10 Change Column Width

Columns can be made wider or narrower by moving the cursor in a column header over the border with another column header. The cursor changes in that moment in a horizontal double arrow. Now select the left mouse button. Under the double-sided arrow appears a blue dotted line.

```
<table>
<thead>
<tr>
<th>Code</th>
<th>Organisatie</th>
<th>Organisatie Naam</th>
<th>Facturatie datum</th>
<th>Betaalingsperiode (dagen)</th>
<th>Vermeldingsvraag</th>
<th>Referentie Leverancier</th>
<th>#Documentation</th>
<th>Omvang</th>
</tr>
</thead>
<tbody>
<tr>
<td>1023</td>
<td>PUGO</td>
<td>01-09-2003</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1073</td>
<td>Aarde consult</td>
<td>22-09-2009</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1477</td>
<td>Energie</td>
<td>22-09-2009</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1650</td>
<td>21st Ny</td>
<td>01-01-2007</td>
<td>60</td>
<td>4365545</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1651</td>
<td>Bovisahlen</td>
<td>09-09-2007</td>
<td>50</td>
<td>7453595</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1055</td>
<td>Grontelaer</td>
<td>21-07-2003</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1047</td>
<td>Royal Koning</td>
<td>06-09-2003</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1037</td>
<td>Grand telecom</td>
<td>30-12-2003</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1056</td>
<td>KPN Telecom</td>
<td>19-05-2003</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```

This indicates that you can make the column wider or smaller by moving the mouse. In the picture below the column ‘Organization’ has been made wider.

```
<table>
<thead>
<tr>
<th>Code</th>
<th>Organisatie</th>
<th>Organisatie Naam</th>
<th>Facturatie datum</th>
<th>Betaalingsperiode (dagen)</th>
<th>Vermeldingsvraag</th>
<th>Referentie Leverancier</th>
<th>#Documentation</th>
<th>Omvang</th>
</tr>
</thead>
<tbody>
<tr>
<td>1123</td>
<td>PUGO</td>
<td>01-09-2003</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1173</td>
<td>Aarde consult</td>
<td>22-09-2009</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1477</td>
<td>Energie</td>
<td>22-09-2009</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1650</td>
<td>21st Ny</td>
<td>01-01-2007</td>
<td>60</td>
<td>4365545</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1651</td>
<td>Bovisahlen</td>
<td>09-09-2007</td>
<td>50</td>
<td>7453595</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1055</td>
<td>Grontelaer</td>
<td>21-07-2003</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1047</td>
<td>Royal Koning</td>
<td>06-09-2003</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1037</td>
<td>Grand telecom</td>
<td>30-12-2003</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1056</td>
<td>KPN Telecom</td>
<td>19-05-2003</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```

The column cannot be made smaller than the largest word in the column title. The width of a column is unlimited.

1.2.1.11 To Move Columns

When you move the cursor in the middle of a column header it changes to a character with 4 arrows ⤿ ⤿.
Now select the left mouse button and hold it down. Now you can drag the column to another position in the table.

In this way the column ‘Roll’ was placed behind the column ‘Description’ as shown in the picture below.

1.2.1.12 Errors

The data which is registered in Invantive Estate must meet certain standards in order to allow a good functioning of the system. Sometimes certain changes do not meet these rules which will lead to an error message as shown in the example below.

With the shortcut Alt + O you can close the window with the error message. Try to remove the cause and then try again to save your changes.

You can obtain the details of the error via the shortcut Alt + D.
1.2.1.13 To Link Documents

In a number of screens you can link documents to already existing data. This concerns the following screens:

- **Budget Movements**
- **Budgets**
- **Contract Budgets**
- **Invoice Lines**
- **Projects**
- **Latest estimations**
- **Revenues**
- **Orders**
- **Organizations**
- **Persons**
- **Processes**

Furthermore background processes can be linked to documents which contain the output of the background processes. You cannot change these documents manually, since they are made by Invantive Estate. See [Background Processes](#).

In all these screens the search result shows the column ‘#Documents’ which shows the number of linked documents and the column ‘Size’ which shows the total size of these documents.

In the input section appears more information about the linked documents behind the heading ‘Documents’ as soon as in the search results a document is selected.

It says ‘None, click here to add a document’ if no documents are linked yet. If less than three documents are linked, the number of documents is displayed together with the total size in parentheses, plus the direct links to the documents. If three or more linked documents are linked, the number of documents is displayed together with the total size in parentheses, plus the direct link to the oldest document, plus the direct link to the most recent document.

For example:
you will get a list of all linked documents by selecting 'None, click here to add a document' or to select the number of documents. See Documents for linking new documents and retrieving existing documents.

1.2.1.14 No Access

If you request a page which you have no access rights to, the following screen appears.

1.2.1.15 Further Processing of Data in Excel

The application offers four options to import data into Microsoft Excel:

- Direct copying of the screen output to Microsoft Excel.
- Web query within Microsoft Excel.
- Database query from Microsoft Excel.
- Run a report which output is a Microsoft Excel file

Direct copy

Direct copying of the screen output and export it to Microsoft Excel can be done as follows:

- Open the screen of your choice.
Select the correct data.
Select ‘1000 rows per page’ in the search filter to maximize the results on one page.
Click in the upper left corner of the search result and drag the mouse to the below right corner of the search results.
Select ‘Copy’.
Switch to Microsoft Excel.
Select ‘Paste’ or ‘Paste Special’.

An example of the result is:

![Example of the result](example.png)

Comment: copying directly doesn't work with Mozilla Firefox anymore, it does work with the browsers Microsoft Explorer, Opera, and Chrome.

**Web Query**

Making a web query from Microsoft Excel can be done following the next steps:

- Start Microsoft Excel.
- Open a sheet.
- Place the cursor where the data has to appear.
- Select in the menu ‘Data’ -> ‘Retrieve external data’ -> ‘New web query’.
- Fill out the URL of the application.
- Log in.
• Open the screen where you would like to copy data from.
• Select ‘1,000 rows per page’ in the search filter to maximize the results on one page.
• Select the correct data.
• Select the arrow in the upper left corner, next to the search results. The arrow changes in a check mark.
Select the Import button.

Database Query

A database query from Excel can be made using a database gateway. For more information see Allow Users to Exchange Data.

Reports

All reports are available in Microsoft Excel format. Choose your report by choosing the corresponding menu option. The layout of a report in Microsoft Excel format is of less quality than the layout of the Adobe PDF format but this is compensated for the analytical and processing possibilities of data in MS Excel.

1.2.1.16 Drill down in Adobe PDF

All reports are available in Adobe PDF format. The Adobe PDF format is a true reflection of the print in digital format. Reports in Adobe PDF format can be viewed with the program ‘Adobe Reader’ or ‘Adobe Acrobat’. The program ‘Adobe Reader’ is free available on the Adobe Website.

The Adobe PDF reports can be digitally stored and sent. Within a number of reports a part of the text and/or numbers are colored blue. When you click on such a blue element, Invantive Estate will be opened and the related data will be shown, if you have the appropriate rights.

In this way, the labor intensive search for data to be edited will be more efficient.

For example, in the report 'Revenue Overview' all information in the columns 'FMO - Invoice With Order', 'FZO - Invoice Without Contract' and 'Customer' are colored blue:
When you click on a blue colored number in the column ‘FMO’, the following screen will appear (possible after a separate authentication if Invantive Estate is not opened yet):
Now you can select an invoice in ‘Search Results’ and correct it.

1.2.1.17 Multilinguality

Invantive Estate is available in multiple languages. Through the list of languages at the bottom left in the login screen you can select the language you prefer. Once you have selected the language of your choice, the text in the login screen and other screens of Invantive Estate appears in the selected language.

It is also possible to use the URL (the address in the browser) to set the language. This may be required, for example, to have the login screen also in another language available. For a different language, the URL needs to be extended with ‘locale=<AREA>&lang=<LANGUAGE>’. The first parameter in a URL should be preceded by a
In all other cases an ‘&’ must be placed before the extension. To have quick access to the modified link, you can save it, for example, in ‘Favorites’ in your browser. See the example below for a login screen in Russian.

With the screen My Preferences it is also possible to set the preferred language.

The following territories and languages are supported:
• Dutch (region is ‘nl’, language is ‘nl’).
• English (region is ‘en’, language is ‘en’).
• German in Germany (region is ‘de’, language is ‘de’).
• French (region is ‘fr’, language is ‘fr’).
• Spanish (region is ‘es’, language is ‘es’).
• Russian (region is ‘ru’, language is ‘ru’).

Depending on the chosen language, all fixed texts in screens and reports are replaced by the correct translation. Fixed texts are, for example, field titles.

Limited parts of the variable texts are also replaced by the correct translation. This primarily concerns more or less static lists, such as the list of functions.

Entered data is not translated. For example, the name of a project is independent of the chosen language.

1.2.1.18 Master-Detailschermen

Some screens in Invantive Estate are master detail. This means that the ‘master’ object and its corresponding ‘details’ are displayed on the same page. The details that appear vary depending on the selected ‘master’ object. A master-detail relation has a cardinality ‘one-to-many’.

The example below shows a ‘master detail’ screen. Three invoice lines belong to the invoice with code ‘CC0030094’.
The display of the details in the next master detail screens is automatically set to show a
maximum of 1000 records:

Process notes in the screen Processes
Invoice Lines in the screen Invoices
View elements in the screen Views
Classifications in the screen Projects
Job Parameters in the screen Background Jobs
Classifications in the screen Documents
Classifications and Relationships in the screen Organizations

1.2.2.2 File

This section contains information about the functions which normally can be found under the menu item ‘File’.

1.2.2.2.1 View

A screen in Invantive Estate has some fixed components (see openings screen) and some variable components. This chapter describes the menu options that allows you to hide and unhide the variable screen components.

From top to bottom the following items are respectively shown in a screen:
1. Search
2. Grid
3. Data entry
4. Grid Details
5. Data entry details

Search

Using the menu option ‘View’ you can select whether if you want a screen part to be shown in your screen. In this paragraph, is described how we can hide and show the screen part ‘Searching’. Select the option ‘Search’.

The following screen appears. The screen section ‘Search’ is not longer visible in the screen.
Select again the menu option 'Searching'. The screen section ‘Search’ is now visible again.

Grid

Using the menu option 'View' and afterwards the option 'Grid' you can select whether you want to show or hide the screen part 'Search Results'. This works in the same way as described in paragraph Searching.
Data Entry

Using the menu option 'View' and afterwards the option 'Entry' you can select whether you want the screen part 'Entry or change' to be shown or hidden. This works in the same way as described in paragraph Searching.

Grid Details

Using the menu option 'View' and afterwards the option 'Search Result Details' you can select whether you want the screen part 'Search Results' in the detail part of the master detail screen to be shown or hidden. This works in the same way as described in paragraph Searching.

Data Entry Details

Using the menu option 'View' and afterwards the option 'Data Entry Details' you can select whether you want the screen part 'Entry or change' in the detailed part of a master detail screen to be shown or hidden. This works in the same way as described in paragraph Searching.

1.2.2.2 Preferences

The settings in this screen are made, apply only to the user who is logged on.

Filter setting

Every user of Invantive Estate has access to some of the projects or even to all projects. However, you usually work with only one part of the projects or just one project. The filter helps you in all reports and screens to see and edit only the project data that are relevant to you.

The section ‘Filter’ in the screen ‘Preference Settings’ consists of a list of restrictions which are combined to form a list of projects that comply with these restrictions.

You can quickly change the filter without changing screens. See Filter.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Filter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reporting Date (Travel Back To)</td>
<td>Here you can enter the reporting date for which the information on the reports should be shown. Time travelling to before the year 1900 is not supported.</td>
</tr>
<tr>
<td>Project Versions</td>
<td>Show project version in rapport data.</td>
</tr>
<tr>
<td>Start Date</td>
<td>The start of the reporting data range. All data before this date are not reported.</td>
</tr>
<tr>
<td>End Date</td>
<td>The end of the reporting date range. All data after this date are not reported. The end date is not included in reporting.</td>
</tr>
<tr>
<td>Project</td>
<td>Limit the filter to a specific project.</td>
</tr>
<tr>
<td>Product group</td>
<td>Limit the filter to all projects from the product group.</td>
</tr>
<tr>
<td>Product Group Director</td>
<td>Limit the filter to all projects with the product group director.</td>
</tr>
<tr>
<td>Project developer</td>
<td>Limit the filter to all projects of the project developer.</td>
</tr>
<tr>
<td>Project Phase</td>
<td>Limit the filter to all projects in this phase.</td>
</tr>
<tr>
<td>Project Closed</td>
<td>Limit the filter to all projects that have been closed or not.</td>
</tr>
<tr>
<td>City</td>
<td>Limit the filter to all projects where the name of the city where they are executed contains this text.</td>
</tr>
<tr>
<td>Legal Entity</td>
<td>Limit the filter to all projects where the name of the legal structure under which they are</td>
</tr>
</tbody>
</table>
executed contains this text.

| Classification | Limit the filter to all projects where the classification that appears in this field. A classification is a label that can be linked to a project or a person. With these labels you can find the desired information more easily. |
| Reporting group | Limit the filter to all projects where the reporting group contains this text. |
| Statistics | |
| Preferences | |
| Work Extension | The phone number to reach the user at work. |
| Deviating Work Extension | Alternate phone number to reach the user at work. This number is used for flexplaces and integration with the PBX. |
| Language | The preferred language in which the fixed texts are presented. See also Multilinguality. |
| Records per Page | The number of rows that is shown in Search Results. |
| Show Tips | When checked, after you log on, tips for using Invantive Estate will be shown. |
| Receive Newsletter | When checked, the user receives the newsletter of Invantive Software BV. A message to Invantive Software Inc. will be send with the request to subscribe you to the new newsletter. There are no charges. Besides your email address also your name will be passed on. |
| Show Anniversaries | When checked, after you log on, the near birthdays are shown. |
| Start Page (URL) | The URL that will be opened after you have logged on. The URL will be requested with the parameter MNU_CODE = Main. If the field is empty, the URL in the field 'Main Menu (URL)' in the screen Settings will be used. |
| Preferences - Reporting | |
| Reporting Unit | The numerical unit used in the presentation of figures in reports. |
| Time Reporting Unit | The time unit used in the presentation of figures in reports reporting time periods. |
| Merge Subprojects | If this box is checked, then projects are consolidated into master projects and independent projects in all financial reports. See also Management Information. |
| Adobe PDF Settings | |
| Use Encryption | If this box is checked, all PDF reports will be secured with two passwords: one password for the owner, who has full rights and another password for the person who gets limited rights as will be registered with the other check boxes. |
| Password Owner | The password for all PDF reports with which one is granted full rights for the PDF. |
| Password User | The password for all PDF reports with which one is granted limited rights, as registered by the following options. |
| Allow Printing | If this box is checked, then an authorized user can print the PDF file. |
| Allow Copying | If this box is checked, then an authorized user can copy text from the PDF file into a Microsoft Word file, for example. |
| Allow Modifying | If this box is checked, then an authorized user can change the PDF file by, for example, removing texts. |
| Allow Annotating | If this box is checked, then an authorized user of the PDF file can add annotations to it. |
| Allow Fill In | If this box is checked, then an authorized user of the PDF file can fill in the forms in the PDF file. |
| Enable Screen Reader Options | If this box is checked, then an authorized user can use a screen reader to read the PDF file. A screen reader is a tool for the visually impaired; it is recommended to always allow this option. |
| Microsoft Excel Settings | |
| Read-only | If this box is checked, then the authorized user, can only read the Excel file. However, no changes can be made. |
| Password for Editing File | The password for the Excel files can be changed here. |

The meaning of the other fields:

| Your Name | Your name as registered in the personal administration. |
| First Login | Date first time logged in via the web user interface. |
| Last Login | Date last time logged in via the web user interface. |
| Number of Projects in Filter | Indicates the number of projects that comply with the settings in the filter. |

1.2.2.3 Change Password

In this form you can change your password.
First, you have to enter your current password to verify that you know this password and that not someone else is using your workstation during your absence. Then you have to enter your new password and next you have to confirm your password. The password will not be changed if the two passwords are different. This is to prevent that because of an input error you will lose your password.

The meaning of the entry fields is:

- **Your Name**: Your name as recorded in the user administration.
- **Current Password**: Your current password.
- **New Password**: Your new password.
- **Repeat New Password**: Repeat your new password, completely identical to the password you entered under 'New Password'.

### 1.2.2.4 User Profile Option Values

In this screen you can register or modify user profile option values.

User profile options are features that can be set per user. For example: the profile option ‘Background color Invantive Estate’ has the default color ‘Gray’. The profile value of user A and user B is ‘Purple’.

User Profile Option Values are closely related to Profile Option Values and Profile Options.

The meaning of the entry fields is:

- **Value**: The profile option value that is assigned at user level to the profile option.
- **Explanation**: Explanation of the assigned profile option value.
The meaning of the other fields:

<table>
<thead>
<tr>
<th>Code</th>
<th>The code of the profile option.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>The description of the profile option.</td>
</tr>
</tbody>
</table>

1.2.2.5 Print

Through this menu option the contents of the screen will be printed via the print-function of the browser.

1.2.2.6 Log Off

This screen is displayed when you log off you have via a menu option.

As soon as you are logged out, you can log in again, possibly under a different user name.

1.2.3 Budget Control

This section discusses functions that can be found under ‘Budget Control’ in a default menu structure. These functions are generally mostly used by project developers, since they are primarily responsible for the financial result and since they have the best view on the current status.

1.2.3.1 Projects

Enter text here.

Projects Workbank

This screen allows you to retrieve a project workbench containing all relevant information consolidated and integrated into one overall picture. The workbench is focused on project developers.
After you select a project in the search results, the underlying relevant project details at level 4 (see Financial Project Overview Level 4) is shown.

Notice: the workbench automatically displays the details if a project is directly selected with the shortcut filter right above in the screen. In that case, the search section at the top will be hidden.

Below a portion of the screen with the details of the project 'C204' is shown.
The screen displays all data on a monitor with a minimum resolution of 1024x768 pixels unless texts are longer than expected.

The workbench shows per cost type, for both costs and revenues, the differences from the budget.

From the data seen at this level, like budgets, contracts, orders, invoice lines, you can see or change the underlying details via hyperlinks. Hyperlinks are displayed as blue underlined text.

In the screen itself no changes can be made. A pop-up window always opens first via the hyperlink.

In the screen two types of hyperlinks are used:

1. The first category opens the underlying data which can be edited instantly.

An example of this category is, when you click on a hyperlink of a budget. Then the following window appears on top of the already opened window containing the information of the selected order:

In the following window the pop-up screen is shown after the budget hyperlink ‘7.600’ belonging to contract ‘V9900’ was selected.
The data in this screen you can edit as described in Budgets.

When you close this window, the workbench window stays opened. To recalculate the workbench with your changes, press F5 (refresh).

2. The second category hyperlinks opens a window with a menu which allows multiple actions to be performed.

An example of this category is, when you select the hyperlink of the project. Then a screen will appear as in the example below:
By clicking on one of the present action buttons in the right top of the screen, such as for example, ‘orders’, the corresponding information will be displayed.
The data in this screen you can edit as described in Orders.

When you close this window, the workbench window stays opened. To recalculate the workbench with your changes, press F5 (refresh).

**Budget Deviation**

The workbench also simplifies the handling of the deviation per budget per cost category. The column ‘Forecast’ lets you open a window where you can enter an increase or decrease to adjust the current balance. Under water the latest estimation is calculated.

Example: The ‘Realization’ balance of a cost category is EUR 150, based on a contract of EUR 80, an invoice without order of EUR 70 and an expectation of EUR 125.

You expect that EUR 30 extra is needed and because of that you enter EUR 30 via ‘Expectation’.

Now the total deviation becomes EUR 180.
**Project Statuses**

In this form you can register and change the project statuses.

The project status is a brief summary of the overall condition of the project plus a textual explanation of the entire project. Short textual explanations concerning cost categories and budget exceedings on a cost category can be made by Comment Deviation. With this explanation you can explain the story behind the figures and the progress.

The meaning of the entry fields is:

| Status Indicator | A list that classifies a project in terms of progress and budget control into one of the six possible classes. |
Date of Last Review | The date the last review of the project took place.
---|---
Next Review | The date the next review of the project should take place.
Status | A textual explanation of the project’s status.

In theory, this explanation has a free format, but via the blue arrow (below the status field) you can select standard formats (templates) as your organization makes them available.

The meaning of the other fields:

| Code | Reference to a project code as registered in Projects. |
| Name | Reference to a project name as registered in Projects. |
| Project developer | Reference to the responsible project developer as registered in Projects. |
| Product Group Director | Reference to the responsible product group director for the project as registered in Projects. |
| City | The city in which the project is being executed as registered in Projects. |
| Project Phase | The phase of the project as registered in Projects. |

**Project Involvements**

In this screen you can register and change project involvements.

The meaning of the entry fields is:

| Project | Reference to a process as registered in Projects. |
| Person | Reference to a person as registered in Persons. |
| Involvement Role | The role assigned to the person within the project. |
Limit

Deviating limit used for managing workflow transitions. You can only create a process status transition (for example, from Command requested to Command approved) provided that your involvement on the project is for at least that and that limit. The project involvement is normally copied to the process involvement.

The meaning of the other fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>The name of the project.</td>
</tr>
<tr>
<td>City</td>
<td>Location of the project.</td>
</tr>
<tr>
<td>Product group</td>
<td>The product group of the project.</td>
</tr>
</tbody>
</table>

Project Versions

In the screen ‘Project Versions’ you can create snapshots of a project.

This function is useful when you want to evaluate the project in time. When you snapshot a project, the current data of a project is stored and can be accessed at any time. If you add a new project version, all derived data will be updated. The time used for adding a project version depends on the complexity and the number of Project Version Views.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project</td>
<td>A combination of the code and the name of a project.</td>
</tr>
<tr>
<td>Version</td>
<td>Here you can enter the name of the project version.</td>
</tr>
<tr>
<td>Category</td>
<td>Reference to a project category as registered in Project Version Categories.</td>
</tr>
<tr>
<td>Reporting Date</td>
<td>The date the snapshot of a project was created.</td>
</tr>
</tbody>
</table>

1.2.3.2 Processes

Enter text here.

Processes

In this screen you can register and change processes, along with their history.
A process is an activity to be executed to complete a project. Normally, not all activities are recorded as a process. Usually only the critical activities or the activities that should be monitored separately, are registered as a process. An example of a process that should be monitored separately is a process that has to be performed by several people,
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Entry Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General</strong></td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>The unique code for a process, for example, a contract.</td>
</tr>
<tr>
<td>Description</td>
<td>A short description of the target or the problem.</td>
</tr>
<tr>
<td>Project</td>
<td>The project to which the process belongs.</td>
</tr>
<tr>
<td>Planned Hours</td>
<td>The total number of planned hours to complete the process.</td>
</tr>
<tr>
<td>Prognosis to Go Hours</td>
<td>Estimation of the remaining hours required to complete the process.</td>
</tr>
<tr>
<td>Hours Determined on</td>
<td>The date on which the forecast of the hours needed to complete the process was made.</td>
</tr>
<tr>
<td>Process Holder</td>
<td>The person currently responsible for the following up of the process.</td>
</tr>
<tr>
<td>Reported By</td>
<td>The person who has reported the process.</td>
</tr>
<tr>
<td>On Behalf of</td>
<td>The organization on behalf of which the process is created.</td>
</tr>
<tr>
<td>Origin</td>
<td>The origin of the process.</td>
</tr>
<tr>
<td>Supplier Reference</td>
<td>A reference of a Supplier to this process. This can be for instance a report number of a service provider for the heating.</td>
</tr>
<tr>
<td>Customer Reference</td>
<td>A reference of the buyer to this process. This can be for instance a reference to a purchasing order.</td>
</tr>
<tr>
<td>Category</td>
<td>Processes are grouped according to category. Examples of a process category are: ‘documentation’, ‘failure’ and ‘installation’.</td>
</tr>
<tr>
<td>Unit</td>
<td>The unit where the process relates to, see Units [158].</td>
</tr>
<tr>
<td>Fixed Price</td>
<td>You can fill in a fixed price here, if this is relevant on the process.</td>
</tr>
<tr>
<td>Impact</td>
<td>The gravity of the problem in case of an unfinished process.</td>
</tr>
<tr>
<td>Deadline</td>
<td>The date on which the process should be finished.</td>
</tr>
<tr>
<td>Planned Start of Realization</td>
<td>The date on which you planned to start on the running of the process.</td>
</tr>
<tr>
<td>Status</td>
<td>The status of the process.</td>
</tr>
<tr>
<td>Next Review</td>
<td>The date on which the next review of the process should take place.</td>
</tr>
<tr>
<td>Documents</td>
<td>Linked documents, see Linking Documents [239].</td>
</tr>
<tr>
<td>Progress (%)</td>
<td>The percentage which shows how long the process still has to go to be finished.</td>
</tr>
<tr>
<td>Remarks</td>
<td>Free text field in which notes concerning the process are taken up.</td>
</tr>
<tr>
<td>Contract (not visible)</td>
<td>Pattern for the contract code belonging to process units. With this pattern, placeholders are replaced by actual values during invoicing. The following placeholders are supported: ':pjt_code_short,' 'today,' ':pjt_codé,' ':ust_codé,' ':unt_serial_number,' ':tak_code,' ':hour_yyyy_delivered,' ':hour_mm_delivered' and ':hour_dd_delivered'.</td>
</tr>
</tbody>
</table>

**Process Notes**

<table>
<thead>
<tr>
<th>Entry Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category</td>
<td>Process notes are grouped to Process Note Categories [177]. Examples of note categories are: 'telephone conversations', 'emails' and 'steering committee meetings'.</td>
</tr>
<tr>
<td>Publishing Text</td>
<td>Indicator whether the process note should be displayed to users who have a role that does not allow to see all process notes. The administrator can indicate in the screen Roles [173] if the user is allowed to see all documents with the indicator 'See all Process Notes'.</td>
</tr>
<tr>
<td>Text</td>
<td>Free text box where notes can be added. The entry field grows according to the size of the data entered.</td>
</tr>
</tbody>
</table>

**Classifications**

<table>
<thead>
<tr>
<th>Entry Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classification</td>
<td>The classification of the process. A classification is a label that can be linked to a project, an organization, a process, a document or a person. Using these labels you can find your information more efficient.</td>
</tr>
</tbody>
</table>

**Units Used**

<table>
<thead>
<tr>
<th>Entry Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grouping</td>
<td>Group of the process unit. Can be used for accumulation of the task units in task-related groups, such as those are generated by Payment Schedules [158].</td>
</tr>
<tr>
<td>Unit</td>
<td>The unit that is used for the realization of the process, see Units [158].</td>
</tr>
<tr>
<td>Stock</td>
<td>Payment Schedule of the unit.</td>
</tr>
<tr>
<td>#Units</td>
<td>The number of units [158] used to achieve the process.</td>
</tr>
</tbody>
</table>
### Process Unit Status
Reference to a Process Unit Status.

### Unit Sales Price
The price for the used units for the total number of units on this line.

### #Billable
The number of units that can be invoiced.

### Completed
Delivery date of the units.

### Date Start Rate
The date and the number of units in usage.

### VAT Code
Reference to a VAT code as registered in VAT codes.

### Redemption Price
Purchase price of the Unit.

### Booked
The units are booked when checked.

### Explanation
Possible explanation.

#### The meaning of the other fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status Filter</td>
<td>Here you can choose the status filter. The filter has three values: <code>open processes</code>, <code>closed processes</code>, and <code>all processes</code>.</td>
</tr>
<tr>
<td>Process Owner Filter</td>
<td>Here you can choose the filter for the process owner.</td>
</tr>
<tr>
<td>Counterparty</td>
<td>A reference from a supplier or customer to this process.</td>
</tr>
<tr>
<td>Status</td>
<td>Code of the status.</td>
</tr>
<tr>
<td>Status Description</td>
<td>Description of the status.</td>
</tr>
<tr>
<td>On Behalf of</td>
<td>The organization on behalf of which the process is created.</td>
</tr>
<tr>
<td>Name</td>
<td>The name of the process detector.</td>
</tr>
<tr>
<td>Product group</td>
<td>The product group to which the process is related. See Product Group.</td>
</tr>
<tr>
<td>Product</td>
<td>The Product type.</td>
</tr>
<tr>
<td>Unique Identifier (SN)</td>
<td>The unique address, location or serial number of the unit.</td>
</tr>
<tr>
<td>Contains</td>
<td>A text you want to search the contents of all visible processes. The process related process notes and linked documents to the process are also searched. The text may be expressed as an expression in Oracle Text. Often used search queries are:</td>
</tr>
<tr>
<td></td>
<td>- <code>area</code>: documents containing the word <code>area</code>.</td>
</tr>
<tr>
<td></td>
<td>- <code>area or surface</code>: documents containing the word <code>area</code> or the word <code>surface</code>.</td>
</tr>
<tr>
<td></td>
<td>- <code>area or surface * 3</code>: documents containing the word <code>area</code> or the word <code>surface</code> where the occurrence of the word <code>surface</code> counts three times as heavy as the word <code>area</code>.</td>
</tr>
<tr>
<td></td>
<td>- <code>area</code> and <code>surface</code>: documents containing both the word <code>area</code> and the word <code>surface</code>.</td>
</tr>
<tr>
<td></td>
<td>- <code>?area</code>: documents with both the word <code>area</code> and words that look like <code>area</code>.</td>
</tr>
<tr>
<td></td>
<td>- <code>area-surface</code>: documents containing the word <code>area</code> but preferably without the word <code>surface</code>.</td>
</tr>
<tr>
<td></td>
<td>- <code>area;surface</code>: documents containing the word <code>area</code> near to the word <code>surface</code>.</td>
</tr>
<tr>
<td></td>
<td>- <code>$area</code>: documents containing the word <code>area</code> but preferably without the word <code>surface</code>.</td>
</tr>
<tr>
<td></td>
<td>- <code>?area</code>: documents containing the word <code>area</code> and inflections from it like for example <code>areas</code>.</td>
</tr>
<tr>
<td></td>
<td>- <code>% area</code>: documents containing all terms that begin with <code>area</code>.</td>
</tr>
<tr>
<td></td>
<td>- <code>area or ( surface and feet )</code>: documents containing the word <code>area</code> or containing a combination of the words <code>surface</code> and <code>feet</code>.</td>
</tr>
<tr>
<td>Created at - by</td>
<td>Date at which the process is created and by which the user.</td>
</tr>
<tr>
<td>Last Change</td>
<td>Date at which the process was last modified.</td>
</tr>
<tr>
<td>Source ID</td>
<td>The unique number of the kind of data which you want to link the process. This field is filled automatically when you open this screen via a 'Process' link in another window. This field together with the field 'Source' makes it possible to retain the relation with the origin of the object for the workflow processes.</td>
</tr>
<tr>
<td>Source</td>
<td>The type of data (message, order, project, etc.) to which you want to link the process. This field is filled automatically when you open this screen via a 'Process' link in another window.</td>
</tr>
<tr>
<td>Statistics</td>
<td></td>
</tr>
<tr>
<td>Spent (hours)</td>
<td>The number of hours spent to the process up to this moment.</td>
</tr>
<tr>
<td>Invoiced (hours)</td>
<td>Number of hours invoiced.</td>
</tr>
</tbody>
</table>

All changes to a process and process notes lead automatically to a message to the process.
owner by email.
See also Documents.

Processes (Limited)

This screen, like the screen Processes, allows you to register and edit processes, along with their history.

The difference with the screen Processes is that this screen is for users with limited rights that may only see published information (the end-users). In the screen ‘Processes (Restricted)’ the option ‘publish’ is always selected and therefore process notes included in this screen will be visible to all users.

Compared to the screen Processes, the fields ‘Planned hours’, ‘Prognosis to go’, ‘Deadline’, ‘Planned Start of Realization’, ‘Documents’ and ‘Publish’ are missing.

The definition of a process and the meaning of the fields can be found in the section Processes.
Copy Processes

In this screen you can see all existing processes in whole or in part copy.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Code</td>
<td>The code for the new process.</td>
</tr>
<tr>
<td>New Description</td>
<td>New description for the new process.</td>
</tr>
<tr>
<td>New Project</td>
<td>New Project from the new process.</td>
</tr>
<tr>
<td>New Status</td>
<td>New status from the new process.</td>
</tr>
<tr>
<td>Include All</td>
<td>If checked, all items listed below will be copied.</td>
</tr>
<tr>
<td>Include Process Notes</td>
<td>If checked, the process notes will be copied.</td>
</tr>
<tr>
<td>Include Project Involvements</td>
<td>If checked, the project involvements will be copied.</td>
</tr>
<tr>
<td>Include Process Classifications</td>
<td>If checked, the process classifications will be copied.</td>
</tr>
<tr>
<td>Include Process Relations Van</td>
<td>If checked, the 'process relations van' will be copied.</td>
</tr>
<tr>
<td>Include Process Relations To</td>
<td>If checked, the 'process relations to' will be copied.</td>
</tr>
<tr>
<td>Include Used Units</td>
<td>If checked, the used units will be copied.</td>
</tr>
</tbody>
</table>

The meaning of the other fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>The code of the process that will be copied.</td>
</tr>
<tr>
<td>Description</td>
<td>The description of the process that is being copied.</td>
</tr>
<tr>
<td>End Status</td>
<td>Indicates whether the process that is being copied has the end status.</td>
</tr>
</tbody>
</table>
The status of the process that is being copied, as registered in Process Statuses.

Category
The category of the process that is being copied, as registered in Process Categories.

Project
The project of the process that is being copied, as registered in Projects.

Process Holder
The process owner of the process that is being copied.

Process involvements

In this screen you can register and change process participations.

The meaning of the entry fields is:

- **Process**: Reference to a process as registered in Processes.
- **Person**: Reference to a person as registered in Persons.
- **Involvement Role**: The role the person performs in executing the process.
- **Limit**: Deviating limit used for managing workflow transitions.
- **Project Code**: The project code of the project where the process participation is registered on.
- **Process Category**: Reference to a process category as it is registered in Process Categories.

The meaning of the other fields:

- **Description**: A brief description of the objective or the problem of the process.

Skills for Processes

In this screen you can register and change skills for processes.
Process Reference to a process as registered in Processes.
Skill Reference to a skill as registered in Skills.
Level Numeric value that indicates the weight of this skill for this process in comparison with other skills that are needed for the execution of this process. It is not a required minimum level of a skill that a person should have for the execution of the process.

Contract Processes Generation

In this screen you can register contract process generations.

You can use this screen to indicate that a contract process must be generated on a specific basis or frequency. This is useful for follow-up support such as changing backup tapes, etc or the monthly billing payments for a certain period.
The meaning of the entry fields is:

- **Start**: The first date and time that a process is generated.
- **Continue Till**: The first date and time where no processes are generated anymore.
- **Repeat Generator**: Reference to a repeat generator as registered in Repeat Generators.
- **Project**: Reference to a project as registered in Projects.
- **Cost Type**: Reference to a cost category as registered in Cost Category.
Contract | Reference to a contract as registered in Contracts
--- | ---
Process Template | Reference to a process as registered in Processes
Process Last Generated | Reference to the last process produced as registered in Processes
Initial Status | Reference to an initial process status as registered in Processes
Initial Category | Reference to an initial process category for the new processes as registered in Process Categories
Next Generation based upon | Date and time when a new process will be generated.

Note that the generation of processes always happens when the time for which the process is to be created has elapsed. Generating processes is independent of the system time and continue until processes are generated for the entire period as specified under 'Start' and 'Continue until'.

The meaning of the other fields:

| Number | The unique number with which the contract process generation is identified. |

### Variables

In the description of the process template and the explanation of the process units you can use variables. The variables are replaced with the current valid values when the process is generated. You can use the following variables:

- :pjt_code: project code.
- :kbg_code: cost category code.
- :ctt_volgnummer: contract code.
- :hgr_code: repeat generator code.
- :ctg_omschrijving: description of the contract process generator.
- :ctg_toelichting: explanation of the contract process generator.
- :base_datetime: the content of the field 'Next Generation Based on'. If this field has no value then the Start date will be used.
- :base_date: the previous variable without the time.
- :base_next_datetime: a period after the :base_datetime.
- :base_next_date: the previous variable without the time.
- :base_next_next_datetime: two periods after the :base_datetime.
- :base_next_next_date: the previous variable without the time.
- :base_prev_date: the previous variable without the time.
- :base_prev_prev_datetime: two periods earlier than :base_datetime.
- :base_prev_prev_date: the previous variable without the time.

### 1.2.3.3 Checking

Enter text here.
Orders

In this form you can register and change orders.

An order is an obligation that the project developer agrees upon with a supplier for the delivery of goods and/or services. The order does not directly lead to an invoice, but eventually it will lead to an invoice.

The meaning of the entry fields is:
### Project
The project of which the order is part of.

### Cost Type
The cost category on which the order is registered. Only cost categories can be chosen from the master roll up of the type ‘Costs’.

### Supplier
The supplier who received the order to supply goods and/or services. Only organizations that have been published as a contractor are listed. The list of suppliers used when entering is restricted to suppliers who have a code that is allowed to be used on a project in the filter. With a pattern you can manage for each project for which suppliers orders may be registered.

### Contact
The natural person acting as representative.

### Contract
The contract for that particular category of orders and the possible related invoices. Two orders cannot share the same contract on one budget.

### Amount
The agreed amount of the size of the order.

### Amount Open
The amount of the order of which no invoices are received yet.

### Granted at
The date on which the order is granted.

### Charged by Hour
The activities will be charged by hour if selected.

### Purchasing Conditions
Here you can choose the purchasing conditions that apply to the order.

### Supplier Reference
A unique feature by which the contract is known to the supplier.

### Explanation
An informative explanation such as the sort of work.

### Planned Delivery Date
Date at which the delivery of goods or services is planned.

### Delivery Date
Date at which the goods or services is delivered.

### Points
Amount of points awarded for this contract. The point system is a reward system.

### Documents
Linked documents, see [Linking Documents](#).

### Expected Maturity
The date the cash flow for this contract is expected to start, see [Cash Flow Projections](#).

### Expected Maturity End
The date the cash flow for this contract is expected to finish. The maturity date is only relevant if the cash flow projection method needs it, see [Cash Flow Projections](#).

### Distribution Method
The method used to distribute the cash flow of the order over time based on expected maturity and expected maturity end date, see [Cash Flow Projections](#).

Notice: At the time of recording, the code of the chosen supplier has to match the filter for contractors as defined in the project.

The meaning of the other fields:

<table>
<thead>
<tr>
<th>Process</th>
<th>If a process is linked to the command, it will be displayed here.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status</td>
<td>Reference to the process status as registered in the screen Processes.</td>
</tr>
<tr>
<td>Process Holder</td>
<td>Reference to a process owner as registered in the screen Processes.</td>
</tr>
</tbody>
</table>

The meaning of the action buttons:

- **Invoice Lines**: opens a window with the invoice lines of this order.

### Expectations
In this screen you can register and change expectations.

An expectation is a cost still to arrive and which is not included in the current prognosis. You can use the expectation for comparison with the prognosis and to create additional revenues which are necessary if there is a gap, regardless of the already placed orders or received invoices.

Internally, every expectation is converted to a Latest Estimation.

Normally you would register an expectation if you expect a claim, an unexpected setback or a non-legally agreed funding (for instance from governments).
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project</td>
<td>The project which the expectation is part of.</td>
</tr>
<tr>
<td>Cost Type</td>
<td>The cost category where the expectation will be registered. Only cost categories can be chosen from the master roll up of the type 'Costs'.</td>
</tr>
<tr>
<td>Organization</td>
<td>The organization which as a supplier causes the cost.</td>
</tr>
<tr>
<td>Contract</td>
<td>The contract for that particular category of costs and the possibly related invoices.. Two expectations cannot share the same contract on one budget.</td>
</tr>
<tr>
<td>Realization</td>
<td>The actual costs to date.</td>
</tr>
<tr>
<td>Expectation</td>
<td>The size of the expectation.</td>
</tr>
<tr>
<td>Observation Date</td>
<td>The date on which the expectation is determined.</td>
</tr>
<tr>
<td>Explanation</td>
<td>An informative explanation such as the reason for the expected budget excess.</td>
</tr>
<tr>
<td>Documents</td>
<td>Linked documents, see Linking Documents</td>
</tr>
<tr>
<td>Expected Maturity</td>
<td>The date the cash flow for this expectation is expected to begin.</td>
</tr>
<tr>
<td>Expected Maturity End</td>
<td>The date the cash flow for this expectation is expected to end. The maturity date is only relevant if the cash flow projection method needs it.</td>
</tr>
<tr>
<td>Distribution Method</td>
<td>The method used to distribute the cash flow of the expectation over time based on expected maturity and expected maturity date.</td>
</tr>
</tbody>
</table>

Latest estimations

In this form you can register and change latest estimates.

A latest estimate is a cost driver still to arrive which is included or not included in the budget and is not being covered by an order. A latest estimate can be used to register the expected minimum budget spendings within a contract, regardless of already placed orders or recei-
ved invoices.

Normally you will register a latest estimate if you expect a claim, an unexpected setback or a non-legally agreed funding (for instance from governments).

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project</td>
<td>The project which the latest estimate is part of.</td>
</tr>
<tr>
<td>Cost Type</td>
<td>The cost category on which the latest estimate is registered. Only cost categories can be chosen from the master roll up of the type 'Costs'.</td>
</tr>
<tr>
<td>Supplier</td>
<td>The supplier causing the cost driver.</td>
</tr>
<tr>
<td>Contract</td>
<td>The contract for that particular category of costs and the possibly related invoices. The two latest estimates cannot share the same contract.</td>
</tr>
<tr>
<td>Amount Latest Estimate</td>
<td>The amount of the latest estimate.</td>
</tr>
<tr>
<td>Observation Date</td>
<td>The date at which the latest estimate is determined by the project developer.</td>
</tr>
<tr>
<td>Explanation</td>
<td>An informative explanation such as the reason for the expected budget excess.</td>
</tr>
<tr>
<td>Documents</td>
<td>Linked documents, see Linking Documents for details.</td>
</tr>
<tr>
<td>Expected Maturity</td>
<td>The date the cash flow for this latest estimate is expected to begin.</td>
</tr>
<tr>
<td>Expected Maturity End</td>
<td>The date the cash flow for this latest estimate is expected to end. The maturity date is only relevant if the cash flow projection method needs it.</td>
</tr>
<tr>
<td>Distribution Method</td>
<td>The method used to distribute the cash flow of the latest estimate over time based on expected maturity and expected maturity date.</td>
</tr>
</tbody>
</table>

Deviating Encoding

In this screen you can subsequently assign invoice lines to another contract within the origi-
nal cost category, and also modify the description, with or without modifying the assignment.

You can use this screen if the original coding of the invoice is not correct. All reports will use a possible deviating code as if being the original code, but in the screens you will still recognize the original code.

The meaning of the entry fields is:

- **Deviating Contract**: The desired contract of the invoice line. If you want to use the original contract, make it blank.
- **Deviating Description**: The desired description of the invoice line. If you want to use the original description, make it blank.
- **Deviating With/without Job**: The desired with/without order coding of the invoice line. If you want to use the original with/without order, select ‘Use Original Value’.

**Revenues**

In this form you can register and change revenues.

A revenue is a unit (parking lot, house, store or **office** space) which can be sold or rented as part of a project to a client. Any additional revenues such as contributions from the government are sometimes registered as negative costs.
During the determination of the project the revenues are included in the budget to cover the costs and to reach a positive project result.

The revenues are registered per unit number against an expected revenue. For example, if a project will produce fifteen houses, then fifteen revenues will be registered. In an early stage it is sensible to combine similar revenues, for example, five corner houses with a total value of EUR 1,400,000.

The actual revenue (sales price or value at resale to owner in rental state) is added on the moment of rent or sale of a unit.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project</td>
<td>The project of which the revenue is part of.</td>
</tr>
<tr>
<td>Cost Type</td>
<td>The cost category on which the revenue is registered. Only cost categories can be chosen from the master roll up of the type ‘Revenues’.</td>
</tr>
<tr>
<td>Category</td>
<td>The type of revenue. See also Revenue Types.</td>
</tr>
<tr>
<td>Contract</td>
<td>The contract for the grouping of a revenue. Two revenues cannot share the same contract on one budget.</td>
</tr>
<tr>
<td>Sold</td>
<td>The revenue has been sold if checked.</td>
</tr>
<tr>
<td>Customer</td>
<td>Reference to the buyer of the revenue as registered in Organizations.</td>
</tr>
<tr>
<td>Customer free format</td>
<td>Reference to a customer as free format.</td>
</tr>
<tr>
<td>Address</td>
<td>The address where the revenues are earned.</td>
</tr>
<tr>
<td>City</td>
<td>The place where the revenues are realized.</td>
</tr>
<tr>
<td>#Units</td>
<td>The number of units, expressed in units that belong to the class. Houses are generally expressed in ‘Numbers’, while 'Commercial Space’ is expressed in ‘m²’.</td>
</tr>
<tr>
<td>Budgeted Result</td>
<td>The budgeted result of the unit.</td>
</tr>
<tr>
<td>Multiple Periods</td>
<td>An indicator if more than one invoice will be sent in order to charge the agreed revenue. In case you choose for one period and the field ‘Realized Revenues’ is not filled in or differently, the first invoice of this revenue will be treated as the realized revenue.</td>
</tr>
<tr>
<td>Charged by Hour</td>
<td>The activities will be charged by hour if selected.</td>
</tr>
<tr>
<td>Customer Reference</td>
<td>A reference/characteristic that is specified by the customer.</td>
</tr>
<tr>
<td>Description</td>
<td>A description of the products, activity or situation where revenues relate to.</td>
</tr>
<tr>
<td>Explanation</td>
<td>An informative explanation such as the expected start or duration of the rental period.</td>
</tr>
<tr>
<td>Planned Start Date</td>
<td>The planned start of realization.</td>
</tr>
<tr>
<td>Planned End Date of Handover</td>
<td>The planned date of handover of the units.</td>
</tr>
<tr>
<td>End of Construction</td>
<td>The actual end date of construction of the units.</td>
</tr>
<tr>
<td>Realized Revenues</td>
<td>The realized revenue per unit. This is filled out as soon as the contractual agreement is signed.</td>
</tr>
<tr>
<td>Note that reports may show a different contract revenue as entered here if ‘1 period’ is selected in the field ‘Multiple Periods’ and an invoice with contract is sent. In this case the reports will always show the total invoice amount instead of the here entered realized revenues.</td>
<td></td>
</tr>
<tr>
<td>Planned Date Sales</td>
<td>The expected date that the customer will sign the sales contract.</td>
</tr>
<tr>
<td>Date Realization Sale</td>
<td>The date on which the contractual agreement with the construction company is signed.</td>
</tr>
<tr>
<td>Planned Date of Transport</td>
<td>The expected date when the product will be transferred to the buyer.</td>
</tr>
<tr>
<td>Buyer</td>
<td>The name of the buyer.</td>
</tr>
<tr>
<td>Points</td>
<td>The number of points awarded for the commercial objective of the project. This is normally used to determine bonuses.</td>
</tr>
<tr>
<td>Documents</td>
<td>Linked documents, see Linking Documents.</td>
</tr>
<tr>
<td>Expected Maturity</td>
<td>The date the cash flow for revenue is expected to begin.</td>
</tr>
<tr>
<td>Expected Maturity End</td>
<td>The date the cash flow for this revenue is expected to finish. The maturity date is only relevant if the cash flow projection method needs it.</td>
</tr>
<tr>
<td>Distribution Method</td>
<td>The method used to distribute the cash flow of the revenue over time based on expected maturity and expected maturity date.</td>
</tr>
</tbody>
</table>

The meaning of the other fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Code</td>
<td>A unique code for the project.</td>
</tr>
<tr>
<td>Name</td>
<td>The name of the project.</td>
</tr>
<tr>
<td>Roll Up</td>
<td>The roll up code.</td>
</tr>
<tr>
<td>Master Roll Up</td>
<td>The name of the master roll up to which the roll up (a roll up is a bundle of individual cost categories) belongs.</td>
</tr>
</tbody>
</table>
| Calculated Date of Production | The calculated date of production on which the units are counted as production. The calculation is as follows:  
• Date end of construction units if available.  
• Date end of construction if available.  
• Planned end date of construction units if available. |

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<table>
<thead>
<tr>
<th><strong>Column</strong></th>
<th><strong>Description</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Open</td>
<td>Indicator whether the bill is paid.</td>
</tr>
<tr>
<td>Category</td>
<td>Is a grouping of revenues.</td>
</tr>
<tr>
<td>Merged Project</td>
<td>The name of the main project to which the revenue belongs.</td>
</tr>
<tr>
<td>To be Invoiced</td>
<td>Contains the part of the revenue that still needs to be invoiced. Automatically calculated by the system.</td>
</tr>
</tbody>
</table>

**1.2.3.4 Budget**

Enter text here.

**Contract Budgets**

In this screen you can register and change Contract Budgets.

A contract budget is a specification of the total available budget for a cost type. You can allocate different budgets to different contracts within a cost category and in this way you will be able, as early as possible, to examine budget exceeding.

Contract budgets can only be registered for cost types from the master roll up category ‘Costs’. You can’t use contract budgets for ‘Revenues’ and ‘Results’.

For example: you have a budget of EUR 500,000 for the purchase of five to be demolished homes. Per home you have created a contract in the cost category ‘Purchase houses’, with for each home a contract budget of EUR 100,000. After the negotiations with the first resident you know that you need to pay EUR 120,000 for this house. Therefore, you will determine an order of EUR 120,000 already. Although negotiations with the other residents have not been completed, you can already see a budget exceeding of EUR 20,000.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project</td>
<td>The project of which the contract budget is part of.</td>
</tr>
<tr>
<td>Cost Type</td>
<td>The cost category of which the contract budget is registered. Only cost categories can be chosen from the master roll up of the type ‘Costs’.</td>
</tr>
<tr>
<td>Contract</td>
<td>The contract where the contract budget is related to.</td>
</tr>
<tr>
<td>Contract Budget</td>
<td>The specific amount for this contract.</td>
</tr>
<tr>
<td>Release Deviation</td>
<td>If checked, any budget surplus on this contract budget is used to offset deficits elsewhere.</td>
</tr>
<tr>
<td>Explanation</td>
<td>An informative explanation such as the reason for the creation of a specific contract budget.</td>
</tr>
<tr>
<td>Documents</td>
<td>Linked documents, see Linking Documents.</td>
</tr>
<tr>
<td>Expected Maturity</td>
<td>The date the cash flow for this contract budget is expected to begin.</td>
</tr>
<tr>
<td>Expected Maturity End</td>
<td>The date the cash flow for this contract budget is expected to end. The maturity date is only relevant if the cash flow projection method needs it.</td>
</tr>
<tr>
<td>Distribution Method</td>
<td>The method used to distribute the cash flow of the revenue over time based on expected maturity and expected maturity date.</td>
</tr>
</tbody>
</table>

The meaning of the other fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unallocated Budget on Cost Category</td>
<td>Current budget space for this cost category.</td>
</tr>
<tr>
<td>Size</td>
<td>Size of the linked documents.</td>
</tr>
</tbody>
</table>
Budget Movements

In this screen the budget movements are registered. It is only permitted to reallocate the budget over main cost categories, if this is set in Settings.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project</td>
<td>The project of which the budget movement is part of.</td>
</tr>
<tr>
<td>Cost Category From</td>
<td>The costs category from which the budget is transferred.</td>
</tr>
<tr>
<td>Cost Category To</td>
<td>The cost category to which the budget is transferred.</td>
</tr>
<tr>
<td>Budget Movement</td>
<td>The budget amount that is transferred.</td>
</tr>
<tr>
<td>Explanation</td>
<td>An informative explanation such as the cause of the budget movement or the person with whom the budget movement was discussed.</td>
</tr>
</tbody>
</table>

The meaning of the other fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Created at</td>
<td>The date on which the budget movement is created.</td>
</tr>
<tr>
<td>Documents</td>
<td>Linked documents, see Linking Documents.</td>
</tr>
<tr>
<td>Size</td>
<td>Size of the linked documents.</td>
</tr>
</tbody>
</table>

Comment Deviation

This screen allows you explanations on exceptions to the budget record and change.

Often the client will expect an explanation why a budget overrun occurs within a cost category. Through this registration you can provide this information in a quick and clear manner.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project</td>
<td>The project of which the comment is part of.</td>
</tr>
<tr>
<td>Cost Type</td>
<td>The cost category to which the comment refers. Cost categories can only be chosen from a master roll up of the type ‘Revenues’ and ‘Costs’.</td>
</tr>
<tr>
<td>Explanation</td>
<td>The text of the explanation.</td>
</tr>
<tr>
<td>Release Deviation</td>
<td>The budgetary surplus on this cost category and budget surpluses on related contract budgets can be used to compensate for deficits on other cost categories.</td>
</tr>
</tbody>
</table>

The meaning of the other fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budget Reference</td>
<td>Reference to a budget as registered in Budgets.</td>
</tr>
<tr>
<td>Remaining Cost Category Budget after Movements</td>
<td>Budget after the corrections for budgetverschuivingen. Budget after the corrections for budget mutations.</td>
</tr>
</tbody>
</table>

**Budget Next Phase**

In this screen you want the budget for the next phase of the project record and change.

After the administration has established an approved expose, you can, as project developer, start realizing the relevant phase of the project. For a next phase there is obviously a need for a higher budget. In this form you can allocate what budget you think you need for the next phase.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project</td>
<td>The project where the budget next phase is part of.</td>
</tr>
<tr>
<td>Please note: when searching you should use the master project if you have merged reports turned on!</td>
<td></td>
</tr>
<tr>
<td>Cost Type</td>
<td>The costs type where the budget next phase is registered.</td>
</tr>
<tr>
<td>Please note: only cost categories can be chosen from the master roll up of the type ‘Costs’ or ‘Revenues’.</td>
<td></td>
</tr>
<tr>
<td>Amount Next Phase</td>
<td>The total budget amount for the next phase that will be requested.</td>
</tr>
<tr>
<td>Explanation Next Phase</td>
<td>A possible explanation of the requested budget.</td>
</tr>
</tbody>
</table>

The meaning of the other fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budget Reference</td>
<td>Reference to a budget as registered in Budgets.</td>
</tr>
<tr>
<td>Remaining Cost Category Budget after Movements</td>
<td>The budget after the adjustments for budget movements.</td>
</tr>
<tr>
<td>Deviation Next Phase</td>
<td>The difference between the amount next phase and the budget from the next phase.</td>
</tr>
<tr>
<td>Deviation</td>
<td>The total difference between budget and revenue for all phases.</td>
</tr>
</tbody>
</table>

1.2.3.5 Reports

Reports give all kind of information about a project and are available in Adobe PDF and Microsoft Excel format. You can edit data making use of the hyperlinks in the reports.

**Project overview**

Enter text here.

**Financial Project Overview Level 3**

This report allows you to request the financial status on project level, on the level of the master roll ups and on the level of cost categories.
The fields have the same meaning as the fields used for reporting level 2, see Financial Project Overview Level 2.

Financial Project Overview Level 4

This report allows you to request the financial status on project level, on master roll up level and on individual contract level.
The fields have the same meaning as the fields used for reporting level 2, see Financial Project Overview Level 2 [11].

**Project Status**

Enter text here.

**Project Status per Cost Category**

This report allows you to request the financial status per cost category at project level.

The abbreviation ‘IWO’ stand for ‘Invoice with Order’ which means the amount belonging to an invoice which is linked to an order. The abbreviation ‘INO’ means ‘Invoice with No Order’ which means the amount of an invoice that is not linked to an order.
Project Status Workbench

This report allows you to request the financial status on project level and on the level of cost category as shown in the workbench.
Processes

Enter text here.

Processes Overview

With this report you can request the status of the processes. The report shows only processes that have not been completed.

The meaning of the fields is the same as the fields shown in the processes screen [Processes](#).

Processes per Relation

This report shows per Relation the processes per project. Also an indicator shows whether the process already has been completed.

A process is on the list when:

- The owner works for the relation.
- The reporter works for the relation.
- The relation is the organization on whose behalf the process was created.
- The relation is customer of the project of the process.
Geographical Overview

Enter text here.

Geographical Overview Organizations

This report shows the geographic locations of the organizations involved in the projects. To run this report ‘Google Earth’ needs to be installed.
Geographic Overview Projects

This report shows the geographic locations of the projects. To run this report ‘Google Earth’ needs to be installed.
Concept Next Phase

This report allows you to request the financial status on project level, on the level of the master roll ups and on the level of cost categories.

Besides the information on report level 3, you can also see the requested budget for the next phase, as registered in Expected Budget Next Phase.
The fields have the same meaning as the fields used for reporting level 2, see Financial Project Overview Level 2.

Revenues Overview

This report lets you project revenue per query.
User Activity

This screen allows you to request ‘process level’ where a person worked on.

In the second part of this report which is called ‘time registrations’, shows the number of hours and the total amount of hours that a project employee has been working on a project.

It can occur that there are overlaps or gaps between the hours worked. In the case of an overlap, the report shows a red outlined field that contains the minutes of the overlap. If the worked hours do not contiguous, the report shows a green outlined field that contains the extent of the hole in minutes.

The period of the report can be entered via the report parameters.

Warning! The report is grouped by year, month, and then week. This can cause that in the end of a year a month could be cut in half and that in the end of the month a week could be cut in half.
### 1.2.3.6 Cash Flows

Using cash flow projections, the net present value of a project can be calculated by taking a series of expected future payments (negative values) and expected income (positive values).
and to calculate the net present value (discounted) of them with a net present value rate. The net present value is also known as the net present worth (NPW). The net present value rate is also known as discount rate, advance interest rate or cost of capital.

The advantage of this method of determining the value of a project is that future developments are taken into account properly in determining the present value of the project.

The disadvantage of this method is the rather subjective nature of estimating future cash flows. It can also be difficult to estimate the net present value rate.

**Concept**

A cash flow is a flow of funds over a period according to an (adjustable) curve.

The determination of the cash flows in Invantive Estate is divided in two parts:
- determining the historical cash flows, and
- determining the future cash flows.

**Cash flows at All Levels**

A cash flow projection can be defined at all levels:
- Contract, for example, the supplying of a steel construction by the firm Derikx.
- Cost Category, for example, all steel work within a project.
- Roll up, for example, all consultancy within a project.
- Master roll up, for example, all costs within a project.
- Independent or sub-project, for example, a full building lease project.
- Master project, for example, a combination of a land and two building lease projects.
- Legal entity, for example all projects of the SPV ‘Projects South’.
- Company wide, namely all projects within the system.

Cross sections are possible at all levels, for example, all cash flows of a supplier or all cash flows for projects of a developer.

**Historical Cash Flows**

The historical cash flows consist of realized cash flows. A cash flow is achieved when an entry in the general ledger has actually led to a cash flow (payment or receipt). Only postings (invoices) that are paid or received are included as a historical cash flow.

**Future Cash Flows**

The volume of the future cash flows is the difference between the prognosis end of work and the historical cash flows. This will ensure that the cash flow projections always match with the prognosis end work when using an automatic system for the determination of the cash flow.

Invantive Estate determines using the expandable cash flow projection method when a cash flow will occur.

The most common cash flow projection is ‘automatic worst case’. Other cash flow projection methods require manual input or are a variation on ‘automatic worst case’ by varying the cash flows in time based upon project specific risk variables or by projecting sales instead of cash flows in time.
Automatic Worst Case

The automatic worst case approach yields in almost all situations a realistic cash flow projection for projects in various stages of development:

- First concept with a budget outline and a schedule outline.
- A tangible development plan with a budget for each cost category and a schedule for each activity.
- A project in its implementation phase where part of the activities are already completed while others are carried out.
- A project in its final stage.

The automatically worst case approach chooses depending on the available information, as detailed as possible planning of the cash flows. In descending degree of detail the following levels are used:

- Entering in general ledger (invoices)
- Revenues (sold / unsold) and orders
- Contract Budgets
- Budget
- Cost Type
- Project

At these levels period information is available, such as the planned start and completion date of a project, or the actual start date of a project. The automatic worst case approach will always use period information as accurately as possible. At all levels always a start and end date for the cash flow are defined. This will always be used when entered.

The volume between the prognosis end of work and the historical cash flows is divided over the period by a curve. By default, some common curves are included, for example, for ground and building lease. The desired curve shape can be specified at almost all levels. Normally, the curves are defined by the cost category or by the budget. But if necessary, the curve can also be set at detail level.

Private curves can be used by entering a list of sampling points on the curve values into Codes. The curve values must lie in the range of 0 (0%, no cash flow) to 1,000,000 (100%, fully realized cash flow). The number of sampling points in the curves can be varied as desired and is usually a balance between computing time, storage space and precision. In practice, more than 30 sampling points do not add much extra details. Before adding your private curve first contact the vendor of Invantive Estate.

Cash Flow Projections

In this screen you can enter cash flow projections of a project per cost category.

Using these projections you can calculate the present net value of the project on the basis of cash flow projections. The calculation is done in two steps:

1. Calculating: determines the size of each flow, start and end dates and distribution method.
2. Dividing: allocates the cash flow to the days of the calendar.

The two steps allow you to manually adjust the calculated cash flows if desired.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project</td>
<td>The project which the latest estimate is part of.</td>
</tr>
<tr>
<td>Start of Projection</td>
<td>The starting date of the cash flow projection.</td>
</tr>
<tr>
<td>Cash Flow Method</td>
<td>The way cash flows are allocated to a period.</td>
</tr>
<tr>
<td>Include Explanation in Flows</td>
<td>When checked, the explanation will be included in the calculation of the cash flow.</td>
</tr>
<tr>
<td>Include Explanation in Daily Flows</td>
<td>When checked, the explanation will be included in the calculation of the daily cash flows.</td>
</tr>
<tr>
<td>Explanation</td>
<td>An informative explanation such as a reason why the 'Cash Flow Method' in question was chosen.</td>
</tr>
<tr>
<td>Net Present Value</td>
<td>The net present value calculated using the shared cash flow and the interest on the cash flow including the already settled contracts.</td>
</tr>
</tbody>
</table>

The meaning of the other fields:

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project</td>
<td>The project which the latest estimate is part of.</td>
</tr>
<tr>
<td>Start of Projection</td>
<td>The starting date of the cash flow projection.</td>
</tr>
<tr>
<td>Net Present Value</td>
<td>The net present value calculated using the shared cash flow and the interest on the cash flow including the already settled contracts.</td>
</tr>
<tr>
<td>Net Present Value Excluding Settled Posts</td>
<td>De netto huidige waarde berekend met behulp van de verdeelde kasstroom en de rente op de kasstomen, exclusief de al afgewikkelde contracten.</td>
</tr>
</tbody>
</table>
Total Settled Posts

Total amount of the up to now settled contracts.

Values at Last Calculation

Budget
The project budget.

Deviation
The difference between the project budget and the project prognosis.

Prognosis
The project prognosis.

Costs
The costs of a project.

Revenues
The revenues of the project.

Project Result
The revenues minus the costs.

Taken Result
Amount at this moment is already booked as loss or profit.

Software Version used in last Calculation
The software version that was used for the final calculation of the cash flow amount or its distribution. If a new software version is installed it is possible that the equation with old cash flow amounts and its distributions is polluted.

Calculate

Date of last Recalculation
Date when the last recalculation took place.

Date Last Distribution
Date when the last distribution took place.

Cash Flows

Calculated Amount
The cash flow amount.

The cash flows per date provide an overview of the historical and projected cash flows:

The cash flows are split into cash flow details. In the bottom part of the screen the cash flow details are shown. Each cash flow is supported with an explanation of the calculation:

In the example above a cost budget of EUR 615,424 was expected. Meanwhile EUR 610,000 is invoiced and paid. According to the expected maturity of the budget, the remaining budget of Eur 5,424 will be used between August 1, 2009 and June 1, 2012.

Cash-flow Details

In this screen you can enter cash flow details or a cast flow.
Cashflow details report

This report provides details of cash flows per project again.

Cash Flows per Cost Category

Enter text here.

1.2.4 CRM

This chapter contains information about the functions which can be found under menu ‘CRM’. In this menu you can find Persons and Organizations.

1.2.4.1 Organizations

Enter text here.

Organizations

This screen allows you to record and change organizations.

An organization can be used as a project customer, an order taker (supplier), a counterparty of invoices or a project entity of a project. Furthermore, you can use an organization to register other involved organizations.

A supplier is a subcontractor or counterparty who can fulfill an order. Occasionally you will find organizations that in the sense of word are not a real organization. These are the suppliers that are used to allocate costs to, where the costs are not simply allocatable to a legal person. For example, a posting through the memorial to charge general expenses such as property, heating and security to a project.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>The code with which the organization is identified.</td>
</tr>
<tr>
<td>Name</td>
<td>The name of the organization.</td>
</tr>
<tr>
<td>Short Name</td>
<td>The abbreviated name of the organization.</td>
</tr>
<tr>
<td>Primaire Contactpersoon</td>
<td>First contact within the organization. Normally this is an employee of the organization.</td>
</tr>
<tr>
<td>Salesman</td>
<td>The person who is responsible for the sales to the organization. This will be the account manager if no other persons are assigned.</td>
</tr>
<tr>
<td>Contact Sales</td>
<td>Sales contact of the organization.</td>
</tr>
<tr>
<td>Contact Purchasing</td>
<td>Purchasing contact of the organization.</td>
</tr>
<tr>
<td>Language</td>
<td>Reference to a language as registered in Languages.</td>
</tr>
<tr>
<td>Roles</td>
<td></td>
</tr>
<tr>
<td>Customer</td>
<td>Can be used in projects as a customer.</td>
</tr>
<tr>
<td>Supplier</td>
<td>Can be used as a supplier when entering new orders in Orders or when entering new last estimates in Last Estimates.</td>
</tr>
<tr>
<td>Do not check if the supplier is only used to relate realization figures based on invoice lines, for example, for artificial suppliers for results taken.</td>
<td></td>
</tr>
<tr>
<td>Project entity</td>
<td>Can be used as entities in projects.</td>
</tr>
<tr>
<td>Preferred Engineer 1</td>
<td>The name of a preferred engineer as registered in Persons.</td>
</tr>
<tr>
<td>Preferred Engineer 2</td>
<td>The name of an alternative preferred engineer as registered in Persons.</td>
</tr>
<tr>
<td>Contact Information</td>
<td></td>
</tr>
<tr>
<td>Phone Work</td>
<td>The telephone number where the organization can be reached at work.</td>
</tr>
<tr>
<td>Mobile Number</td>
<td>The mobile number where the organization can be reached.</td>
</tr>
<tr>
<td>Fax</td>
<td>The fax number of the organization.</td>
</tr>
<tr>
<td>Home</td>
<td>The telephone number where the organization can be reached at home.</td>
</tr>
<tr>
<td>Email Address</td>
<td>The e-mail address of the organization.</td>
</tr>
<tr>
<td>Address</td>
<td></td>
</tr>
<tr>
<td>Address 1</td>
<td>The address of the organization.</td>
</tr>
<tr>
<td>Address 2</td>
<td>A second address line.</td>
</tr>
<tr>
<td>Zip Code</td>
<td>The zip code.</td>
</tr>
<tr>
<td>City</td>
<td>The place where the organization is located.</td>
</tr>
<tr>
<td>Country</td>
<td>The country where the organization is located.</td>
</tr>
<tr>
<td>Visit Address</td>
<td></td>
</tr>
<tr>
<td>Address 1</td>
<td>The visit address of the organization.</td>
</tr>
<tr>
<td>Address 2</td>
<td>A second visit address line.</td>
</tr>
<tr>
<td>Zip Code</td>
<td>The zip code of the visit address.</td>
</tr>
<tr>
<td>City</td>
<td>The city of the visitor address.</td>
</tr>
<tr>
<td>Country</td>
<td>The country of the visitor address.</td>
</tr>
<tr>
<td>Invoice Address</td>
<td>Option to use an aberrant invoice address that does not belong to the organization. For example, an address of the main office or of an administrative office.</td>
</tr>
<tr>
<td>Per Address</td>
<td>Address that is used for invoicing.</td>
</tr>
<tr>
<td>Invoice Address 1</td>
<td>Alternative address that can be used for invoicing.</td>
</tr>
<tr>
<td>Invoice Address 2</td>
<td>The zip code of the invoice address.</td>
</tr>
<tr>
<td>Zip Code</td>
<td>The city of the invoice address.</td>
</tr>
<tr>
<td>Country</td>
<td>The country of the invoice address.</td>
</tr>
<tr>
<td>Invoice Email Address</td>
<td>The e-mail address which is used for billing.</td>
</tr>
<tr>
<td>G account</td>
<td>The G account number of the organization. A G-account is a blocked bank account that can be used by contractors to pay income taxes (with or without VAT) of their employees to the tax authorities or to subcontractors. From a G account you cannot make other payments. The account protects parties against defaults of wage taxes.</td>
</tr>
<tr>
<td>Postal Address</td>
<td>Postal address of the organization.</td>
</tr>
<tr>
<td>Postal Address 1</td>
<td>Second address line.</td>
</tr>
<tr>
<td>Postal Address 2</td>
<td></td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Zip Code</td>
<td>The zipcode of the postal address.</td>
</tr>
<tr>
<td>City</td>
<td>The city of the postal address.</td>
</tr>
<tr>
<td>Country</td>
<td>The country of the postal address.</td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
<tr>
<td>Legal Form</td>
<td>Reference to a legal form as registered in Legal Forms.</td>
</tr>
<tr>
<td>Trade Names</td>
<td>Trade Names that the organization uses.</td>
</tr>
<tr>
<td>Logo (URL)</td>
<td>The Internet address where the logo can be requested. The logo is after ‘Update Contacts’ also visible in Microsoft Outlook. The resolution for Microsoft Outlook should preferably be at least 72x72 pixels.</td>
</tr>
<tr>
<td>Website (URL)</td>
<td>The Internet address of the website.</td>
</tr>
<tr>
<td>IBAN Number</td>
<td>The ‘Internationaal Banc Account Number’ of the organization. The IBAN identifies an individual bank account and is used in cross border payments.</td>
</tr>
<tr>
<td>VAT Number</td>
<td>The VAT number of the organization that is intended to settle the VAT with the tax authorities.</td>
</tr>
<tr>
<td>Number C. of C.</td>
<td>The number with which the organization is registered at the Chamber of Commerce.</td>
</tr>
<tr>
<td>Employees</td>
<td>The number of employees of the organization.</td>
</tr>
<tr>
<td>Activitycode</td>
<td>The code that indicates the kind of economic activity of the organization such as ‘NAICS’ encoding. NAICS is an abbreviation for North American Industry Classification System and was introduced in 1997. NAICS offered enhanced coverage of the service sector, relative to SIC (Standard Industrial Classification). The system is designed to be largely compatible with the United Nations Statistical Office’s International Standard Industrial Classification System (ISIC). Versions are released every five years.</td>
</tr>
<tr>
<td>Activity Description</td>
<td>Description of the activity of the organization.</td>
</tr>
<tr>
<td>Date Established</td>
<td>The date of creation of the organization as a legal entity.</td>
</tr>
<tr>
<td>Repealed</td>
<td>Potential date on which the organization was dissolved as a legal entity.</td>
</tr>
<tr>
<td>Date of Last Review</td>
<td>The date the last review of the data of the organization took place. The date of last review provides an indication of the reliability of the data. Usually when the data becomes older, it will be less reliable.</td>
</tr>
<tr>
<td>Next Review</td>
<td>The date the next review of the data of the organization is planned.</td>
</tr>
<tr>
<td>VAT Code</td>
<td>Reference to a VAT code as registered in VAT codes.</td>
</tr>
<tr>
<td>Purchasing Conditions</td>
<td>Purchasing conditions as registered in Conditions.</td>
</tr>
<tr>
<td>Selling Conditions</td>
<td>Selling conditions as registered in Conditions.</td>
</tr>
<tr>
<td>Remarks</td>
<td>Any additional information about the organization can be included in this field.</td>
</tr>
<tr>
<td>IP Address List</td>
<td>List of IP addresses that are used by the organization.</td>
</tr>
<tr>
<td>Documents</td>
<td>Linked documents, see Linking Documents.</td>
</tr>
<tr>
<td>Classifications</td>
<td>The class in which the organization can be classified. Some examples of classes in which organizations can be classified are: construction; accounting offices; retailing etc.</td>
</tr>
<tr>
<td>Classifications</td>
<td></td>
</tr>
<tr>
<td>Relationship Type</td>
<td>The kind of relationship that an organization has with ‘other organizations’. For example, this could be: in competition with; gets delivered by; majority of shares owned by; etc..</td>
</tr>
<tr>
<td>Relationship Type</td>
<td></td>
</tr>
<tr>
<td>Related Organization</td>
<td>Indicates to what other organization(s) the organization is related.</td>
</tr>
<tr>
<td>Weight</td>
<td>The importance of the related organization in this type of relationship. The weight is held in a relationship, for example, for shares etc.</td>
</tr>
<tr>
<td>Weight</td>
<td></td>
</tr>
</tbody>
</table>

**The significance of the action buttons:**

<table>
<thead>
<tr>
<th>Action</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invoice Lines</td>
<td>Opens the screen containing all invoice lines of the selected organization.</td>
</tr>
<tr>
<td>Organization Involvements</td>
<td>Opens the screen containing participations of the organization.</td>
</tr>
<tr>
<td>Persons</td>
<td>Opens the screen containing the people of the organization.</td>
</tr>
<tr>
<td>Open Processes</td>
<td>Opens the screen containing the open processes of the organization.</td>
</tr>
<tr>
<td>Documents as Supplier</td>
<td>Opens the screen containing the documents of the organization in the role of the supplier.</td>
</tr>
<tr>
<td>Documents as Customer</td>
<td>Opens the screen containing the documents of the organization in the role of the customer.</td>
</tr>
<tr>
<td>Author of Document</td>
<td>Opens the screen containing the documents of the organization in the role of the author.</td>
</tr>
<tr>
<td>Projects</td>
<td>Opens the screen containing the projects of the organization.</td>
</tr>
</tbody>
</table>
Organization Involvements

In this screen you can register and change organization involvements.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organization</td>
<td>Reference to an organization as registered in Organizations</td>
</tr>
<tr>
<td>Person</td>
<td>Reference to a person as registered in Persons</td>
</tr>
<tr>
<td>Involvement Role</td>
<td>The role the person performs in relation to the organization.</td>
</tr>
<tr>
<td>Limit</td>
<td>Deviating limit used for managing workflow transitions.</td>
</tr>
</tbody>
</table>

1.2.4.2 Persons

Enter text here.

Persons

This screen lets you record and people change.

A person is a physical person who makes use of Invantive Estate (a ‘user’) or from who data is registered in Invantive Estate. A person can be an employee of your organization, but also a relationship with a supplier or a private individual.

Persons with a username can use the application. However, to use reports or screens, they need to get roles (see Role Authorisations) and possibly get access to projects (see Project Authorisations).

Note that a special user named ‘system’ exists. This user normally is solely used to install the application or its newer versions and to initially create the first users. This user cannot be deleted and has unlimited access to all screens and information.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>The name of the person.</td>
</tr>
<tr>
<td>Gender</td>
<td>The gender of the person.</td>
</tr>
<tr>
<td>First Name</td>
<td>The first name.</td>
</tr>
<tr>
<td>Initials</td>
<td>Initials of the name, for example ‘J.E.’</td>
</tr>
<tr>
<td>Unique Initials</td>
<td>The unique abbreviation of the name. The initials are used in reports or in screens when there is not enough space available to show the whole name.</td>
</tr>
<tr>
<td>Middle Name</td>
<td>Middle name of the name, for example ‘van de’.</td>
</tr>
<tr>
<td>Surname</td>
<td>Surname.</td>
</tr>
<tr>
<td>Function</td>
<td>The function of the person within the company.</td>
</tr>
<tr>
<td>Organization</td>
<td>The organization where the person is employed.</td>
</tr>
<tr>
<td>Business</td>
<td>The organization where the person is employed, see Organizations [[3]]</td>
</tr>
<tr>
<td>Language</td>
<td>Reference to a language as registered in Languages [[2]].</td>
</tr>
<tr>
<td>Manager</td>
<td>The manager or supervisor of the person.</td>
</tr>
<tr>
<td>Department</td>
<td>The department to which the person belongs.</td>
</tr>
<tr>
<td>Room</td>
<td>The room where the person has its workplace.</td>
</tr>
<tr>
<td>Titles</td>
<td>Possible titles of the individual.</td>
</tr>
<tr>
<td>Employee Number</td>
<td>Identification number of the person within the organization where the person is employed.</td>
</tr>
<tr>
<td>IP Address List</td>
<td>List of IP addresses used by this person.</td>
</tr>
<tr>
<td>Contact Information</td>
<td></td>
</tr>
<tr>
<td>Email address 1</td>
<td>The email address of the person.</td>
</tr>
<tr>
<td>Email Address 2</td>
<td>A second alternative email address of the person.</td>
</tr>
<tr>
<td>Email Address 3</td>
<td>A second alternative email address of the person.</td>
</tr>
<tr>
<td>Email Address 4</td>
<td>A fourth alternative email address of the person.</td>
</tr>
<tr>
<td>Work</td>
<td>The telephone number of the person at work.</td>
</tr>
<tr>
<td>Work Extension</td>
<td>The extension number of the person at work.</td>
</tr>
<tr>
<td>Mobile Number</td>
<td>The mobile number of the person.</td>
</tr>
<tr>
<td>Home</td>
<td>The phone number where the person can be reached at home.</td>
</tr>
<tr>
<td>Fax</td>
<td>The fax number of the person.</td>
</tr>
<tr>
<td>SIP Address</td>
<td>Het SIP address of the person.</td>
</tr>
<tr>
<td>Email Address for Workflow</td>
<td>The email address receiving the emails that are generated by the workflow. The application uses this email address in case it needs to send messages to the user.</td>
</tr>
<tr>
<td>Address</td>
<td>Address of the person (for example, street and house number)</td>
</tr>
<tr>
<td>Address 2</td>
<td>Extra address line, in case needed.</td>
</tr>
<tr>
<td>Zip Code</td>
<td>Postal code.</td>
</tr>
<tr>
<td>City</td>
<td>Place of residence.</td>
</tr>
<tr>
<td>Country</td>
<td>Country of residence.</td>
</tr>
<tr>
<td>City of Birth</td>
<td>City of birth.</td>
</tr>
<tr>
<td>Country of Birth</td>
<td>Country where the person was born.</td>
</tr>
<tr>
<td>Social Media</td>
<td></td>
</tr>
<tr>
<td>Hyves Address</td>
<td>Het Hyves address of the person.</td>
</tr>
<tr>
<td>LinkedIn Address</td>
<td>Het LinkedIn address of the person.</td>
</tr>
<tr>
<td>Facebook Address</td>
<td>Het Facebook address of the person.</td>
</tr>
<tr>
<td>MySpace Address</td>
<td>Het MySpace address of the person.</td>
</tr>
<tr>
<td>ICQ Address</td>
<td>Het ICQ address of the person.</td>
</tr>
<tr>
<td>Skype Address</td>
<td>Het Skype address of the person.</td>
</tr>
<tr>
<td>Xing Address</td>
<td>Het Xing address of the person.</td>
</tr>
<tr>
<td>Twitter Address</td>
<td>Het Twitter address of the person.</td>
</tr>
<tr>
<td>Plaxo Address</td>
<td>Het Plaxo address of the person.</td>
</tr>
<tr>
<td>YouTube Address</td>
<td>Het YouTube address of the person.</td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
<tr>
<td>Website (URL)</td>
<td>The URL of the personal website.</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of Birth</td>
<td>The date of birth of the user.</td>
</tr>
<tr>
<td>Wedding Date</td>
<td>The date of the last marriage.</td>
</tr>
<tr>
<td>Date of Death</td>
<td>The date of death.</td>
</tr>
<tr>
<td>Partner</td>
<td>The name of the partner.</td>
</tr>
<tr>
<td>Children</td>
<td>The names of any children, separated by a randomly chosen separator.</td>
</tr>
<tr>
<td>Nickname</td>
<td>The nickname.</td>
</tr>
<tr>
<td>Hobbies</td>
<td>The hobbies.</td>
</tr>
<tr>
<td>IBAN Number</td>
<td>The IBAN of the bank account of the person.</td>
</tr>
<tr>
<td>Social Security Number</td>
<td>The SSN is a unique personal number. It is used for identification and tax</td>
</tr>
<tr>
<td></td>
<td>purposes. The Social Security Number consists of 9 digits. Unlike many</td>
</tr>
<tr>
<td></td>
<td>similar numbers, no check digit is utilized.</td>
</tr>
<tr>
<td>Signature (URL)</td>
<td>The Internet address of the image of the signature.</td>
</tr>
<tr>
<td>Passport Photo (URL)</td>
<td>The URL of the passport photo of the person. This URL can be used in</td>
</tr>
<tr>
<td></td>
<td>‘online directories’. The passport photo is after ‘Update Contacts’ also</td>
</tr>
<tr>
<td></td>
<td>visible in Microsoft Outlook. The resolution for Microsoft Outlook should</td>
</tr>
<tr>
<td></td>
<td>preferably be at least 72x72 pixels.</td>
</tr>
<tr>
<td>RDBMS User</td>
<td>The RDBMS user name associated with this Invantive Estate user. Is used</td>
</tr>
<tr>
<td></td>
<td>to automatically log in when you use your own reporting software.</td>
</tr>
<tr>
<td>Internal Rate</td>
<td>The internal rate of the person.</td>
</tr>
<tr>
<td>Working Schedule</td>
<td>The working schedule of the person, see Working Schedules.</td>
</tr>
<tr>
<td>Date of Last Review</td>
<td>The date the last review of the person took place. The date of last review</td>
</tr>
<tr>
<td></td>
<td>provides an indication of the reliability of the data. Usually when the</td>
</tr>
<tr>
<td></td>
<td>data becomes older, it will be less reliable.</td>
</tr>
<tr>
<td>Remarks</td>
<td>Free text box where notes on the person can be added.</td>
</tr>
<tr>
<td>Documents</td>
<td>Linked documents, see Linking Documents.</td>
</tr>
<tr>
<td>Allow Emails</td>
<td>When checked, the person authorized to unsolicited commercial emails.</td>
</tr>
<tr>
<td>Date Emails Allowed</td>
<td>The date the person has given permission for unsolicited commercial</td>
</tr>
<tr>
<td></td>
<td>emails.</td>
</tr>
<tr>
<td>Emails Allowed Evidence</td>
<td>The evidence in the form of an IP address, a URL or a text showing that</td>
</tr>
<tr>
<td></td>
<td>the person has given permission for unsolicited commercial emails.</td>
</tr>
<tr>
<td>Classification</td>
<td>The classification of the process. A classification is a label that can</td>
</tr>
<tr>
<td></td>
<td>be linked to a project, an organization, a process, a document or a person.</td>
</tr>
<tr>
<td></td>
<td>Using these labels you can find your information more efficient.</td>
</tr>
</tbody>
</table>

The significance of the action buttons:

- **Open Processes**: Opens a window with all the processes whose process holder is the person selected.
- **Author of Document**: Opens a window with all the documents whose author is the person selected.
- **User Roles**: Opens the screen containing all user roles of the selected person.

**Copy People**

In this screen you can copy the settings that are associated with an existing Invantive Estate user to a new user. In this way you can efficiently add new users in Invantive Estate.
The meaning of the entry fields is:

- **New Name**: The name of the new user.
- **New Initials**: The initials of the new user.
- **New First Name**: The first name of the new user.
- **New Last Name**: The last name of the new user.
- **New Middle Name**: The possible middle name in the name of the new user.
- **New Login**: The username of the new user.
- **New RDBMS User**: The new RDBMS user that is linked to the Invantive Estate user. The RDBMS user is used to automatically log on reporting software.
- **Include All**: If checked, all items listed below will be copied.
- **Include Users**: If checked, then the users will be copied.
- **Include Person Roles**: If checked, then the person roles will be copied.
- **Include person classifications**: If checked, then the person classifications will be copied.
- **Include Unit per Person and Labor Type**: If checked, the unit per person and labor type will be copied.
- **Include User Roles**: If checked, then the user roles will be copied.
- **Include Organization Involvements**: If checked, then the organization involvements will be copied.
Personal Skills

In this screen you can register and change personal skills.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>User</td>
<td>Reference to a person as registered in Persons.</td>
</tr>
<tr>
<td>Skill</td>
<td>Reference to a skill as registered in Skills.</td>
</tr>
<tr>
<td>Level</td>
<td>Numeric value that indicates the productivity of that person in comparison with other persons with the same skill.</td>
</tr>
</tbody>
</table>

1.2.4.3 Documents

Enter text here.

Documents

In this form you can register and change documents.

Documents can be physically stored in Invantive Estate or exist of URL’s that refer to information that is stored outside Invantive Estate.

There are three links presented in the search results:
• By selecting the unique document number, the selected document will open in the input section.
• By selecting the original file name, the document will be opened.
• By selecting the feature, the corresponding data will be opened, such as a project, an order or a process.

You can only request documents that are linked to information where you have access to and where you also have rights to the source documents (for example; project documents). For example, if you have access to project XYZ, then you can see all documents of this project. However, if you do not have access to project ABC, then you cannot see documents of this project.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent</td>
<td>The source of the document, for example, a project, an assignment, a process, etc.</td>
</tr>
<tr>
<td>Identifier</td>
<td>The unique number of the kind of data to which you want to link the document. This could be a project code, for example. This field is automatically filled when you open this screen via a 'Documents' link in another screen.</td>
</tr>
<tr>
<td>File Name</td>
<td>The file that you want to load or which is already stored.</td>
</tr>
<tr>
<td>Content (URL)</td>
<td>The Internet address of the screen where a link to the document is included.</td>
</tr>
<tr>
<td>Original File Name</td>
<td>The name of the document in an earlier stage.</td>
</tr>
<tr>
<td>MIME Type</td>
<td>The MIME-type of the document as specified by the client where the file will be uploaded. See media types.</td>
</tr>
<tr>
<td>Comments</td>
<td>An explanation of the content or meaning of the file.</td>
</tr>
<tr>
<td>Document Type</td>
<td>Reference to the document type as registered in the screen Document Types.</td>
</tr>
<tr>
<td>Document Status</td>
<td>The current status of the document.</td>
</tr>
<tr>
<td>Version</td>
<td>Displays the version of the document.</td>
</tr>
<tr>
<td>Unique Identification</td>
<td>Unique alphanumeric code, for example, the scan code.</td>
</tr>
<tr>
<td>Physical Location</td>
<td>Physical location of the original file.</td>
</tr>
<tr>
<td>Number of Pages</td>
<td>The number of pages of the document.</td>
</tr>
<tr>
<td>Number of Characters</td>
<td>The number of character in the document.</td>
</tr>
<tr>
<td>Number of Tokens</td>
<td>The number of keyw ords in the document.</td>
</tr>
<tr>
<td>Number of Words</td>
<td>The number of words in the document.</td>
</tr>
<tr>
<td>Author</td>
<td>The author of the document.</td>
</tr>
<tr>
<td>Printable</td>
<td>Can the document be printed? Some documents are only for user interface purposes.</td>
</tr>
<tr>
<td>OCR applied</td>
<td>When checked the document scanning technique 'Optical Character Recognition' was applied when the document was as stored. OCR is a technique to create digitally text out of images, so that these can be further processed on a computer.</td>
</tr>
<tr>
<td>Publish</td>
<td>Indicator whether the document should be displayed to users who have a role that does not allow to see all documents. The administrator can indicate in the screen Roles if the user is allowed to see all documents with the indicator 'May See All Documents'.</td>
</tr>
<tr>
<td>Received</td>
<td>Shows the date the document was physically received, for example, via conventional mail.</td>
</tr>
<tr>
<td>Store till</td>
<td>Shows the date on which the document can be destroyed because the administrative or legal retention period has expired.</td>
</tr>
<tr>
<td>Classification</td>
<td>Classification of the document. A classification is a label that can be linked to a project, an organization or a document. Using these labels you can find your information more efficiently.</td>
</tr>
<tr>
<td>Document Contains</td>
<td>A text that you want to use to search the contents of all visible documents. The text may be expressed as an expression in Oracle Text. Often used search queries are:</td>
</tr>
<tr>
<td></td>
<td>- 'area': documents containing the word 'area'.</td>
</tr>
<tr>
<td></td>
<td>- 'area or surface': documents containing the word 'area' or the word 'surface'.</td>
</tr>
<tr>
<td></td>
<td>- 'area or surface * 3': documents containing the word 'area' or the word 'surface' where the occurrence of the word 'surface' counts three times as heavy as the word 'area'.</td>
</tr>
<tr>
<td></td>
<td>- 'area' and 'surface': documents containing both the word 'area' and the word 'surface'.</td>
</tr>
<tr>
<td></td>
<td>- 'a?rea': documents with both the word 'area' and words that look like 'area'.</td>
</tr>
<tr>
<td></td>
<td>- 'area-surface': documents containing the word 'area' but preferably without the word 'surface'.</td>
</tr>
<tr>
<td></td>
<td>- 'area;surface': documents containing the word 'area' near to the word 'surface'.</td>
</tr>
<tr>
<td></td>
<td>- 'area not surface': documents containing the word 'area' but preferably without the word 'surface'.</td>
</tr>
<tr>
<td></td>
<td>- '$area': documents containing the word 'area' and inflections from it like for example 'areas'.</td>
</tr>
<tr>
<td></td>
<td>- '% area': documents containing all terms that begin with 'area'.</td>
</tr>
<tr>
<td></td>
<td>- 'area or ( surface and feet )': documents containing the word 'area' or containing a combination of the words 'surface' and 'feet'.</td>
</tr>
<tr>
<td>Size From (bytes)</td>
<td>The lower limit of the size of the document in bytes.</td>
</tr>
<tr>
<td>Size - to (bytes)</td>
<td>The upper limit of the size of the document in bytes.</td>
</tr>
</tbody>
</table>
The meaning of the other fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>The unique number of the document.</td>
</tr>
<tr>
<td>Properties</td>
<td>Size of the document in bytes.</td>
</tr>
<tr>
<td>File Checksum</td>
<td>Checksum created by Invantive Estate using the MD5 algorithm. MD5 (Message Digest Algorithm 5) is a widely used cryptographic hash function with a 128-bit hash value. Using the checksums the system can check to see if there are any duplicate files in existence.</td>
</tr>
<tr>
<td>Created with</td>
<td>Date the document was created and a reference to the person on the system that saved the file.</td>
</tr>
<tr>
<td>Modified with</td>
<td>Date the document was modified and a reference to the person on the system that saved the file.</td>
</tr>
<tr>
<td>Contract</td>
<td>The contract to which the document relates to.</td>
</tr>
<tr>
<td>Project</td>
<td>The code of the project to which the document relates to.</td>
</tr>
<tr>
<td>Name</td>
<td>The name of the project to which the document relates to.</td>
</tr>
<tr>
<td>Customer</td>
<td>The code of the customer of the project to which the document relates to.</td>
</tr>
<tr>
<td>Name</td>
<td>The name of the customer of the project to which the document relates to.</td>
</tr>
<tr>
<td>Supplier</td>
<td>The code of the contractor of the project to which the document relates to.</td>
</tr>
<tr>
<td>Name</td>
<td>The name of the contractor of the project to which the document relates to.</td>
</tr>
<tr>
<td>Organization or Author</td>
<td>The code of the organization or the author which owns the document.</td>
</tr>
<tr>
<td>Name</td>
<td>The name of the organization or the author which owns the document copyrights.</td>
</tr>
<tr>
<td>Cost Type</td>
<td>The cost category to which the document relates to.</td>
</tr>
<tr>
<td>E-mail</td>
<td></td>
</tr>
<tr>
<td>Email Address From</td>
<td>The e-mail address that sent the e-mail. Provided by the Invantive Estate for Outlook.</td>
</tr>
<tr>
<td>Email Address To</td>
<td>The e-mail address to which the e-mail was sent. Provided by the Invantive Estate for Outlook.</td>
</tr>
<tr>
<td>CC</td>
<td>The e-mail address to which the e-mail was sent as CC. Provided by the Invantive Estate for Outlook.</td>
</tr>
<tr>
<td>BCC</td>
<td>The e-mail address to which the e-mail was sent as BCC. Provided by the Invantive Estate for Outlook.</td>
</tr>
<tr>
<td>Workflow</td>
<td></td>
</tr>
<tr>
<td>Process</td>
<td>Reference to a process as registered in Processes</td>
</tr>
<tr>
<td>Status</td>
<td>Reference to a status of a process as registered in Processes</td>
</tr>
<tr>
<td>Process Holder</td>
<td>Reference to a process holder as registered in Processes</td>
</tr>
</tbody>
</table>

**Document Involvements**

In this screen you can register and change document entries.
The meaning of the entry fields is:

- **Document Number**: Reference to a document as registered in [Documents](#).
- **Person**: Reference to a person as registered in [Persons](#).
- **Involvement Role**: The role the person performs in relation to the document.
- **Limit**: Deviating limit used for managing workflow transitions.

### 1.2.4.4 Telephone conversations

Enter text here.

**Telephone conversations**

In this screen, telephone conversations can be registered also those that originate from the telephone exchange.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number from</td>
<td>Source number of the connection.</td>
</tr>
<tr>
<td>From Cleaned</td>
<td>Source number of the connection, cleaned by an additional business rule.</td>
</tr>
<tr>
<td>Number to</td>
<td>Target number of the connection, cleaned by an additional business rule.</td>
</tr>
<tr>
<td>To Cleaned</td>
<td>Target number of the connection.</td>
</tr>
<tr>
<td>Channel</td>
<td>The channel that was used to establish the call.</td>
</tr>
<tr>
<td>Unique Channel Identifier</td>
<td>Unique feature of the channel.</td>
</tr>
<tr>
<td>Duration (sec)</td>
<td>Duration of the call in seconds.</td>
</tr>
<tr>
<td>Billing Duration (sec)</td>
<td>Duration of the call in seconds used to determine the cost.</td>
</tr>
<tr>
<td>Disposition</td>
<td>Indicates what happened with the call.</td>
</tr>
<tr>
<td>Default Context</td>
<td>Default context of the call.</td>
</tr>
<tr>
<td>Call Time as Text</td>
<td>Date and time the call was initiated, delivered in text format by the source system.</td>
</tr>
</tbody>
</table>
| AMA Flags         | AMA is an abbreviation for Automated Message Accounting. The next values are available:  
|                   | • 1 = Ommit, do not record the conversations.  
|                   | • 2 = Charge, charge the call.  
|                   | • 3 = Archive, this is the default value, indicates that the interview should be archived. |
| Start Call        | Date and time the call was started.                                         |

**Make a Call**

This screen allows you to call if you have the necessary facilities and Invantive Estate is connected to a PBX. The screen uses the technique Computer Telephony Integration (CTI). This technique connects a PBX with a computer. This will allow you to manage telephone calls.
with the computer.

Using CTI has the following advantages:

- Personal and rapid approach of the customer. The customer is immediately recognized by using his phone number. It is also possible with use of a report of unanswered calls to call back the customers the same day. This service enhances the customer friendly image.

- Efficiency related to time savings. All customer information is instantly available making that the interview time is reduced. The outgoing telephone traffic is achieved by a mouse click from Invantive. This makes entering phone numbers unnecessary.

- Comfort and stress reduction. For incoming calls, a popup appears that shows all relevant information about the relationship. Additional info can be added during the interview. The notes can be stored and consulted at a next contact.

- Cost Savings. The utilization of staff can be adjusted at peak times. The telephone traffic is fully registered. To dial via your PC and using the automatic popups results in a considerable time efficiency and that means cost savings.

- Better accessibility. The accessibility of your company is best when using CTI. No long waiting times thanks to efficient communication.

![CTI Interface]

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone</td>
<td>The telephone number</td>
</tr>
</tbody>
</table>

1.2.4.5 Locations

In this screen you can register and change the geocode from locations.

A geocode is a geographical code that identifies a point or area on the earth's surface.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Entry Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full Name for Use in Lists</td>
<td>The full name for use in reports and lists.</td>
</tr>
<tr>
<td>Longitude</td>
<td>The longitude. Together with the latitude it is a geographical position indication</td>
</tr>
<tr>
<td>Latitude</td>
<td>The latitude. Together with the longitude it is a geographical position indication</td>
</tr>
<tr>
<td>Altitude</td>
<td>The altitude of the location</td>
</tr>
<tr>
<td>Diameter</td>
<td>The diameter of the location in meters.</td>
</tr>
<tr>
<td>Address 1</td>
<td>Address of the location.</td>
</tr>
<tr>
<td>Address 2</td>
<td>A second address line.</td>
</tr>
<tr>
<td>Zip Code</td>
<td>The zip code.</td>
</tr>
<tr>
<td>City</td>
<td>The city name of the location.</td>
</tr>
<tr>
<td>Country</td>
<td>The country of the location.</td>
</tr>
</tbody>
</table>

1.2.5 Reports

This section contains information about the functions which can normally be found under the menu item ‘Management Information’. This chapter contains information about the reports for financial management and control. These functions are normally used by the project developers and the financial department.

Aggregation levels

Invantive Estate offers you reports on four different levels of aggregation. Level four provides the most detailed information, while level one is the most summarized version.

Calculation Deviation
The main function of Invantive Estate is determining the prognosis of the result of a project. The difference between the prognosis and the budget is called ‘deviation’.

A project has several sides when looking from a financial point of view:
- The initial prognosis of the result (the budget).
- The actual outcome of the result (the result).
- The interim estimate of the ultimate outcome (prognosis and its deviation from the budget).

The initial prognosis is usually determined by a project developer as an exposé which becomes a project after being approved. In the end, you can read from your general ledger what the final result has been. However, projects can take years and large fluctuations between the prognosis and the final outcome are not unusual if project results are not placed under tight control. Invantive Estate support you in managing and controlling project results based on the information known at reporting time.

**Prognosis End of Work**

The financial results (the so called ‘Prognosis End of Work’) of a project consists of:

- The expected revenues
- The expected costs

For finance, an other financial result is determined, namely taking into account the amount already processed in the results of the organization while the project is still running. This is, for example, important with an administration following the IFRS rules. In that case the result consists of:

- The expected revenues
- The expected costs
- The already taken result

The expected revenues are the sum of the expected revenues registered on all costs types in the master roll ups of the type ‘Revenues’.

The expected costs are the sum of the expected costs registered on all costs types in the master roll ups of the type ‘Costs’.

The already taken result consists of the sum of all invoice lines registered on costs types in the master roll ups of the type ‘Results’.

**Deviation from a Cost Category**

The deviation of a cost category is determined by the following calculation rules:

Depending of the project settings for the ‘release of deviations’ (see Projects) only negative or also positive balances are included in the calculation of the deviation of a cost category.
• Displaying is turned on for the entire project: for all cost categories negative and positive remainders are included.

• Display is turned on for ‘Cost Category’ for the entire project. If display for cost category is turned on or revenues are involved, then positive and negative remainders are included. If display for cost category is turned off and no revenues are involved, then positive and negative remainders are replaced by 0.

The remainder before the settings regarding displaying are executed, is calculated as follows:

\[
\text{Cost category budget} - \text{Approved budgets on specific contracts} - \text{Spend budget outside the contracts with specific budgets} + \text{Deviation contract with specific budgets}
\]

The deviation for contracts with specific budgets, is calculated as follows:

\[
\text{contract budget} - \text{Spend budget}
\]

The budget spent on contracts are calculated as follows:

The largest of:

• Latest estimate, if present.

• If the absolute amount on invoices with orders is greater than the absolute amount of orders, contracted revenues or budgeted revenues: then take the amount of invoices with order.

• If the revenue is not bound to a contract yet (only budgeted), there are invoices attached and the revenue has the attribute ‘1 period’: take then the amount of invoices with order.

• If not, take the amount for orders, contractual revenues or budgeted revenues. Plus the amount for invoices without order.

**Merging Subprojects**

Master projects consist of several subprojects, with each subproject having its own financial administration. Within the master project no financial numbers can be registered. Usually subprojects are separately financially reported. However, if in My Preferences the option ‘Merge Subprojects’ is turned on, then only master projects and independent projects are reported. The deviation of a master project is calculated as follows:

• Take a subproject.

• Make the cost category unique by assigning a unique prefix.

• Calculate the deviation like normal.
• Do the same for all subprojects.
• Offset all deviations.

### 1.2.5.1 Dashboard

Enter text here.

**Projects Dashboard**

In this screen you can quickly get financial insight on the projects. The information is always up to date and will show, depending of your personal settings, one project or all projects.

**Processes dashboard**

This screen allows you to quickly get an insight on the processes. The information is always up to date and will show, depending of your personal settings, one project or all projects.
1.2.5.2 Project Overview

Enter text here.

Financial Project Overview Level 1

This report provides the same information as Financial Project Overview Level 2, but contains no further detail per master roll up.

See Financial Project Overview Level 2 for more information.
Financial Project Overview Level 2

This report allows you to request the financial status on project level and on master roll up level.
Every report per level from the financial project overviews is supplied with a standard heading per project. The meaning of the fields in the heading is (see Projects for an elaborate explanation):

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>The project to which this page refers.</td>
</tr>
<tr>
<td>Name</td>
<td>The name of the project.</td>
</tr>
<tr>
<td>City</td>
<td>The city in which the project is being realized.</td>
</tr>
<tr>
<td>Phase</td>
<td>The current project phase.</td>
</tr>
<tr>
<td>Product group</td>
<td>The product group to which the project belongs to.</td>
</tr>
<tr>
<td>Free Field 1 and Free Field 2</td>
<td>Informative fields for use of your choice.</td>
</tr>
<tr>
<td>Project developer</td>
<td>The responsible project developer.</td>
</tr>
<tr>
<td>Product Group Director</td>
<td>The responsible product group director.</td>
</tr>
<tr>
<td>Financial Administrator</td>
<td>The responsible administrator.</td>
</tr>
<tr>
<td>Legal Structure</td>
<td>The legal structure under which the project is realized.</td>
</tr>
<tr>
<td>Cooperation with</td>
<td>A possible cooperation agreement.</td>
</tr>
<tr>
<td>Released Budget</td>
<td>The released budget.</td>
</tr>
<tr>
<td>Risk Percentage</td>
<td>The risk percentage.</td>
</tr>
<tr>
<td>Success Percentage</td>
<td>The success percentage.</td>
</tr>
<tr>
<td>Exposé Date</td>
<td>The date on which the exposé is approved.</td>
</tr>
<tr>
<td>Start of Realization</td>
<td>The date on which the work has started.</td>
</tr>
<tr>
<td>End of Production</td>
<td>The date on which the project was delivered.</td>
</tr>
<tr>
<td>Shops (m²)</td>
<td>The amount of m² shops being built.</td>
</tr>
<tr>
<td>Offices (m²)</td>
<td>The amount of m² offices being built.</td>
</tr>
<tr>
<td>Other (m²)</td>
<td>The amount of other m² being built.</td>
</tr>
<tr>
<td>Houses</td>
<td>The number of houses being built.</td>
</tr>
<tr>
<td>Parking Places</td>
<td>The number of parking places being built.</td>
</tr>
</tbody>
</table>

The meaning of the fields in the top of the page (the so-called 'level 1 reports') is:
Revenues | The proceeds of the cost category ‘revenues’, split into budget, prognosis and the deviation from the budget.
Costs | The proceeds of the cost categories ‘costs’, split into budget, prognosis and the deviation from the budget.
Project Result | The project results, split by budget, prognosis and the deviation from the budget.
Project Result (%) | The project result as a percentage of the costs, split into budget, prognosis and deviation from the budget.
Taken result | The financial results already taken, consisting of posting entries on cost categories from the type ‘result’. In accordance with IFRS, results can be taken during the realization of the project.
Possible Remarks | Here the text ‘Negative compared to exposé’ will appear in red, if the expected project results as a percentage is worse than the budgeted results.

The meaning of the fields in the bottom of the page (so-called ‘level 2 reports’) is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budget</td>
<td>The budget.</td>
</tr>
<tr>
<td>Orders</td>
<td>This size of the provided orders.</td>
</tr>
<tr>
<td>Invoices with order</td>
<td>Invoices which are received/sent based on a provided order or on a contractual revenue.</td>
</tr>
<tr>
<td>Invoices without order</td>
<td>Invoices which are sent/received without order or contractual revenue.</td>
</tr>
<tr>
<td>Invoices</td>
<td>The total of invoices with order and invoices without order.</td>
</tr>
<tr>
<td>Latest estimate</td>
<td>The total of the latest estimates.</td>
</tr>
<tr>
<td>Available compared to prognosis</td>
<td>Budget to be spent.</td>
</tr>
<tr>
<td>Open orders</td>
<td>The size of the provided orders of which no invoices with order are received for.</td>
</tr>
<tr>
<td>Prognosis</td>
<td>Prognosis of the final result.</td>
</tr>
<tr>
<td>Deviation</td>
<td>The difference between the prognosis and budget.</td>
</tr>
<tr>
<td>Contr. revenue</td>
<td>The size of the contractual revenues.</td>
</tr>
<tr>
<td>Budget to be realized</td>
<td>The size of the to be sold units.</td>
</tr>
<tr>
<td>Open contr. revenue</td>
<td>The size of the contractual revenues of which no invoices with order are sent.</td>
</tr>
</tbody>
</table>

**General Financial Project Overview**

This report provides project growth reports.

The used terms match the definitions of the report *Financial Project Overview Level 2*. 

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### Projects Overview Directors

This report provides the directors with the necessary project transcending information.

The used terms match the definitions of the report Financial Project Overview Level 2.
### 1.2.5.3 Project management

Enter text here.

#### Project Management Document

This report allows you to request the financial status on project level and on master roll up level.
### Production Overview

This report gives an overview of the realized and expected production, based on revenues classified as ‘Production’ and on the calculated realization date (see [Revenues](#)).
1.2.5.5 Cash Flow Projections

Enter text here.

**Cash Flow Projections**

This report shows each project's cash flows for all projects in the filter in the periods again.
Overall Cash Flow Projections

This report, the consolidated cash flows in periods again.
1.2.6 Finance

This chapter discusses functions that can be found under ‘Finance’ in a default menu structure. These functions are normally used by the financial administration.
1.2.6.1 Projects

Enter text here.

Projects

In this form you can register and change projects.

A project is a related amount of work, usually consisting of a couple of units of real estate.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th><strong>General</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>A unique code for the project. The code is generally assigned as soon as the first exposé is approved.</td>
</tr>
<tr>
<td>Name</td>
<td>The name of the project.</td>
</tr>
<tr>
<td>Short Code</td>
<td>Short project code to support the ERP systems that limit the extent from the project codes to for example 8 characters.</td>
</tr>
<tr>
<td>Description</td>
<td>The description of the project.</td>
</tr>
<tr>
<td>City</td>
<td>Place where the project is realized.</td>
</tr>
<tr>
<td>Reporting group</td>
<td>Reporting Group with which the project can be selected in the filter.</td>
</tr>
<tr>
<td>Address 1</td>
<td>The address where the project is realized.</td>
</tr>
<tr>
<td>Address 2</td>
<td>Extra address line, in case needed.</td>
</tr>
<tr>
<td>Country</td>
<td>Country where the project is realized.</td>
</tr>
<tr>
<td>Reporting group</td>
<td></td>
</tr>
<tr>
<td>Phase</td>
<td>The phase of the project.</td>
</tr>
<tr>
<td>Closed</td>
<td>A closed project cannot be changed. The underlying data -reminders, orders, budgets, revenues, etc. are also frozen. The only thing possible after the project is closed, is to reopen the project. Warning! The user ‘system’ is the only user, that even after completion of a project, has the rights to change the project data.</td>
</tr>
<tr>
<td>Product group</td>
<td>The product group of the project.</td>
</tr>
<tr>
<td>Product Group Director</td>
<td>The project's responsible product group director.</td>
</tr>
<tr>
<td>Project developer</td>
<td>The project's responsible project developer.</td>
</tr>
<tr>
<td>Administrator</td>
<td>The responsible administrator.</td>
</tr>
<tr>
<td>Salesman</td>
<td>The real estate agent who rents or sells the project</td>
</tr>
<tr>
<td>Plan Developer</td>
<td>The developer of the project plans.</td>
</tr>
<tr>
<td>Controller</td>
<td>The project controller.</td>
</tr>
<tr>
<td>Customer</td>
<td>The buyer of the project.</td>
</tr>
<tr>
<td>Timesheet signed by</td>
<td>The person responsible for approving the hours.</td>
</tr>
<tr>
<td>Customer Reference</td>
<td>A reference from the customer to this project. This can be for instance a reference to a purchasing order.</td>
</tr>
<tr>
<td>Supplier Reference</td>
<td>A reference from a supplier to this project.</td>
</tr>
<tr>
<td>Documents</td>
<td>Linked documents, see Linking Documents.</td>
</tr>
<tr>
<td>Project Type</td>
<td>There are three possible project types:</td>
</tr>
<tr>
<td></td>
<td>• An individual project: this may include financial data and reporting.</td>
</tr>
<tr>
<td></td>
<td>• A subproject: this may include financial data and reporting. Moreover, they can be consolidated and reported within a master project.</td>
</tr>
<tr>
<td></td>
<td>• A master project: it is not possible to include independent financial data and reporting. However, the numbers of the underlying subprojects can be consolidated and reported.</td>
</tr>
<tr>
<td>Cost Category Postfix</td>
<td>The suffix is used in case of consolidated reporting to make the cost category of each subproject unique. The suffix must be unique for all subprojects within the main project.</td>
</tr>
<tr>
<td>Master project</td>
<td>Here, only for subprojects you can and have to select a 'Master Project'. All financial figures are merged within the master project when consolidated reporting is selected. The choice whether to merge is made via My Preferences.</td>
</tr>
<tr>
<td>Free field 1</td>
<td>Free field for possible further information.</td>
</tr>
<tr>
<td>Free field 2</td>
<td>Free field for possible further information.</td>
</tr>
<tr>
<td>Website Project (URL)</td>
<td>The Internet address in case project has its own website.</td>
</tr>
<tr>
<td>Logo (URL)</td>
<td>The Internet address of the project logo.</td>
</tr>
<tr>
<td>Project entity</td>
<td>The legal structure under which the project is realized.</td>
</tr>
<tr>
<td>Cooperation with</td>
<td>Name of partner in case a cooperation agreement is made for the project.</td>
</tr>
<tr>
<td>Overhead</td>
<td>Project is overhead when checked.</td>
</tr>
<tr>
<td>Icon (URL)</td>
<td>The relative URL from the icon belonging to the project. The icon must be 16 pixels high and 16 pixels wide.</td>
</tr>
</tbody>
</table>

**Milestones**

- Planned Start of Realization: The planned start date of the construction activities for the project.
- Planned Start of Handover: The planned start date of the delivery of the first units.
- Start of Handover: The start date of the delivery of the first units.
<table>
<thead>
<tr>
<th>Planned End Date of Delivery</th>
<th>The planned end date from the delivery of all units.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budget Approved on</td>
<td>The date of the last approved exposé.</td>
</tr>
<tr>
<td>Start of Realization</td>
<td>De startdatum van de bouw.</td>
</tr>
<tr>
<td>End of Construction</td>
<td>The date on which all the building activities are completed and all units are delivered.</td>
</tr>
<tr>
<td>Planned Sales Start Date</td>
<td>The planned start date of the sale of the first units.</td>
</tr>
<tr>
<td>Planned Sales End Date</td>
<td>The planned end date of the sale of the last units.</td>
</tr>
<tr>
<td>Start of Sales</td>
<td>The start date of the sale.</td>
</tr>
<tr>
<td>Sales End Date</td>
<td>The end date of the sale.</td>
</tr>
</tbody>
</table>

**Real Estate**
The block real estate with the following fields are only displayed if the license name is *Invantive Estate* is. When using a license for *Invantive Vision* the block real estate with belonging fields is not shown.

**Houses**
The number of houses being built.

**Parking Places**
The number of parking spaces being built.

**Office Space**
The number of m² office space being realized.

**Shop Space**
The number of m² shops being realized.

**Other**
The number of other units being realized.

**Ground**
Number of m² land being realized.

**Ground Position**
The project’s ground position.

**Land Status**
Status of the land that is required for the realization of the project.

**Date Ground Purchased**
The date the land was purchased for the project.

**Financial**

**Released Budget**
The budget released for the project.

**Provision**
The provision for the project.

**Expected Investment**
The project's expected investment.

**Administration Third Party**
Checked if the administration is done by a third party.

**Success Percentage**
The expected rate of success.

**Risk Percentage**
The share that is carried in the project, both in terms of revenue as in risk for a possible negative outcome.

**Charged by Hour**
Indicates whether the hours within this project are to be charged or not to be charged to the customer.

**Release deviation on Cost Category**
Here you can choose as a default setting for all budgets to release or not to release the deviations on cost category or to use the setting as specified at budget level. At the end of the realization, the administration will at any time make use of this setting to release all free budget space on cost category to offset all deficits elsewhere. However, you can quickly default on the budgets again by using this setting back to put on the setting budget levels.

**Release deviation on Contract**
Here you can choose as a default setting for all budgets to release or not to release the deviations on contract budgets or to use the setting as specified at budget level. At the end of the realization, the administration will at any moment make use of this setting to release all free budget space on cost category to offset all deficits elsewhere. However, you can quickly default on the budgets again by using this setting back to put on the setting budget levels.

**Purchasing Conditions**
Here you can choose which purchasing conditions are applicable.

**Selling Conditions**
Here you can choose which selling conditions are applicable.

**Status**

**Status Indicator**
A list that classifies a project in terms of progress and budget control into one of the six possible classes. See also *Project Statuses*.

**Date of Last Review**
The date the last review of the project took place.

**Next Review**
The date the next review of the project is planned.

**Definition**
The definition of the status.

**Status**
A textual explanation of the project’s status.

**Restrictions**

**Filter Suppliers**
This filter is used to control at project level which orders can be linked to the project. An example: If you select only the project you are working on in the Filter and for example your filter for order takers is ‘025’, then you will see only the orders from order takers whose code starts with ‘025’. If you select all projects in the filter and for example your ‘Filter Order Takers’ is ‘025’, then you will see all orders of order takers. If now you choose...
an order taker, then its code has to start with '025'. If the code of the order taker doesn't begin with '025', you will get an error when saving the project data.

The filter is specified as a regular expression (see the 'Oracle SQL Reference') and has a maximal length of 512 characters. With more than 512 characters you get an error message.

Filter Invoice Parties

This filter is used to control at project level which invoices can be linked to the project. An example: If you select only the project you are working on in the Filter and for example your filter for invoice organizations is '^025', then you will see only the orders from invoice organizations whose code starts with '025'. If you select all projects in the filter and for example your 'Filter Invoice Organizations' is '^025', then you will see all orders of invoice organizations. If now you choose an invoice, then its code has to start with '025'. If the code of the invoice doesn't start with '025', you will get an error when saving the project data.

The filter is specified as a regular expression (see the 'Oracle SQL Reference') and has a maximal length of 512 characters. With more than 512 characters you get an error message.

<layout> tag

Full Name for Use in Lists

The name being used to show the project in lists and on reports. Default construction: city-name-code. In case you want to use another name to show the project, you can use an Additional Business Rule.

Sort Order

The name used in the drop down boxes to sort the projects. Default construction: code-city-name. In case you want to use another sorting direction, you can use an Additional Business Rule.

Classifications

Classification

The classification of the project. A classification is a label that can be attached to a project, an organization, a process or a document. Using these labels you can find your information more efficient.

The meaning of the other fields:

Workflow

Process

Reference to a process as registered in Processes.

Status

Referentie naar een processtatus zoals geregistreerd in Processtatussen.

Process Holder

Reference to a process holder as registered in Processes.

The meaning of the action buttons:

Documents

Opens the screen containing the documents of the project.

Cash Flow Projections

Opens the screen containing all the cash flow projections of the project.

Project Statuses

Opens the screen containing the project statuses of the project.

Open Processes

Opens the screen containing the open processes of the project.

Budgets

Opens the screen containing the budgets of the project.

Project Versions

Opens the screen containing the project versions of the project.

Projects Workbank

Opens the screen containing the project workbank of the project.

Hours

Opens the screen containing the hours of the project.

Orders

Opens the screen containing the assignments of the project.

Revenues

Opens the screen containing the revenues of the project.

Project File (PDF)

Opens the screen where you can request the task of the report parameters from the report project dossier.

Copy Projects

In this screen you can completely or partially copy all existing projects.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Code</td>
<td>The code for the new project.</td>
</tr>
<tr>
<td>New Short Code</td>
<td>Short project code for the new project.</td>
</tr>
<tr>
<td>New Name</td>
<td>New Name</td>
</tr>
<tr>
<td>New Cost Type Suffix</td>
<td>The cost type suffix for the new project.</td>
</tr>
<tr>
<td>Include All</td>
<td>If checked, all items listed below will be copied.</td>
</tr>
<tr>
<td>Include Project</td>
<td>If checked, then the to be copied project will be included to the new project. This should be on if you want to copy the project to a new project.</td>
</tr>
<tr>
<td>Take Processes</td>
<td>If checked, the related processes will be copied.</td>
</tr>
<tr>
<td>Include Process Notes</td>
<td>If checked, the Process Notes will be copied.</td>
</tr>
<tr>
<td>Include budgets</td>
<td>If checked, then the budgets will be copied.</td>
</tr>
</tbody>
</table>
Include Revenues
If checked, then the revenues will be copied.

Include Purchase Orders
If checked, the purchase orders will be copied.

Include Latest Estimates
If checked, the latest estimates will be copied. From these the adjustment will be deducted.

Include Contract Budgets
If checked, the contract budgets will be copied.

Include Budget Movements
If checked, the budget movements will be copied.

Include Project Authorisations
If checked, then the project authorizations will be copied.

Include Project Involvements
If checked, all persons involved in the project will be copied.

Include Project Allocations
If checked, all allocations of people to projects will be copied.

Include Project Versions
If checked, all the project versions will be copied.

Include Project Classifications
If checked, the project classifications will be copied.

The meaning of the other fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project</td>
<td>The code of the project that will be deleted.</td>
</tr>
<tr>
<td>Short Code</td>
<td>Short project code of the project that is going to be copied.</td>
</tr>
<tr>
<td>Name</td>
<td>The name of the project that will be copied.</td>
</tr>
<tr>
<td>Closed</td>
<td>Indicates that the project has already been closed when checked.</td>
</tr>
<tr>
<td>Organization</td>
<td>The legal structure under which the project is going to be copied, is realized.</td>
</tr>
<tr>
<td>Customer</td>
<td>The customer of the project that is going to be copied.</td>
</tr>
<tr>
<td>City</td>
<td>Place where the project that is going to be copied is realized.</td>
</tr>
<tr>
<td>Cost Category Postfix</td>
<td>The cost type suffix of the project that is going to be copied.</td>
</tr>
</tbody>
</table>

Delete Projects

This screen allows you to remove all or part of projects.
The meaning of the entry fields is:

| Include All | If checked, all items listed below will be deleted. |
| Include Project | If checked, the project will be deleted. Normally you will never select this without selecting other parts. |
| Include Project Authorisations | If checked, the project authorizations will be deleted. |
| Include budgets | If checked, then the budgets will be deleted. |
Include Contract Budgets  |  If checked, the contract budgets will be deleted.
Include Revenues        |  If checked, then the revenues will be deleted.
Include Purchase Orders |  If checked, the purchase assignments will be deleted.
Include Latest Estimates |  If checked, the latest estimates will be deleted.
Include Invoice Lines   |  If checked, then the invoice lines will be deleted.
Include Cash Flows Projects |  If checked, the cash flow projections will be deleted.

Take Processes         |  If checked, the processes will be deleted.
Include Process Notes  |  If checked, the process notes will be deleted.
Include Process Units  |  If checked, the process units will be deleted.
Include Timesheets     |  If checked, then the timesheets will be deleted.
Include Budget Movements |  If checked, the budget movements will be deleted.
Include Project Involvements |  If checked, then the involvement of people in the project will be deleted.
Include Project Allocations |  If checked, then the allocation of persons to the project will be deleted.
Include Project Versions |  If checked, the project versions will be deleted.
Include Documents      |  If checked, the documents will be deleted.
Include Project Classifications |  If checked, the project classifications will be deleted.
Include Project Relations |  If checked, the project relations will be deleted.
Include Process Involvement |  If checked, then all the persons involved in the process of the project will be deleted.
Include Process Classifications |  If checked, the process classifications will be deleted.
Include Process Relations |  If checked, the process relations will be deleted.
Include Contracts      |  If checked, the contracts will be deleted.
Include Contract Process Generation |  If checked, the contract processes generation will be deleted.

Are you sure?  |  Only if you also select this one project data will be deleted.

The meaning of the other fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project</td>
<td>The code of the project that will be deleted.</td>
</tr>
<tr>
<td>Name</td>
<td>The name of the project that will be deleted.</td>
</tr>
<tr>
<td>Closed</td>
<td>Indicates that the project has already been closed when checked.</td>
</tr>
<tr>
<td>Business</td>
<td>The legal structure under which the project is realized.</td>
</tr>
<tr>
<td>Customer</td>
<td>The buyer of the project.</td>
</tr>
<tr>
<td>City</td>
<td>Place where the project is realized.</td>
</tr>
</tbody>
</table>

1.2.6.2 Invoicing

Enter text here.

Concept Invoice Lines

In this screen you can register and update Concept Invoice Lines.

Concept invoice lines can either be entered manually or generated through the process **Invoicing**. Concept invoice lines are input for the accounts receivable module of the bookkeeping system.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grouping</td>
<td>Concept Invoice Line Group. It is easier to assign concept invoice lines to invoices by sorting concept invoice lines into groups.</td>
</tr>
<tr>
<td>Sequence within Group</td>
<td>Sequence of the draft invoice line in the group. By doing this it is easier to provision draft invoice lines in a particular sequence.</td>
</tr>
<tr>
<td>Business</td>
<td>Name of the company.</td>
</tr>
<tr>
<td>Project</td>
<td>The project to which the invoice refers.</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit</td>
<td>Reference to a unit as registered in <a href="#">Units</a></td>
</tr>
<tr>
<td>Cost Type</td>
<td>The cost category to which the realization refers. All cost categories can be chosen (costs, revenues, and results).</td>
</tr>
<tr>
<td>Contract</td>
<td>The contract within the cost category to which the invoice line refers.</td>
</tr>
<tr>
<td>Cost center</td>
<td>Reference to a cost center as defined in the screen <a href="#">Cost Centers</a></td>
</tr>
<tr>
<td>Customer</td>
<td>The customer, where the invoice is sent to. Note that this field is obligatory.</td>
</tr>
<tr>
<td>Start</td>
<td>Beginning of the period in which the provided service was performed.</td>
</tr>
<tr>
<td>End</td>
<td>End of the period in which the provided service was performed.</td>
</tr>
<tr>
<td>Description</td>
<td>Textual explanation of the invoice.</td>
</tr>
<tr>
<td>Counterparty Reference</td>
<td>Reference as dictated by the customer.</td>
</tr>
<tr>
<td>Amount</td>
<td>Total amount invoiced.</td>
</tr>
<tr>
<td>Amount per Unit</td>
<td>Amount per unit.</td>
</tr>
<tr>
<td>VAT Code</td>
<td>Reference to a VAT code as registered in <a href="#">VAT Codes</a></td>
</tr>
<tr>
<td>Condition</td>
<td>Reference to a condition as registered in <a href="#">Conditions</a></td>
</tr>
<tr>
<td>Price List</td>
<td>Reference to a price list as registered in <a href="#">price lists</a></td>
</tr>
<tr>
<td>Payment Term</td>
<td>Reference to a payment term as registered in <a href="#">Payment Terms</a></td>
</tr>
<tr>
<td>VAT Amount</td>
<td>The VAT amount of the concept invoice.</td>
</tr>
<tr>
<td>Discount Rate</td>
<td>Applied discount rate.</td>
</tr>
<tr>
<td>Coverage Rate</td>
<td>Coverage percentage of the concept invoice line after the discount rate is applied.</td>
</tr>
<tr>
<td>Quantity</td>
<td>The number of units.</td>
</tr>
<tr>
<td>General Ledger Code</td>
<td>Reference to a general ledger code as registered in <a href="#">General Ledger Codes</a></td>
</tr>
<tr>
<td>Exported</td>
<td>Indicator which shows if the concept invoice is exported.</td>
</tr>
<tr>
<td>Accepted</td>
<td>Indicator which shows whether the concept invoice is approved to be exported.</td>
</tr>
<tr>
<td>Parent</td>
<td>The type of data (message, order, project, etc.) to which you want to link the task.</td>
</tr>
<tr>
<td>Source ID</td>
<td>The unique number of the type of data to which you want to link the task. This field together with the field 'Source' makes it possible to retain the relation with the origin of an object for the workflow concept invoice lines.</td>
</tr>
<tr>
<td>Detail Association</td>
<td>With the 'Detail Association' and the 'Detail Association ID' the origin of the concept invoice line can be established.</td>
</tr>
<tr>
<td>Detail Association ID</td>
<td>With the 'Detail Association ID' and the 'Detail Association' the origin of the concept invoice line can be established.</td>
</tr>
</tbody>
</table>

The meaning of the other fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>The unique number of the concept invoice line.</td>
</tr>
<tr>
<td>Origin Process</td>
<td>Process from which the concept invoice line occurs.</td>
</tr>
<tr>
<td>Process</td>
<td></td>
</tr>
<tr>
<td>Process Status</td>
<td>Status of the process, as registered in <a href="#">Process Statuses</a></td>
</tr>
<tr>
<td>Origin Hour</td>
<td></td>
</tr>
<tr>
<td>Name</td>
<td>Reference to a Person as registered in Persons.</td>
</tr>
<tr>
<td>Start</td>
<td>The start time of the hour registration.</td>
</tr>
<tr>
<td>Effort (hours)</td>
<td>The range of the hour registration.</td>
</tr>
<tr>
<td>Origin Process Unit</td>
<td>The process that the process units use for realization of the process.</td>
</tr>
<tr>
<td>Process Unit</td>
<td>The process unit.</td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
<tr>
<td>Created at</td>
<td>The date the draft invoice line was created.</td>
</tr>
<tr>
<td>Created with</td>
<td>The software that created the draft invoice line.</td>
</tr>
<tr>
<td>Created in</td>
<td>The system in which the draft invoice line was created.</td>
</tr>
<tr>
<td>Last Change</td>
<td>The date the draft invoice line was last changed.</td>
</tr>
<tr>
<td>Last Change with</td>
<td>The software that performed the last change.</td>
</tr>
<tr>
<td>Last Change in</td>
<td>The system that performed the last change.</td>
</tr>
<tr>
<td>Transaction Updated</td>
<td>Date and time of the last processed transaction.</td>
</tr>
<tr>
<td>Interface Loaded</td>
<td>The date the draft invoice line was initially loaded via an interface program.</td>
</tr>
<tr>
<td>Interface Updated</td>
<td>The date the draft invoice line was last updated by an interface program.</td>
</tr>
</tbody>
</table>
Invoices

In this form you can register and change invoices.

An invoice is a sequence of invoice lines. An invoice line reflects the realized revenue or the cost driver within a project. Obviously it is possible that several invoice lines in one invoice refer to different projects.

Note that in general the invoices and invoice lines are not entered manually, but are automatically uploaded by the financial administration.

Apart from the invoices from the accounts payable accounts receivable administration, it is also possible to process journal entries, for example, for profit taking.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invoice Code</td>
<td>The code of the invoice. In general the internally assigned invoice number will be used here.</td>
</tr>
<tr>
<td>Invoice Date</td>
<td>The date as registered on the invoice.</td>
</tr>
<tr>
<td>Organization</td>
<td>The organization (supplier) that has sent the invoice or the customer where the bill has been sent to.</td>
</tr>
<tr>
<td></td>
<td>Note that this field is obligatory. Choose a generic supplier or buyer in the case of journal entries.</td>
</tr>
<tr>
<td></td>
<td>The list of suppliers used when entering is restricted to suppliers who have a code that is available to be used on a project in the filter. For each project, you can manage with a pattern, from which supplier invoices may be registered.</td>
</tr>
<tr>
<td>Payment Term (days)</td>
<td>The payment period in days of the invoice. This information is used when calculating the cash flow.</td>
</tr>
<tr>
<td>Expected Maturity</td>
<td>The date on which the cash flow is expected to begin.</td>
</tr>
<tr>
<td>Expected Maturity End</td>
<td>The date on which the cash flow is expected to end. The maturity date is only relevant if the cash flow projection method needs it.</td>
</tr>
<tr>
<td>Booked</td>
<td>Date on which the invoice is recorded.</td>
</tr>
<tr>
<td>Description</td>
<td>An explanation of the invoice.</td>
</tr>
<tr>
<td>Supplier Reference</td>
<td>The unique feature of the invoice of the sender. This field can be used to register the invoice number of the supplier in case the code of the invoice is based on its own invoice numbering.</td>
</tr>
<tr>
<td>Documents</td>
<td>Linked documents, see Linking Documents.</td>
</tr>
</tbody>
</table>

### Invoice Lines

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invoice</td>
<td>An invoice can be sent by a supplier, can be sent to a client or can be created by the ledger system.</td>
</tr>
<tr>
<td></td>
<td>An invoice can contain several Invoice Lines.</td>
</tr>
<tr>
<td>Line</td>
<td>Indicates which Invoice Lines it concerns.</td>
</tr>
<tr>
<td>Amount</td>
<td>The amount invoiced. This normally will be the amount without VAT. If your organization is not subject to VAT, the amount of the balance has to be used (including VAT).</td>
</tr>
<tr>
<td>VAT Code</td>
<td>The VAT code that applies to the invoice.</td>
</tr>
<tr>
<td>VAT Amount</td>
<td>The VAT Amount.</td>
</tr>
<tr>
<td>Credit/debit</td>
<td>Indicates whether it concerns payment (debit) or a receipt (credit).</td>
</tr>
<tr>
<td>Project</td>
<td>The project to which the invoice refers.</td>
</tr>
<tr>
<td>Cost Type</td>
<td>The cost category. All cost categories can be chosen (costs, revenues, and results).</td>
</tr>
<tr>
<td>Contract</td>
<td>The contract within the cost category to which the invoice line refers.</td>
</tr>
<tr>
<td>Deviating Contract</td>
<td>Here you can indicate the deviating contract if applicable. If the deviating contract is entered, it will override the standard contract in the reports.</td>
</tr>
<tr>
<td>Cost center</td>
<td>Reference to a cost center as defined in the screen Cost Centers.</td>
</tr>
<tr>
<td>With Purchase Order</td>
<td>In case of a cost driver: is the realization based on an order?</td>
</tr>
<tr>
<td></td>
<td>In case of a revenue: is the realization based on a contractual sales agreement?</td>
</tr>
<tr>
<td>Deviating With/Without Purchase Order</td>
<td>Using this drop-down menu, you can override the field &quot;With Purchase Order&quot; originating from the ERP system.</td>
</tr>
<tr>
<td>Ultimately based on Purchase Order</td>
<td>Ultimately based on purchase order is the result of originally based on purchase order and deviating with purchase order.</td>
</tr>
<tr>
<td>Settled</td>
<td>If the box is checked, the invoice line is made payable or received (revenue cost category).</td>
</tr>
<tr>
<td>Description</td>
<td>A description of the property, activity or situation to which the invoice relates to.</td>
</tr>
<tr>
<td>Points</td>
<td>Number of points awarded for this transaction.</td>
</tr>
<tr>
<td>Documents</td>
<td>Linked documents, see Linking Documents.</td>
</tr>
<tr>
<td>Expected Maturity</td>
<td>The expected date when the cash flow starts.</td>
</tr>
<tr>
<td>Expected Maturity End</td>
<td>The expected date when the cash flow ends.</td>
</tr>
<tr>
<td>Distribution Method</td>
<td>The way the cash flow is distributed in time.</td>
</tr>
</tbody>
</table>

The meaning of the other fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workflow</td>
<td>Reference to the process from which the invoice comes from, as registered in Processes.</td>
</tr>
</tbody>
</table>

(C) Copyright 2004-2013 Invantive Software B.V., the Netherlands. All rights reserved.
Status
Reference to the status of the process from which the invoice comes from, as registered in Processes.

Process Holder
The process holder as registered in Processes.

The meaning of the action buttons:

Process
Reference to the process from which the invoice comes from, as registered in Processes.

Invoice Lines

In this screen you can register and modify Invoice lines.

In the screen Invoices you can also see the invoice lines, but you cannot search them.

An invoice line reflects the realized revenue or the cost driver within a project. An invoice line can also display the profit taking of the project. It is possible that several invoice lines in one invoice refer to different projects.

Note that in general the invoices and invoice lines are not entered manually, but are automatically uploaded by the financial administration.
The meaning of the entry fields is:

- **Invoice**: The invoice code. In general the internally assigned invoice number will be used here.
- **Line**: The line number within the invoice.
- **Amount**: The amount invoiced. This normally will be the amount without VAT. If your organization is
<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VAT Code</td>
<td>The VAT code that applies to the invoice.</td>
</tr>
<tr>
<td>VAT Amount</td>
<td>The VAT amount on the invoice.</td>
</tr>
<tr>
<td>Credit/debit</td>
<td>In case of a cost driver: does it concerns a regular entry (debit) or a credit entry?</td>
</tr>
<tr>
<td>In case of a revenue: does it concerns a regular entry (credit) or debit entry?</td>
<td></td>
</tr>
<tr>
<td>Project</td>
<td>The project to which the realization refers.</td>
</tr>
<tr>
<td>Cost Type</td>
<td>The cost category to which the realization refers. All cost categories can be chosen (costs, revenues, and results).</td>
</tr>
<tr>
<td>Contract</td>
<td>The contract within the cost category to which the invoice line refers.</td>
</tr>
<tr>
<td>Deviating Contract</td>
<td>Here you can indicate the deviating contract if applicable. If the deviating contract is entered, it will override the standard contract in the reports.</td>
</tr>
<tr>
<td>With Purchase Order</td>
<td>In case of a cost driver: is the realization based on an order? In case of a revenue: is the realization based on a contractual sales agreement?</td>
</tr>
<tr>
<td>Ultimately based on Purchase Order</td>
<td>Ultimately based on purchase order is the result of originally based on purchase order and deviating with purchase order.</td>
</tr>
<tr>
<td>Settled</td>
<td>If the box is checked, the invoice line is made payable or received (revenue cost category).</td>
</tr>
<tr>
<td>Description</td>
<td>A description of the products, activity or situation to which the invoice relates to.</td>
</tr>
<tr>
<td>Points</td>
<td>Number of points awarded for this transaction.</td>
</tr>
<tr>
<td>Documents</td>
<td>Linked documents, see Linking Documents [3].</td>
</tr>
<tr>
<td>Explanation</td>
<td>Possible explanation.</td>
</tr>
<tr>
<td>Expected Maturity</td>
<td>The expected date when the cash flow starts.</td>
</tr>
<tr>
<td>Expected Maturity End</td>
<td>The expected date when the cash flow ends.</td>
</tr>
<tr>
<td>Distribution Method</td>
<td>The way the cash flow is distributed in time.</td>
</tr>
</tbody>
</table>

**Invoice Report**

Enter text here.
### Algemene Factuurgegevens

<table>
<thead>
<tr>
<th>Invoice</th>
<th>29990067</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factuurdatum</td>
<td>21-01-2003</td>
</tr>
<tr>
<td>Verfaldatum</td>
<td>30</td>
</tr>
<tr>
<td>Uw contactpersoon</td>
<td>Aekema</td>
</tr>
<tr>
<td>Project</td>
<td>29990067 - Arcadis - 21-01-2003</td>
</tr>
<tr>
<td>BTW nummer</td>
<td>NL81360103B01</td>
</tr>
<tr>
<td>KvK nummer</td>
<td>24324231</td>
</tr>
</tbody>
</table>

### Omschrijving

<table>
<thead>
<tr>
<th>Factuur</th>
<th>Aantal</th>
<th>Prijs</th>
<th>Totaal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>340000</td>
</tr>
</tbody>
</table>

Wij betalen graag op tijd en volgens afspraak. Daarvoor hebben wij uw hulp ook nodig. En rekenen we op uw tijdige betaling. Wij staken daarom de werkzaamheden bij overschrijding van de afgesproken betalingstermijn met meer dan 15 kalendertagen.

| Total exclusive VAT | 340000 |
| Total VAT 0 %       | 0      |
| Total invoice amount | 340000 |

Indien u buiten Nederland gewest/gelast bent, dan is de BTW naar u verleend.

### Algemene Factuurgegevens

<table>
<thead>
<tr>
<th>Invoice</th>
<th>2966-FOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factuurdatum</td>
<td>21-01-2003</td>
</tr>
<tr>
<td>Verfaldatum</td>
<td>30</td>
</tr>
<tr>
<td>Uw contactpersoon</td>
<td>Kuppers</td>
</tr>
<tr>
<td>Project</td>
<td>2966-FOR - Fortis Bank - 21-01-2003</td>
</tr>
<tr>
<td>BTW nummer</td>
<td>NL807676302802</td>
</tr>
<tr>
<td>KvK nummer</td>
<td>14616356</td>
</tr>
</tbody>
</table>

### Omschrijving

<table>
<thead>
<tr>
<th>Renteposten</th>
<th>Aantal</th>
<th>Prijs</th>
<th>Totaal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>180000</td>
</tr>
</tbody>
</table>

Wij betalen graag op tijd en volgens afspraak. Daarvoor hebben wij uw hulp ook nodig. En rekenen we op uw tijdige betaling. Wij staken daarom de werkzaamheden bij overschrijding van de afgesproken betalingstermijn met meer dan 15 kalendertagen.

| Total exclusive VAT | 1800000 |
| Total VAT 0 %       | 0      |
| Total invoice amount | 1800000 |

Indien u buiten Nederland gewest/gelast bent, dan is de BTW naar u verleend.

15-11-2012 20:45

Page 1 / 44
1.2.6.3 Time Management

Enter text here.
Hours

In this form you can register and change worked hours.

A time registration is part of a balanced timesheet and is used to manage and control the use of man power. The transfer from time registrations into invoice lines happens in the line via Draft Invoice Lines and the general ledger.
The meaning of the entry fields is:

**Name**
The name of the employee. You can enter hours on behalf of other employees.
<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start</td>
<td>The date and time when the effort started.</td>
</tr>
<tr>
<td>Effort (hours)</td>
<td>The amount of spent hours.</td>
</tr>
<tr>
<td>Labor Type</td>
<td>The type of labor which can be used to group the spent hours and can affect the allocated costs.</td>
</tr>
<tr>
<td>Explanation</td>
<td>A short explanation of the performed activities.</td>
</tr>
<tr>
<td>Location</td>
<td>Location where the work was performed.</td>
</tr>
<tr>
<td>Process</td>
<td>Either ‘Process’ or ‘Project’ has to be entered. Here you can select the process to which the time was spent. Only open processes are displayed. It is not possible to write hours on closed processes.</td>
</tr>
<tr>
<td>Project</td>
<td>Either ‘Process’ or ‘Project’ has to be entered. Here you can select the project to which the time was spent. Link the hours to a process if there is a process to which the hours spent can be linked. Process based timesheets can be analysed more thoroughly.</td>
</tr>
<tr>
<td>Unit Sales Price</td>
<td>Possibly different unit sales price per unit for usage in invoicing.</td>
</tr>
<tr>
<td>Hours Billable</td>
<td>The number of hours that can be invoiced.</td>
</tr>
</tbody>
</table>

The meaning of the other fields:

- **Timesheet Status**: Reference to a timesheet status as registered in *Timesheet Statuses*.
- **Booked Project**: Reference to a project as registered in *Projects*.
- **Cost Booked**: Indicates if the hours of this time registration have been booked yet.

**Timesheets**

This report provides an overview of the hours a consultant or an employee per day worked on a project.
Invoiced Time

This report provides a detailed overview of the hours a consultant or an employee has worked on a process or a project per day.
Warning! The report is grouped by year, month, and then week. This can cause that in the end of a year a month could be cut in half and that in the end of the month a week could be cut in half.

### Invoiced Time (PDF)

<table>
<thead>
<tr>
<th>Aanleiding</th>
<th>Project</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>C204 - Beheer Energetic</td>
<td>Meet: 1001 - [1001]: OMA-01792 during parse of view / Oracle Support Services - UPDATED Service</td>
</tr>
<tr>
<td>2</td>
<td>C204 - Beheer Energetic</td>
<td>Meet: 1000 - [1000]: Kan geen verbinding maken met de webserver.</td>
</tr>
<tr>
<td>2</td>
<td>MSLS09.BD ALG - Sales trajecten</td>
<td>Design: 1002 - [11002]: VI SI onderzoeken</td>
</tr>
<tr>
<td>2</td>
<td>MSLS09.BD ALG - Sales trajecten</td>
<td>Meet: 1002 - [11002]: Bespreking op lokatie: / VI SI onderzoeken</td>
</tr>
</tbody>
</table>

8:00

Weekly Total: W41-2011

<table>
<thead>
<tr>
<th>Aanleiding</th>
<th>Project</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>C204 - Beheer Energetic</td>
<td>Design: 1000 - [11000]: Kan geen verbinding maken met de webserver.</td>
</tr>
<tr>
<td>3</td>
<td>MSLS09.BD ALG - Sales trajecten</td>
<td>Design: 1002 - [11002]: VI SI onderzoeken</td>
</tr>
<tr>
<td>2</td>
<td>C204 - Beheer Energetic</td>
<td>Meet: 1001 - [11001]: OMA-01792 during parse of view / Oracle Support Services - UPDATED Service</td>
</tr>
<tr>
<td>2</td>
<td>MSLS09.BD ALG - Sales trajecten</td>
<td>Meet: 1002 - [11002]: Bespreking op lokatie: / VI SI onderzoeken</td>
</tr>
</tbody>
</table>

9:00

Daily Total: MA 17-10

<table>
<thead>
<tr>
<th>Aanleiding</th>
<th>Project</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>C204 - Beheer Energetic</td>
<td>Design: 1000 - [11000]: Kan geen verbinding maken met de webserver.</td>
</tr>
<tr>
<td>2</td>
<td>MSLS09.BD ALG - Sales trajecten</td>
<td>Design: 1002 - [11002]: VI SI onderzoeken</td>
</tr>
<tr>
<td>2</td>
<td>C204 - Beheer Energetic</td>
<td>Meet: 1001 - [11001]: OMA-01792 during parse of view / Oracle Support Services - UPDATED Service</td>
</tr>
<tr>
<td>2</td>
<td>MSLS09.BD ALG - Sales trajecten</td>
<td>Meet: 1002 - [11002]: Bespreking op lokatie: / VI SI onderzoeken</td>
</tr>
</tbody>
</table>

8:00

Daily Total: DI 19-10

<table>
<thead>
<tr>
<th>Aanleiding</th>
<th>Project</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Plein - Plein revisited</td>
<td>Lichtplan: 1: Heremelwaterafvoer verstopt, goot loopt over.</td>
</tr>
<tr>
<td>1</td>
<td>102 - Winkelcentrum Vitasol</td>
<td>Ontkoppelen: 2 - Reparatie nul.: Ruit gebroken in achterdeur.</td>
</tr>
<tr>
<td>8</td>
<td>C204 - Beheer Energetic</td>
<td>Meet: 7 - [11007]: Server start niet meer op.</td>
</tr>
<tr>
<td>102 - Roeradale</td>
<td>Huis ceasefire: 3 - Meervoudige extra code in debugger: Doorbelasting meerwerk 25 schuifdeuren.</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Plein - Plein revisited</td>
<td>Overleg: Projectoverleg</td>
</tr>
</tbody>
</table>

8:00

Daily Total: DI 19-10

<table>
<thead>
<tr>
<th>Aanleiding</th>
<th>Project</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>C204 - Beheer Energetic</td>
<td>Design: 1000 - [11000]: Kan geen verbinding maken met de server.</td>
</tr>
<tr>
<td>6</td>
<td>C204 - Beheer Energetic</td>
<td>Meet: 9 - [11009]: Ontwerp backbone te koop. te koop.</td>
</tr>
<tr>
<td>1</td>
<td>C204 - Beheer Energetic</td>
<td>Design: 1000 - [11000]: Kan geen verbinding maken met de webserver.</td>
</tr>
<tr>
<td>1</td>
<td>MSLS09.BD ALG - Sales trajecten</td>
<td>Design: 1002 - [11002]: VI SI onderzoeken</td>
</tr>
<tr>
<td>1</td>
<td>C204 - Beheer Energetic</td>
<td>Design: 1001 - [11001]: ORA-01792 during parse of view / Oracle Support Services - UPDATED Service Request</td>
</tr>
</tbody>
</table>

14:00

Daily Total: DO 20-10

<table>
<thead>
<tr>
<th>Aanleiding</th>
<th>Project</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MSLS09.BD ALG - Sales trajecten</td>
<td>Design: 1002 - [11002]: VI SI onderzoeken</td>
</tr>
<tr>
<td>1</td>
<td>C204 - Beheer Energetic</td>
<td>Design: 1001 - [11001]: ORA-01792 during parse of view / Oracle Support Services - UPDATED Service Request</td>
</tr>
<tr>
<td>1</td>
<td>C204 - Beheer Energetic</td>
<td>Design: 1000 - [11000]: Email: Kan geen verbinding maken met de webserver.</td>
</tr>
</tbody>
</table>

3:00

Daily Total: VR 21-10

<table>
<thead>
<tr>
<th>Aanleiding</th>
<th>Project</th>
<th>Comment</th>
</tr>
</thead>
</table>

50.00

Weekly Total: W 42-2011

58.00

Monthly Total: 10-2011
Project Allocations

In this screen project allocations can be registered and modified. The definition of a project allocation is the assignment of people to projects.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project</td>
<td>Reference to the project code and the project name as registered in Projects</td>
</tr>
<tr>
<td>Name</td>
<td>Reference to the name of the person who is allocated to the project as registered in Persons</td>
</tr>
<tr>
<td>Start</td>
<td>Scheduled start date of the allocation.</td>
</tr>
<tr>
<td>End</td>
<td>Planned end date of allocation (this date is to and not up to and including).</td>
</tr>
<tr>
<td>Next Review</td>
<td>Planned date on which the review of the project allocation should take place.</td>
</tr>
<tr>
<td>Working Schedule</td>
<td>Reference to a working schedule as registered in Working Schedules</td>
</tr>
<tr>
<td>Labor Type</td>
<td>Reference to a labor type as registered in Labor Types</td>
</tr>
<tr>
<td>Location</td>
<td>Location where the commitment to the project will take place.</td>
</tr>
<tr>
<td>Minimum number of working hours</td>
<td>Minimum commitment for the project in working hours.</td>
</tr>
</tbody>
</table>
Maximum number of working hours | Maximum commitment to the project in working hours.
---|---
Percentage Working schedule | The percentage of the overall work plan that will be allocated to the project.
Legally Binding | Indicator which shows whether the project allocation is legally binding.
Optional Prolongation | Indicator which shows whether the project allocation can be extended by the client and cannot be unilaterally ended by your company.
Extendable | Indicator which shows whether the project allocation can be extended by the client.
Explanation | Any explanation of the project allocation.

**Project Allocations Overview**

This report provides a detailed overview of the hours per month that employees are allocated to a project and the hours they actually have been working.

---

**1.2.6.4 Budgets**

In this form you can register and change budgets.

A budget is a financial availability available for executing certain activities, such as ‘demolition’. Budgets are allocated to revenues and costs of a project and are the individual activities which need to be particularised within the project. In this screen the first particularization is applied to cost category. Budgets are judged by the board based on an exposé and are registered per cost category by the financial administration. If desired you can split the budget within a cost category between different contracts (third party or actions), in order to get a better assessment of the available budget space, see [Contract Budgets](#).
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project</td>
<td>The project of which the budget is part of.</td>
</tr>
<tr>
<td>Cost Type</td>
<td>The cost category of which the budget is registered. Cost categories can only be chosen from a master roll up of the type 'Revenues' and 'Costs'.</td>
</tr>
<tr>
<td>Budget</td>
<td>The budgeted amount.</td>
</tr>
<tr>
<td>Explanation</td>
<td>A written explanation of the budget, used, for example, to shortly indicate the calculation.</td>
</tr>
<tr>
<td>Documents</td>
<td>Linked documents, see Linking Documents.</td>
</tr>
<tr>
<td>Expected Maturity</td>
<td>The expected date when the cash flow starts.</td>
</tr>
<tr>
<td>Expected Maturity End</td>
<td>The expected date when the cash flow ends.</td>
</tr>
<tr>
<td>Distribution Method</td>
<td>The way the cash is distributed in time.</td>
</tr>
<tr>
<td>Budget after Movements</td>
<td>The budget after the adjustments for budget movements.</td>
</tr>
<tr>
<td>Size</td>
<td>Size of the linked documents.</td>
</tr>
<tr>
<td>Budgeted Result</td>
<td>Margin of the project. It is calculated as the total of all revenue budgets minus the total of all costs budgets.</td>
</tr>
</tbody>
</table>

The meaning of the other fields:

| Field          | Description                                                                 |

1.2.6.5 Contracts

In this screen you can register and change contracts.

A contract is a legally enforceable agreement between two or more parties with mutual obligations.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project</td>
<td>The project of which the contract is part of.</td>
</tr>
<tr>
<td>Cost Type</td>
<td>The cost category at which the contract is registered. Cost categories can only be chosen from a master roll up of the type 'Revenues' and 'Costs'.</td>
</tr>
<tr>
<td>Contract</td>
<td>The unique code of the contract.</td>
</tr>
<tr>
<td>Counterparty</td>
<td>The contract party with which the contract is closed.</td>
</tr>
</tbody>
</table>

The meaning of the other fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Documents</td>
<td>Linked documents, see <a href="#">Linking Documents</a></td>
</tr>
</tbody>
</table>

### 1.2.6.6 Units

In this form you can register and change units.

A unit is an independent object of a certain product. For example, in real estate development this can be an office of the type 'Gull', while in the automation it can be a server with a serial number '123XBA' of the type 'Dell 2950'.

To each product belongs one unit with the unique identifier '0'. This unit can be used for logistic functions if no unique identifier is known. This so-called '0-unit' is created by the system and will automatically be removed if the product is deleted.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td></td>
</tr>
<tr>
<td>Product</td>
<td>Product, see Products</td>
</tr>
<tr>
<td>Unique Identifier (SN)</td>
<td>Unique address, location or serial number of the product.</td>
</tr>
<tr>
<td>Description</td>
<td>The description of the unit.</td>
</tr>
<tr>
<td>Unique Identifier Supplier (SN)</td>
<td>The unique address, location or serial number of the unit as known by the supplier.</td>
</tr>
<tr>
<td>Version/Subtype</td>
<td>Revision of the unit.</td>
</tr>
<tr>
<td>User</td>
<td>Reference to the organization for which the unit is used, as recorded in Organizations</td>
</tr>
<tr>
<td>Owner</td>
<td>Reference to the owner of the unit, as recorded in Organizations.</td>
</tr>
<tr>
<td>Dealer</td>
<td>Reference to the dealer of the unit, as recorded in Organizations.</td>
</tr>
<tr>
<td>Location</td>
<td>Geographic location of the unit.</td>
</tr>
<tr>
<td>Contact (URL)</td>
<td>Information on how you can contact the unit. For example, this could be a webpage or a telephone number.</td>
</tr>
<tr>
<td>Icon (URL)</td>
<td>Internet address of an image of the unit.</td>
</tr>
<tr>
<td>Documents</td>
<td>Linked documents, see Linking Documents.</td>
</tr>
<tr>
<td>Units (Quantity)</td>
<td>Total number of units.</td>
</tr>
<tr>
<td>Explanation</td>
<td>Possible explanation.</td>
</tr>
<tr>
<td>Confidential Notes</td>
<td>Confidential information about this unit, for example, such as passwords.</td>
</tr>
<tr>
<td>Special Note Available</td>
<td>Indicator which shows whether the unit has a valid special note. For example, this could be a determination of theft.</td>
</tr>
<tr>
<td>Special Note</td>
<td>Special note concerning the unit. An example could be that this is stolen. For example, the note can be shown during data entry to make it easier to detect stolen goods.</td>
</tr>
<tr>
<td>Logistics</td>
<td></td>
</tr>
<tr>
<td>Redemption Price</td>
<td>Purchase price of the unit.</td>
</tr>
<tr>
<td>Sellable</td>
<td>When checked, it is possible to sell.</td>
</tr>
<tr>
<td>Storeable</td>
<td>When checked, it is possible to keep in stock.</td>
</tr>
<tr>
<td>Splittable</td>
<td>When checked, it is possible to divide into separate parts.</td>
</tr>
<tr>
<td>Commissioned</td>
<td>Date on which the unit is put into operation.</td>
</tr>
<tr>
<td>Acquired</td>
<td>Date at which the unit is obtained.</td>
</tr>
<tr>
<td>Warranty Start</td>
<td>Date at which the warranty of the unit starts.</td>
</tr>
<tr>
<td>Warranty End</td>
<td>Date at which the warranty of the unit ends.</td>
</tr>
<tr>
<td>Right of Use Start</td>
<td>Date at which the user right of the unit starts.</td>
</tr>
<tr>
<td>Right of Use End</td>
<td>Date at which the user right of the unit ends.</td>
</tr>
<tr>
<td>Real Estate</td>
<td></td>
</tr>
<tr>
<td>Space (m² per unit)</td>
<td>Size of the unit in square meters.</td>
</tr>
<tr>
<td>Space (m³ per unit)</td>
<td>Size of the unit in cubic meters.</td>
</tr>
<tr>
<td>Ground (m² per unit)</td>
<td>Size of the ground belonging to the unit.</td>
</tr>
<tr>
<td>Relationships</td>
<td></td>
</tr>
<tr>
<td>Relationship Type</td>
<td>Reference to a unit relation type as registered in Unit Relation Type</td>
</tr>
<tr>
<td>Unit To</td>
<td>Reference to a unit registered in this screen and positioned at the end of the relationship.</td>
</tr>
<tr>
<td>Weight</td>
<td>The importance of a relationship.</td>
</tr>
<tr>
<td>Explanation</td>
<td>Possible explanation.</td>
</tr>
<tr>
<td>Properties</td>
<td></td>
</tr>
<tr>
<td>Property</td>
<td>Reference to a propert as registered in Properties</td>
</tr>
<tr>
<td>Property value</td>
<td>Value of the property.</td>
</tr>
<tr>
<td>Established</td>
<td>Date at which the property was established.</td>
</tr>
<tr>
<td>Reading method</td>
<td>The way in which the property can be read as registered in Property Determination Methods</td>
</tr>
<tr>
<td>Explanation</td>
<td>Possible explanation.</td>
</tr>
</tbody>
</table>

The meaning of the other fields:
1.2.7 Administration

This section contains information about the functions necessary for the application management of Invantive Estate. These functions are normally used by the person appointed within the organization to ensure that the provided functionality is set up in such a way that it fits best the requirements and the needs of the user (‘application manager’).

1.2.7.1 Authentication and Authorisation

This chapter contains information about the functions that are used to establish the access rights of users. These functions are normally used by the person appointed within the organization to ensure that the provided functionality is set up in such a way that it fits best the requirements and the needs of the user.

Invantive Estate is an application that stores information that may not be publicly accessible. For this reason a user first has to log in via the screen Start up and Login to get access. The check that a user is who he claims to be is called ‘authentication’.

Authentication

Authentication consists of validating the identity of the user of the application. A familiar example is making a withdrawal at an ATM, which requires a piece of knowledge (PIN-code) and a piece of possession (bank card). Another example is entering your own house, which requires solely a piece of possession (the key to the house). Invantive Estate belongs to the category of applications that (by default) solely uses knowledge to identify the user. The user gets access to the application with a password.

The authentication data of a user can be stored via the screen Persons.

Authentication by LDAP or Microsoft Active Directory

You can perform authentication through an LDAP directory or Microsoft Active Directory. In order to do this, you need to upload the following settings in the file site.properties, see Site.properties.

Authorisation for projects

The application contains a structure to grant certain groups of users access to only certain projects.

A project within Invantive Estate consists of an extensive amount of data, like budgets, processes, adjustments, invoices, orders and revenues. Access to all data related to a project is secured. To give a user access to the data of a given project, explicit rights should be granted to the user (the so-called UBAC, User Based Access). This can be done with the screen Project Authorisations. The rights can be read-only or write/read. Moreover, you can grant certain users read and/or write access to all projects. This will usually be the case for the application administrator. Also the person who uploads new projects will get complete access to all projects, in order to prevent the creation of a chicken egg problem (you can only grant rights to a project if it exists).
If a user has no rights to add, change or delete data in a screen, the buttons ‘Add’, ‘Change’ and ‘Delete’ will not appear in that screen when the user opens it.

The rights of a user on projects can be registered with the screens **Settings**, **Roles**, **User Roles** and **Project Authorisations**.

**Authorization for screens, reports and documents**

The application contains a structure to grant certain groups of people access to only certain parts of the application. This is called the authorisation structure. Most privileges are granted based upon the role of a user (so-called RBAC, Role Based Access). A user can have multiple roles at the same time. In that case the total rights of the user are the sum of the rights attached to the roles given to the user.

The rights of a user on screens, reports and documents can be registered with the screens **Roles**, **Role Authorisations** and **User Roles**.

For example, if you would like to see the contents of documents in the screen **Budgets**, the function ‘Access to documents of Budget’ in **Role Authorisations** should be assigned to you.

If you want to change a document and then upload it, also editing rights need to be assigned to you in the screen **Role Authorisations**.

**Users**

In this form you can register and change users.

The meaning of the entry fields is:
Name  | The name of the user.
Login  | Logon Code.
Password  | Password associated with the logon code.
RDBMS User  | The RDBMS user that is linked to the Invantive Estate user. The RDBMS user is used to automatically log on to reporting software.

The meaning of the other fields:

Organization  | Reference to the organization for which the user is working, as recorded in Organizations.

Person Roles

In this screen you can register and change person roles.

The meaning of the entry fields is:

User Invantive Producer  | The name of the user in Invantive Producer under which this person works. This should only be entered if a person has access to the screens of Invantive Producer in the menu Application Development.
Administrator If this box is checked, the user is shown in the list of administrators in the screen where projects are uploaded (see General Project Data).

Project developer If this box is checked, the user will be able to edit the data of the project, such as orders.

Time Writer If this box is checked, the user is shown in the list of persons that are allowed to write hours in the screen (see Time Records).

Process Holder If this box is checked, the user is shown in the list of process holders in the screen where you can register processes (see Processes).

Signs Timesheets If this box is checked, the user is shown in the list of timesheet signers in the project screen (see Projects).

Process Detector If this box is checked, the user is shown in the list of process reporters in the screen where you can register processes (see Processes).

Unit Reference to a Unit as registered in Units.

Working Schedule Reference to the application working schedule as registered in Working Schedules.

Internal Rate Reference to the internal tariff of the person as registered in Persons.

The meaning of the other fields:

Name Name of the user as registered in Persons.

Organization Name of the organization that represents the user as registered in Organizations.

Project Authorisations

In this form you can register and change project authorisations.

A project authorization is a link between a person and a project. A person with this project authorization will have access to the data of the project. The person may also modify data if editing rights are granted.

The meaning of the entry fields is:
The project to which rights are granted.

Reference to a user as registered in Persons.

If this box is checked, the user will be able to edit the data of the project, such as orders.

Indicator that indicates project authorization implicitly got assigned by changing persons who are assigned to the project as checked.

Possible explanation.

Reference to a customer as registered in Organizations.

Reference to a project entity as registered in Organizations.

User Roles

In this form you can register and change the user roles.

A user with a role, subsequently has all rights that belong to the role as defined in the screen Role Authorizations and Roles. The user roles also define which Menu Items a user could see.

When implementing Invantive Estate you can directly use the example roles included in Invantive Estate. However, it is preferred to copy these roles. Example roles can be identified by the prefix ‘Example’ in the role code.

The meaning of the entry fields is:

Name  The name of the user.

Role  The role assigned.

Roles

In this form you can register and change roles.

A role is a function within an organization (for example ‘Project Developer’) that can be performed by a person. Rights can be assigned to this role with Role Authorizations and
subsequently this role can be assigned to users that are going to perform the function with User Roles.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Role</th>
<th>The code of the role.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>The description.</td>
</tr>
<tr>
<td>All Projects Visible</td>
<td>When this field is checked, then every user with this role will be able to see all projects.</td>
</tr>
<tr>
<td>Change all Projects</td>
<td>If this box is checked, then every user with this role can edit all projects.</td>
</tr>
<tr>
<td>see all process notes</td>
<td>If this box is checked, then every user with this role can see all process notes.</td>
</tr>
<tr>
<td>See All Anniversaries</td>
<td>If this box is checked, then every user with this role can see all birthdays.</td>
</tr>
<tr>
<td>See All Documents</td>
<td>If this box is checked, then every user with this role can see all documents.</td>
</tr>
<tr>
<td>Explanation</td>
<td>Possible Explanation.</td>
</tr>
</tbody>
</table>

**Role Authorisations**

In this screen you can register and change role authorizations.

A role authorisation is a link between a role and a screen or report. A user with this role subsequently has access to the form or report. Moreover, the user can change the data if editing rights have been granted.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Role Description</td>
<td>The role.</td>
</tr>
<tr>
<td>Function</td>
<td>The function (form or report).</td>
</tr>
<tr>
<td>Allow Edit</td>
<td>If this box is checked, then every user with this role can change information in this function. If it concerns project related data, such as orders, the user will also need editing rights for the project.</td>
</tr>
</tbody>
</table>

### 1.2.7.2 Project Structure

This chapter contains information about the functions needed to configure the project structure.

**Projects**

Enter text here.

**Product clusters**

In this form you can register and change product clusters.

A product cluster consists of a part of the organizational activity that executes projects inside a certain area of attention, like offices, houses or stores.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>The unique code of the product cluster.</td>
</tr>
<tr>
<td>Description</td>
<td>Description of a product cluster.</td>
</tr>
<tr>
<td>Explanation</td>
<td>Possible explanation.</td>
</tr>
</tbody>
</table>

Notice that a product cluster can have different directors regarding responsibility on product cluster level. The responsible product cluster director is therefore assigned per project.

**Project Phases**

In this screen you can register and change project phases.

Projects can be divided into their current project phase. Typical project phases include, acquisition, development and realization.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>The code for the project phase.</td>
</tr>
<tr>
<td>Description</td>
<td>The description.</td>
</tr>
<tr>
<td>Sort Order</td>
<td>A numerical value on which the project phases are sorted when a list of them is shown in a list box in a screen.</td>
</tr>
<tr>
<td>Explanation</td>
<td>Possible explanation.</td>
</tr>
<tr>
<td>Icon (URL)</td>
<td>The relative URL of the icon belonging to the project phase. The icon must be 16 pixels high and 16 pixels wide.</td>
</tr>
<tr>
<td>Modifications Hours</td>
<td>Modifications in the hour registrations are possible when checked.</td>
</tr>
<tr>
<td>Allow Non End Status Timesheets</td>
<td>Allow hours from the hour registration that have not reached the end status when checked.</td>
</tr>
</tbody>
</table>

**Project Phase Transitions**

Enter text here.

**Project Relations**

In this screen you can register and change project relations. A project relationship describes the relationship between two or more projects.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Relationship Type</th>
<th>From</th>
<th>To</th>
<th>Weight</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Project Relation Type</td>
<td>The project at the begin point of the project relation.</td>
<td>The project at the end point of the project relation.</td>
<td>Shows the dependency of the relationship. Expressed in a number from 0 to 1.</td>
<td>Possible explanation</td>
</tr>
</tbody>
</table>

**Project Relation Types**

In this screen you can project relation types. budget for the next expose.

A project relationship describes the relationship between two or more projects. Project relations can be registered in **Project Relations**.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relationship Type</td>
<td>The code of the project relation type as viewed from the begin point of the project relationship.</td>
</tr>
<tr>
<td>Description from</td>
<td>Description of the project relationship as viewed from the start of the project relationship.</td>
</tr>
<tr>
<td>Code Reversed</td>
<td>The code of the project relation type as viewed from the end point of the project relationship.</td>
</tr>
<tr>
<td>Description to</td>
<td>Description of the project relationship as viewed from the end point of the project relationship.</td>
</tr>
<tr>
<td>Container</td>
<td>The begin point of the project relationship is a container project, when checked.</td>
</tr>
</tbody>
</table>

**Project Version Categories**

In this screen you can register and change the project version category.

A project version category is a tool to subdivide project versions in, for example, different reports like ‘quarterly review’, ‘annual report’ and ‘prognosis 2011’.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Code</th>
<th>The unique code of the project version category.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>The description of the project version category.</td>
</tr>
<tr>
<td>Sort Order</td>
<td>A numeric value on which the project version categories are sorted when they are shown in a list box in a screen.</td>
</tr>
<tr>
<td>Explanation</td>
<td>Possible explanation.</td>
</tr>
</tbody>
</table>

**Land Statuses**

In this screen you can register and modify land statuses.

A ground status describes the state of the land required for the realization of the project such as "Private land" or "Ready to be developed".
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>The code used for the land status.</td>
</tr>
<tr>
<td>Description</td>
<td>The description of the land status.</td>
</tr>
<tr>
<td>Sort Order</td>
<td>A numerical value on which the land statuses are sorted when a list is visible in the screen.</td>
</tr>
</tbody>
</table>

**Processes**

Enter text here.

**Process Relations**

In this screen you can register and change process relations.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relationship Type</td>
<td>Reference to a process relation type as registered in Process Relation Types. A process relation type describes the relationship between two organizations.</td>
</tr>
<tr>
<td>From</td>
<td>Process Relation as viewed from the start point of the process relation.</td>
</tr>
<tr>
<td>To</td>
<td>Process Relation as viewed from the end point of the process relation.</td>
</tr>
<tr>
<td>Weight</td>
<td>The weight or intensity of the relationship between the two processes. The weight or saturation of the number is shown from the chosen description of the Process Relation Type.</td>
</tr>
<tr>
<td>Explanation</td>
<td>Optional explanation of the process relation.</td>
</tr>
</tbody>
</table>

The meaning of the other fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>End Status</td>
<td>If checked, the process is in the end status.</td>
</tr>
</tbody>
</table>

**Process Status**

In this screen you can register and change process statuses.

A process status describes the condition of a process (see Processes).
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>The code.</td>
</tr>
<tr>
<td>Description</td>
<td>The description.</td>
</tr>
<tr>
<td>External Description</td>
<td>The description used for displaying on reports and screens designed for third parties such as customers.</td>
</tr>
<tr>
<td>Weight</td>
<td>The importance of the process status for planning purposes.</td>
</tr>
<tr>
<td>Sort Order</td>
<td>A numerical value on which the statuses are sorted when a list is visible in the screen.</td>
</tr>
<tr>
<td>Progress (%)</td>
<td>Indicates to what extent the process is completed.</td>
</tr>
<tr>
<td>Icon (URL)</td>
<td>The relative URL of the icon belonging to the process status. The icon must be 16 pixels high and 16 pixels wide.</td>
</tr>
<tr>
<td>Start status</td>
<td>Indicates if this status is the status with which the performing of the process begins.</td>
</tr>
<tr>
<td>End Status</td>
<td>Indicates if this status is the status with which the performing of the process ends.</td>
</tr>
<tr>
<td>Send over Deadline Emails</td>
<td>Indicates if emails are sent to the process holder if the process passes the deadline.</td>
</tr>
<tr>
<td>Allow Non End Status Times-</td>
<td>Indicates if the process status allows hours that do not have the end status.</td>
</tr>
</tbody>
</table>
All-non-invoice Status Timesheets

Indicates if the process status allows hours that do not have the invoice status.

Modifications Hours

Indicates if it is allowed to change hours.

Allow Quick Notes

Indicates if it is allowed to change work instructions.

Parked

Indicates if the execution of the process is temporarily postponed.

Work in progress

Indicates if the process is executed.

Bad Credit Check

Indicates that the funding of the process is insufficient.

To Be Discussed

Indicates that the process should be discussed.

Ready for Invoicing

Indicates if the process is ready to be invoiced.

Booked

Indicates if the process is booked and by this will obtain the end status.

Accepted

Indicates that the process was approved for implementation.

Process Categories

In this screen you can register and change process categories.

A process category is a group of processes (see Processes). Common categories are Complaint, Malfunction, Request and Modification.

Categories are used to indicate the type of process. A fixed ‘workflow’ may be linked as described in Process Status Transitions.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>The code.</td>
</tr>
<tr>
<td>Description</td>
<td>The description.</td>
</tr>
<tr>
<td>Sort Order</td>
<td>A numeric value on which the categories are sorted when they are shown in a list box in a screen.</td>
</tr>
<tr>
<td>Milestone</td>
<td>Indicates if the processes belonging to this process category are a ‘milestone’.</td>
</tr>
<tr>
<td>-----------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Process</td>
<td>Indicates if the processes belonging to this process category are of the type ‘process’. Processes belong to the type ‘process’ if they do not result in an end product but support the process.</td>
</tr>
</tbody>
</table>

**Process Provenances**

In this screen you can register and edit process provenances.

A process provenance is a grouping of processes (see Processes) on the basis of provenance.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Code</th>
<th>The code.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>The description.</td>
</tr>
<tr>
<td>Sort Order</td>
<td>A numeric value on which the process origins are sorted when they are shown in a list box in a screen.</td>
</tr>
<tr>
<td>Explanation</td>
<td>Possible explanation.</td>
</tr>
</tbody>
</table>

**Process Impacts**

In this screen you can register and change process impacts.

A process impact is a group of processes (see Processes) on bases on impact. The process impact determines often the priority in combination with urgency.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>The code.</td>
</tr>
<tr>
<td>Description</td>
<td>The description.</td>
</tr>
<tr>
<td>Weight</td>
<td>The weight of the impact.</td>
</tr>
<tr>
<td>Sort Order</td>
<td>A numerical value on which the impacts are sorted when a list is visible in the screen.</td>
</tr>
<tr>
<td>Explanation</td>
<td>Possible explanation.</td>
</tr>
</tbody>
</table>

**Process Status Transition**

In this screen you can register and change transitions between process statuses. A transition specifies a valid change of the status of a process to a different status. This allows workflows to be defined. Complex transitions can also be enforced with an additional business rule.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process Category Old</td>
<td>Reference to the process category in the initial situation as registered in Process Categories.</td>
</tr>
<tr>
<td>Process Category New</td>
<td>Reference to the process category in the new situation as registered in Process Categories.</td>
</tr>
<tr>
<td>Process Status from</td>
<td>Reference to the process status in the initial situation as registered in Process Statuses.</td>
</tr>
<tr>
<td>Process Status to</td>
<td>Reference to the process status in the new situation as registered in Process Statuses.</td>
</tr>
<tr>
<td>Role</td>
<td>Reference to a role as registered in Roles. Indicates which role is necessary to make the process status transition possible.</td>
</tr>
<tr>
<td>Involvement Role</td>
<td>Reference to an involvement role as registered in Involvement Roles. Indicates which involvement role is necessary to make the process status transition possible.</td>
</tr>
<tr>
<td>Start</td>
<td>Start time of the process status transition.</td>
</tr>
<tr>
<td>End</td>
<td>A task process status transition is allowed until this date.</td>
</tr>
<tr>
<td>Minimal Limit</td>
<td>Minimum value of the limit of user involvement in relation to this process, project, organization or the involvement of the role (the first of these two which has a value is used), to all-</td>
</tr>
</tbody>
</table>
Analyses

Building workflow based on process status transitions is flexible, but sometimes it is difficult determining which steps are run with trying to achieve the next status automatically. With a manual action, several steps at once can be put with any associated actions indirectly through additional business rules. The steps - including automatically made steps - afterwards can be found in the screen Logging.

Process Note Categories

In this screen you can register and change process note categories.

A process note category is a group of process notes (see processes). Common categories are ‘Email’, ‘Telephone’, and ‘Project Group’.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Sort Order</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The meaning of the entry fields is:

- **Code**: The code.
- **Description**: The description.
- **Sort Order**: A numeric value on which the categories are sorted when they are shown in a list box in a screen.
- **Explanation**: Possible explanation.
Process Relation Types

In this screen you can register and change process relation types.

A process relation type describes the relation type between two processes.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Relationship Type</th>
<th>Unique alphanumeric code that identifies the process relation type as viewed from the perspective of the first party relation.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description from</td>
<td>Process Relation Type as viewed from the start point of the process relation. Is shown in reports and screens.</td>
</tr>
<tr>
<td>Code Reversed</td>
<td>Unique alphanumeric code that identifies the process relation type as viewed from the perspective of the second party relation.</td>
</tr>
<tr>
<td>Description to</td>
<td>Process Relation Type as viewed from the end point of the process relation. Is shown in reports and screens.</td>
</tr>
<tr>
<td>Predecessor End to End</td>
<td>If checked, the end of a previous process preceded by the end of a previous process is viewed from the starting end.</td>
</tr>
<tr>
<td>Predecessor End to Start</td>
<td>If checked, the end of a previous process preceded by the start of a new process is viewed from the starting end.</td>
</tr>
<tr>
<td>Predecessor Start to End</td>
<td>If checked, the start of a new process preceded by the end of a previous process is viewed from the starting end.</td>
</tr>
<tr>
<td>Predecessor Start to Start</td>
<td>If checked, the end of a previous process preceded by the start of a new process is viewed from the starting end.</td>
</tr>
<tr>
<td>Container</td>
<td>When checked the start point from the relationship is a container organization.</td>
</tr>
</tbody>
</table>

Process Unit Status

Enter text here.
Process Unit Status Transitions

Enter text here.

Working Schedules

Enter text here.

Working Schedules

This screen allows you to record and modify workflows.

A working schedule describes the hours contractual agreed upon for a labor agreement or the hiring of permanent and temporary personnel/staff.

This screen allows you to record and modify workflows.

A working schedule describes the hours contractual agreed upon for a labor agreement or the hiring of permanent and temporary personnel/staff.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>Unique alphanumeric code that identifies the working schedule.</td>
</tr>
<tr>
<td>Description</td>
<td>A description of the working schedule.</td>
</tr>
<tr>
<td>Sort Order</td>
<td>A numeric value which the working schedules are sorted when they are shown in a list box in a screen.</td>
</tr>
<tr>
<td>Working Hours ... Even</td>
<td>Number of working hours on the even... ’Even’ indicates that the week number is even according to ISO 8601.</td>
</tr>
<tr>
<td>Start time ... Even</td>
<td>Start time of the working hours on the even... ’Even’ indicates that the week number is even according to ISO 8601.</td>
</tr>
<tr>
<td>Working Hours ... Odd</td>
<td>Number of working hours on the odd ... ’Odd’ indicates that the week number is odd according to ISO 8601.</td>
</tr>
<tr>
<td>Start time ... Odd</td>
<td>Start time of the working hours on the odd... ’Odd’ indicates that the week number is odd according to ISO 8601.</td>
</tr>
</tbody>
</table>
Working-schedule-exceptions

This screen allows you to record exceptions in workflows and change.

A working schedule exception is a different number of working hours on a particular day, for example, on holidays.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working Schedule</td>
<td>Unique alphanumeric code that identifies the working schedule exceptions.</td>
</tr>
<tr>
<td>Date</td>
<td>The date on which the working schedule exception applies.</td>
</tr>
<tr>
<td>Working Hours</td>
<td>The number of hours that should be worked on the date of the working schedule exception.</td>
</tr>
<tr>
<td>Explanation</td>
<td>An explanation of the working schedule exception.</td>
</tr>
</tbody>
</table>

Revenue Types

In this form you can register and change types of revenues.

A revenue type is a subdivision of revenues (see Revenues) based on common characteristics. Revenue types are used to report revenues in, for example, the production overview (see Production Overview).
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>The code for the revenue type.</td>
</tr>
<tr>
<td>Description</td>
<td>The description.</td>
</tr>
<tr>
<td>Reporting Unit</td>
<td>The unit in which this type of revenues usually are reported. For example, for houses this will be number, while for office space it will be 'm²'.</td>
</tr>
<tr>
<td>Divider</td>
<td>The constant by which the amounts in the reports must be divided in order to end up with the report of this type of revenue.</td>
</tr>
</tbody>
</table>
| Presentation mask | A pattern that describes how the number after dividing by the 'divider' has to be displayed. The presentation mask consists of a number of characters, of which each character describes exactly one character in the presentation. The following characters are possible in the presentation mask:  
  * G: the grouping character (in Europe this is a point '.'),  
  * D: the decimal character (in Europe this is a comma ','),  
  * 9: the number at this position before or after the comma, in case before the number at least one other number is placed other than 0.  
  * 0: the number at this position before or after the comma.  
  A presentation mask '990D 00' gives the following results:  
  * '12.3' will become '12.30'  
  * '0' will become '0.00'  

Counts as Production | A revenue counts as production in the production overview in case this field is checked. |
| Explanation         | Possible explanation.                                                      |

**Labor Types**

This screen lets you record and edit work types.

A labor type is a type of work that can be performed by an employee and that will be treated distinctively for invoicing or analysis.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Code</th>
<th>Unique alphanumeric code that identifies the labor type.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Description of the labor type.</td>
</tr>
<tr>
<td>Outlook Category</td>
<td>The category in Microsoft Outlook for this labor type.</td>
</tr>
<tr>
<td>Outlook Category Color</td>
<td>The category color that is used when this labor type is automatically created in Microsoft Outlook.</td>
</tr>
<tr>
<td>Outlook Category Shortcut Key</td>
<td>The shortcut key that can be used for this labor type in case this labor type is automatically created in Microsoft Outlook.</td>
</tr>
<tr>
<td>Sort Order</td>
<td>A numeric value on which the labor types are sorted when they are shown in a list box in a screen.</td>
</tr>
<tr>
<td>Cost Type</td>
<td>Reference to a cost category as registered in Cost Categories. The cost of hours made for the project can be booked on this cost category.</td>
</tr>
<tr>
<td>Contract Pattern</td>
<td>Contract pattern code associated with this labor type. In this pattern, placeholders are replaced by actuals during cost accounting. The following placeholders are supported: ‘:gbr_initialen:’, ‘:vandaag:’, ‘:pjt_code:’, ‘:w st_code:’, ‘:gbr_naam:’, ‘:uur_yyyy_start:’, ‘:uur_mm_start:’, and ‘:uur_dd_start:’.</td>
</tr>
<tr>
<td>Labor Type Category</td>
<td>Classification of labor types to labor type categories, for example ‘meeting’, ‘travel’, ‘work’, etc.</td>
</tr>
<tr>
<td>Costing %</td>
<td>The size of costs posting is calculated by multiplying the cost percentage with the internal tariff from the person or machine.</td>
</tr>
<tr>
<td>Explanation</td>
<td>Remarks on the use of labor type.</td>
</tr>
</tbody>
</table>
**Text Masks**

In this form you can register and change text masks.

A text mask is a text element used, for example, to serve as standard setting for a project status report.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>The unique code within the scope for the text mask.</td>
</tr>
<tr>
<td>Application</td>
<td>The text masks are subdivided in several series for different scopes. Per scope there is a purpose available.</td>
</tr>
<tr>
<td>Description</td>
<td>The description of the text mask.</td>
</tr>
<tr>
<td>Text</td>
<td>The text of the text mask.</td>
</tr>
</tbody>
</table>

**1.2.7.3 Financial**

This chapter describes the screens and reports relating to the financial part of a project or organization.

**Prices**

Enter text here.
Price List Lines

In this screen you can register and change price list rules.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price List</td>
<td>Reference to a Price List</td>
</tr>
<tr>
<td>Sort Order</td>
<td>A numeric value used for checking the ‘price list rules’ to determine the price per unit.</td>
</tr>
<tr>
<td>Included Price List</td>
<td>Reference to a price list as registered in Price Lists and which is included in this ‘price list rule’.</td>
</tr>
<tr>
<td>Unit</td>
<td>Reference to a Unit</td>
</tr>
<tr>
<td>Sale Price</td>
<td>Price of sale of the Unit</td>
</tr>
<tr>
<td>Valid From</td>
<td>The system date on which the ‘price rule’ becomes valid.</td>
</tr>
<tr>
<td>Valid To</td>
<td>The system date on which the ‘price rule’ validity ends.</td>
</tr>
</tbody>
</table>

Price Lists

In this screen you can register and change price lists.

A price list has - just like Menus - a tree structure, consisting of a set of prices for Units and other price lists. Price lists can therefore be built with other price lists.

Example 1:
Price list sales products: PC € 100,--
Price list sales hours: 1 hour Aeilkema = € 70,--

Price list sales general:
1) sales products.
2) sales hours.

Example 2:
Price list sales glass domes: 1.5m X 1.5m = € 226, --
Price list rental trailers: 1 day € 250
Price list rental platforms: daily price € 148.50

Price list sales general:
1) sales glass domes.
2) rental trailers.
3) rental platforms.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Code</th>
<th>Unique alphanumeric code that identify the price list.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Description of the price list.</td>
</tr>
<tr>
<td>Associate Indicator</td>
<td>Indicator which shows how the price list can be used.</td>
</tr>
<tr>
<td>Explanation</td>
<td>Possible explanation.</td>
</tr>
</tbody>
</table>

Price List Report

This report allows you to request Price Lists.
### Unit per Person and Labor Type

In this screen 'unit per person and type of work "are recorded and changed.

The determination of the selling price of a person is based on the unit related to the person.
For certain labor types, a different unit (and therefore different price) can be registered here. For example: a director sometimes performs a ‘cheap’ labor type.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Labor Type</th>
<th>Reference to a Labor Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Reference to a Person</td>
</tr>
<tr>
<td>Unit</td>
<td>Reference to a Unit</td>
</tr>
</tbody>
</table>

**VAT Codes**

In this screen you can register and change VAT codes.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Code</th>
<th>Unique alphanumeric code that identifies the VAT code.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Omschrijving van de BTW-code.</td>
</tr>
<tr>
<td>VAT Percentage</td>
<td>The VAT percentage.</td>
</tr>
<tr>
<td>Sort Order</td>
<td>A numeric value on which the VAT codes are sorted when they are shown in a list box in a screen.</td>
</tr>
</tbody>
</table>

Banks

Enter text here.

Payment Schedules

In this screen Payment Schedules can be registered and edited.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Code</th>
<th>Unique alphanumeric code that identifies the payment schedule.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Description of the payment schedule.</td>
</tr>
<tr>
<td>Sort Order</td>
<td>A numeric value on which the payment schedules are sorted when they are shown in a list box in a screen.</td>
</tr>
<tr>
<td>Payment Schedule Lines</td>
<td></td>
</tr>
</tbody>
</table>
Interest Rate Methods

In this screen Interest Rate Methods can be registered and edited.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>Unique alphanumerical code that identifies the interest rate method.</td>
</tr>
<tr>
<td>Description</td>
<td>Description of the interest rate method.</td>
</tr>
<tr>
<td>Interest</td>
<td>Effective annual interest.</td>
</tr>
<tr>
<td>Interest Days Per Year</td>
<td>Indicated the number of days per year that are used for the interest rate method, like 360 NASD or 365 days per year.</td>
</tr>
<tr>
<td>Unit</td>
<td>Reference to a unit as registered in Units.</td>
</tr>
</tbody>
</table>
Sort Order  | A numeric value on which the interest rate methods are sorted when they are shown in a list box in a screen.
---|---
Stock  | Reference to a warehouse as registered in Warehouses.
Initial Process Unit Status  | Reference to a process unit status as registered in BUBS_TAK_UNT_STATUSS as the old status of the process task unit.
Number of days without Interest  | Number of days you subtract from the period for which interest is calculated.

### Hours

Enter text here.

### Timesheet Statuses

In this screen you can register and timesheet statuses.

The meaning of the entry fields is:

| Code  | Unique code that identifies the 'Timesheet Status'.
| Description  | Description of the 'Timesheet Status'.
| Sort Order  | A numeric value on which the 'timesheet statuses' are sorted when they are shown in a list box in a screen.
| Role to Change Unlimited  | Reference to a role as registered in Roles. Shows the role that a user must have - despite the change and disposition of the flags - still able to edit hours with this status.
| Explanation  | Possible explanation.
<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start status</td>
<td>Indicator which indicates if it is a ‘start status’ of the hours.</td>
</tr>
<tr>
<td>End Status</td>
<td>Indicator which indicates if it is an ‘end status’ of the hours.</td>
</tr>
<tr>
<td>Actuals</td>
<td>Indicates if it concerns the realised hours and not the planned hours.</td>
</tr>
<tr>
<td>Ready for Invoicing</td>
<td>Indicator of whether the hours are ready for invoicing.</td>
</tr>
<tr>
<td>Booked</td>
<td>Indicator indicating if the hours are invoiced and booked.</td>
</tr>
<tr>
<td>Change Comment</td>
<td>Indicator if it is allowed to change the comments.</td>
</tr>
<tr>
<td>Change Start</td>
<td>Indicator if it is allowed to change the start date.</td>
</tr>
<tr>
<td>Change Location</td>
<td>Indicator if it is allowed to change location.</td>
</tr>
<tr>
<td>Change Notes</td>
<td>Indicator if it is allowed to change the notes.</td>
</tr>
<tr>
<td>Change Project</td>
<td>Indicator if it is allowed to change the project code.</td>
</tr>
<tr>
<td>Change Process</td>
<td>Indicates if the process code may be modified.</td>
</tr>
<tr>
<td>Change Effort</td>
<td>Indicator if it is allowed to change the number of working hours.</td>
</tr>
<tr>
<td>Change Labor Type</td>
<td>Indicator if it is allowed to change the Labor Type.</td>
</tr>
<tr>
<td>Delete Timesheets</td>
<td>Indicates if it is possible to delete hours.</td>
</tr>
</tbody>
</table>

### Timesheet Status Transitions

In this screen you can register and change ‘timesheet status transitions’.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status Hours Old</td>
<td>Unique code that identifies the ‘Status Hours Old’.</td>
</tr>
<tr>
<td>Status Hours New</td>
<td>Unique code that identifies the ‘Status Hours New’.</td>
</tr>
<tr>
<td>Role</td>
<td>Reference to a role as registered in Roles. Shows the role that is required to make a specific hour status transition.</td>
</tr>
</tbody>
</table>

### Economic Indexes

Enter text here.

### Economic Indexes

In this screen, ‘economic indexes’ can be registered and changed. In economics, indexes are often used as an indicator of the state of the economy (the general economic situation) or as an indicator for a part of the economy.
The meaning of the entry fields is:

Name | The name of the 'economic index'.
Abbreviation | The abbreviation of the 'economic index'.

**Economic Index Values**

In this screen 'economic index values' can be registered and changed.

The meaning of the entry fields is:

Name | The name of the 'economic index'.
Value | The value of the 'economic index'.
Date Valid | The date on which the 'economic index' had this value.

**Cost Type**

Enter text here.
Cost Categories

In this screen you can register and change cost types for project budgets.

A cost category is a category in which costs or revenues can be registered, such as ‘purchase ground’, ‘architect’ or ‘sale houses’. All financial activities within a project will be distributed to a cost category. Within all projects that are registered you can use the same cost category.

A cost category belongs to specifically one roll up, in which linked cost categories are grouped (see also Roll Ups). Roll ups belong to master roll ups which show an even more general view of cost categories. (see also Master Roll Ups).

The cost category structure for real estate projects is often based on the NEN norm 2631.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master Roll Up</td>
<td>The master roll up to which the selected roll up belongs.</td>
</tr>
<tr>
<td>Roll Up</td>
<td>The roll up to which the cost category belongs.</td>
</tr>
<tr>
<td>Code</td>
<td>The code of the cost category.</td>
</tr>
<tr>
<td>Description</td>
<td>The description of the cost category.</td>
</tr>
<tr>
<td>Explanation</td>
<td>Free text.</td>
</tr>
<tr>
<td>Payment Term (days)</td>
<td>Gives the number of days in which an invoice has to be paid. For invoices within this cost category with no expiration date or not yet received.</td>
</tr>
<tr>
<td>Interest</td>
<td>This cost category is treated as interest if this box is checked.</td>
</tr>
<tr>
<td>Investment Real Estate</td>
<td>This cost category is treated as investment property if this box is checked.</td>
</tr>
<tr>
<td>Fees</td>
<td>This cost category is treated as Developer Costs if this box is checked.</td>
</tr>
<tr>
<td>Provision</td>
<td>This cost category is treated as a provision if this box is checked.</td>
</tr>
<tr>
<td>Ground</td>
<td>This cost category is treated as acquisition costs for land if this box is checked.</td>
</tr>
<tr>
<td>Unexpected</td>
<td>This cost category is treated as a reserve for contingencies if this box is checked.</td>
</tr>
<tr>
<td>General Costs</td>
<td>This cost category is treated as general expenses if this box is checked.</td>
</tr>
<tr>
<td>Own Capital</td>
<td>This cost category is treated as owner's capital if this box is checked.</td>
</tr>
<tr>
<td>Hours</td>
<td>This cost category is treated as a reserve for contingencies if this box is checked.</td>
</tr>
<tr>
<td>Distribution Method</td>
<td>The way cash flows are allocated for this cost category if not set on a more precise level.</td>
</tr>
</tbody>
</table>

Cost Categories Structure

This report shows the cost category structure of the project or of the organization.

Roll Ups

In this form you can register and change roll ups.

A roll up is a bundle of individual cost categories. Roll ups are used to combine financial information, which is registered per cost category, into a medium level, such as ‘Acquisition’,

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within projects. The financial information can also be requested on cost category, in case a less general division is required. The financial information can also be requested on master roll up level, in case a more general division is required.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roll Up</td>
<td>The roll up code.</td>
</tr>
<tr>
<td>Description</td>
<td>The description.</td>
</tr>
<tr>
<td>Master Roll Up</td>
<td>The code of the master roll up to which the roll up belongs.</td>
</tr>
</tbody>
</table>

**Master Roll Ups**

In this form you can register and change master roll ups.

A master roll up is a bundle of cost category roll ups which are a bundle of individual cost categories. Master Roll Ups are used to summarize financial information, which is registered per cost category within a project, at a high level, such as ‘Income’. In case a less general division is needed, the financial information can also be shown at roll up level or at cost category level.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>The master roll up code.</td>
<td>The type of roll up. The type of the master roll up determines which kind of data can be registered at the lower level cost categories. Moreover, the type of master roll up also influences the way reports group, sort and show the financial information in a master roll up. On cost categories under the category 'Costs', you can register budgets and make budget modifications (see Assign Budgets), latest estimates (see Latest Estimates), orders (see Orders), contract budgets (see Contract Budgets) and invoice lines (see Invoice Lines) register. On cost categories under the category 'Revenue' you can register budgets (see Assign Budgets), revenue (see Revenues) and invoice lines (see Invoice Lines) register. On cost categories under the category 'results', you can register invoice lines (see Invoice lines) register. ‘Cost’ and ‘Revenue’ are the financial flows within the project. ‘Results’ is used to transfer the results of the project from the balance sheet to the profit and loss statement. This can be done at the end of the project or for instance monthly, for example, based on the construction progress.</td>
</tr>
<tr>
<td>Description</td>
<td>The description.</td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Possible explanation.</td>
<td></td>
</tr>
</tbody>
</table>

Cost Centers
This screen can be recorded and changed cost center.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Code</th>
<th>Unique alphanumeric code that identifies the cost center.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Description of the cost center.</td>
</tr>
</tbody>
</table>

**General ledger account codes**

In this screen general ledger account codes can be registered and edited.

The meaning of the entry fields is:

| Code         | Unique alphanumeric code that identifies the general ledger code. |
Description of the general ledger code.

<table>
<thead>
<tr>
<th>Description</th>
<th>Balance / Profit &amp; Loss</th>
<th>Indicator which indicates if it is a balance or profit and loss entry.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Credit/debit</td>
<td>Indicator which indicates if it is a credit or debit entry.</td>
</tr>
</tbody>
</table>

### 1.2.7.4 CRM

This chapter presents the relationships between the project or the organization and suppliers, customers and employees.

**Documents**

Enter text here.

**Document Statuses**

In this screen you can register and change document statuses.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Sort Order</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The meaning of the entry fields is:

- **Code**: Unique alphanumeric code that identifies the document status.
- **Description**: Description of the document status.
- **Sort Order**: A numeric value on which the document statuses are sorted when they are shown in a list box in a screen.

**Document Types**

In this screen you can register and change document types.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>Unique alphanumeric code that identifies the document type.</td>
</tr>
<tr>
<td>Description</td>
<td>Description of the document type.</td>
</tr>
<tr>
<td>Sort Order</td>
<td>A numeric value on which the document types are sorted when they are shown in a list box in a screen.</td>
</tr>
</tbody>
</table>

**Classifications**

In this screen you can register and change classifications.

A classification is a label that is linked to a project, a process, an organization, a person, or a document. The label provides additional information about the file to which it is attached and makes in this way a keyword based classification and indexing possible. With labels you can find your desired information more efficient.
Classifications make use of a tree structure where ‘.’ is used as a separator. So ‘A.B’ first requires the presence of ‘A’.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>The unique code of the classification.</td>
</tr>
<tr>
<td>Description</td>
<td>Description of the classification.</td>
</tr>
<tr>
<td>Explanation</td>
<td>Possible explanation.</td>
</tr>
</tbody>
</table>

**Organization Relation Types**

In this screen you can register and change organization relation types.

An organization relation type describes the relation type between two organizations.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relationship Type</td>
<td>The code of the organization relation type.</td>
</tr>
<tr>
<td>Description from</td>
<td>Organization Relation Type as viewed from the begin point of the organization relation.</td>
</tr>
<tr>
<td>Code Reversed</td>
<td>Unique alphanumeric code for the organization relation type as viewed from the perspective of the second party relation.</td>
</tr>
<tr>
<td>Description to</td>
<td>Organization Relation as viewed from the end point of the organization relation.</td>
</tr>
<tr>
<td>Container</td>
<td>When checked the start point from the organization relation is a container organization.</td>
</tr>
</tbody>
</table>

Legal Forms

In this screen you can register and change legal forms.

The legal form of a company, enterprise or organization, is the legal form where the enterprise is cast.

The simplest business form is a sole proprietorship. The sole proprietor is the owner of the business including the operator and the gain or loss from the enterprise is equal to the profit or loss of the entrepreneur. For more complex legal forms, there is a greater distinction between the enterprise and the owners or operators of that enterprise.

The legislation in each country determines which legal forms in the business as possible.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>The unique code of the legal form.</td>
</tr>
<tr>
<td>Description</td>
<td>Description of the legal form.</td>
</tr>
<tr>
<td>Sort Order</td>
<td>A numeric value on which the legal forms are sorted when they are shown in a list box in a screen.</td>
</tr>
<tr>
<td>Explanation</td>
<td>An explanation of the legal form.</td>
</tr>
</tbody>
</table>

**Web Sites**

In this screen you can register and change websites.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>The unique code of the website.</td>
</tr>
<tr>
<td>Website (URL)</td>
<td>The home of the website, specified as URL.</td>
</tr>
<tr>
<td>Description</td>
<td>Description of the website for showing reports and screens.</td>
</tr>
</tbody>
</table>

**Web Site Interactions**

In this screen you can register and change website interactions.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Website</td>
<td>Reference to a website as registered in Websites.</td>
</tr>
<tr>
<td>Number</td>
<td>Unique numeric code.</td>
</tr>
<tr>
<td>IP Address</td>
<td>IP-address of the requestor.</td>
</tr>
<tr>
<td>Login</td>
<td>Users identification used for the registration for the requested page.</td>
</tr>
<tr>
<td>Date Registered</td>
<td>Date and time the request was requested.</td>
</tr>
<tr>
<td>Request Line</td>
<td>Line of the request that is used to determine which page will be sent back.</td>
</tr>
<tr>
<td>HTTP Status Number - Of</td>
<td>Numeric display of the status that was sent back in response to the request.</td>
</tr>
<tr>
<td>Result Size</td>
<td>Size of the HTTP result that was sent back.</td>
</tr>
<tr>
<td>Referrer (URL)</td>
<td>Reference to the retrieved website page.</td>
</tr>
<tr>
<td>Browser Specification</td>
<td>Specification of the used browser.</td>
</tr>
</tbody>
</table>
User Overview

Enter text here.

Involvement Roles

In this screen you can register and change 'Participation Roles'.

Persons participating in a project could have multiple roles assigned. The same role can be assigned to several people.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>The unique code of the 'involvement role'.</td>
</tr>
<tr>
<td>Description</td>
<td>Short description of the 'project involvement role'.</td>
</tr>
<tr>
<td>Limit</td>
<td>Deviating limit used for managing workflow transitions.</td>
</tr>
<tr>
<td>Weight</td>
<td>Weight assigned to this role.</td>
</tr>
<tr>
<td>Explanation</td>
<td>Optional explanation of the 'project involvement role'.</td>
</tr>
</tbody>
</table>

Skills

In this screen you can register and change skills.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Code</th>
<th>The unique code of the skill.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>The description of the skill.</td>
</tr>
</tbody>
</table>

**Access Requests**

In this form you can register and change requests for access.

The screen is an extension to the screen [Request Entrance](#), that is specifically meant for persons currently without access rights. In this screen, the application administrator can close access requests, for example, after granting access rights.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Name of the requester.</td>
</tr>
<tr>
<td>Email Address</td>
<td>The email address where the access credentials should be sent to.</td>
</tr>
<tr>
<td>Login Code Requested</td>
<td>The login code that is requested for the applicant.</td>
</tr>
<tr>
<td>Business</td>
<td>The name of the organization at which the applicant is employed.</td>
</tr>
<tr>
<td>Country</td>
<td>The country of residence.</td>
</tr>
<tr>
<td>Reason of Request</td>
<td>The reason why you wish access to Invantive Estate.</td>
</tr>
<tr>
<td>Possible Explanation</td>
<td>A free textual explanation of the reason for the request.</td>
</tr>
<tr>
<td>Associated User</td>
<td>The person who was registered as user for the request.</td>
</tr>
<tr>
<td>License Agreement</td>
<td>The terms and conditions under which access is granted.</td>
</tr>
</tbody>
</table>
1.2.7.5 Logistics

This section describes the screens relating to the logistics of a project or organization. Logistics covers the area of development and procurement followed by the production and distribution of products with the necessary personnel to the final customer, with the aim to fulfill the needs of the market at optimum cost and capital used.

Invantive Estate offers a number of possibilities to settle logistical processes. The data is available at three levels in the product structure:

- **Product Group** a bundle of products, such as for example ‘Consumables’.
- **Product** a specific product without a serial number.
- **Unit** a specific serial number of a product. A unit is an independent object of a certain product. For example, in real estate development this can be an office of the type ‘Gull’, while in the automation it can be a server with a serial number ‘123XBA’ of the type ‘Dell 2950’. To each product belongs one unit with the unique identifier ‘0’. This unit can be used for logistic functions if no unique identifier is known. This so-called ‘0-unit’ is created by the system itself and will automatically be removed if the product is deleted.

A **Unit** on its turn can have relationships with other units, so you can for example, capture which fingerprint reader is connected to which camera. This is not necessarily, but it is useful for complex configurations and it is typically used in service organizations that work with serial-based devices in large numbers in the field (so-called ‘MIF’ or ‘Machine-in-Field’).

Moreover a **Unit** can have special properties that can be different for each **Product**. So for example for a vehicle the kilometers and for a fingerprint reader the number of fingers scanned. This is for example useful for measuring a system (‘do we need to replace the cartridge’) or for invoicing (‘you need to pay EUR 100 per month plus EUR 0.10 per scanned finger’).

The last concept is **Warehouses**: a warehouse is a location where units are stored. This can be: a cabinet, a rack, a warehouse but also a vehicle or a garage box.

For a warehouse transactions of a specific **Unit Transaction Type** can be registered. For example, ‘The issue a work order’ or ‘A recount’. This eventually leads to stock: a summation of all transactions in time leads to a certain position.

If the work order process is running well, the automatically write off of inventory can be used. This makes quite a few demands on the process, but it closes off the process neater.

Which logistics processes are less well supported by Invantive Estate?

- Everything which has to do with production (how much shoes out of one square meter of leather, when and how many screws at what time, thus MRP 2/JIT).
- There are no integrations with handheld scanners, etc. made yet. Is still not standard available.
- The valuation in the books: at what value would you rate the stock: the current purchase price, the average price or something else? This is not supported by Invantive Estate.
Warehouses

In this screen you can register and change warehouses.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>Unique alphanumeric code that identifies the warehouse.</td>
</tr>
<tr>
<td>Description</td>
<td>Description of the warehouse.</td>
</tr>
<tr>
<td>Explanation</td>
<td>Remarks on the function and use of the warehouse.</td>
</tr>
</tbody>
</table>

Stocks

In this screen you can register and change stocks.
The meaning of the entry fields is:

- **Stock**: Reference to a warehouse of an Unit as registered in Warehouses.
- **Unit**: A unit is an independent object of a certain product (see also: Products and Units).
- **#Units**: The number of Units in stock.

The meaning of the other fields:

- **Unique Identifier (SN)**: The unique address, location or serial number of the Unit.
- **Product**: Reference to Product.
- **Product group**: Reference to the Product Group.
- **Last Transaction**: Gives the date of the last transaction of the Unit. This may differ from the date of the last modification since the last transaction date is updated only when the transaction is recorded in the general ledger.

**Unit Transactions**

In this screen you can register and change unit transaction types.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock</td>
<td>Reference to a warehouse of an Unit as registered in Warehouses.</td>
</tr>
<tr>
<td>Unit</td>
<td>A unit is an independent object of a certain product (see also: Products and Units).</td>
</tr>
<tr>
<td>Unit Transaction Type</td>
<td>Reference to a transaction type as registered in Unit Transaction Types.</td>
</tr>
<tr>
<td>#Units</td>
<td>The number of Units involved in the transaction.</td>
</tr>
<tr>
<td>Transaction Date</td>
<td>The date the transaction took place.</td>
</tr>
<tr>
<td>Explanation</td>
<td>Possible explanation.</td>
</tr>
</tbody>
</table>

The meaning of the other fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock Change</td>
<td>The stock mutation in number of Units. This can be either a positive or a negative number depending on the selected Unit Transaction Type.</td>
</tr>
</tbody>
</table>

**Unit Transaction Types**

In this screen you can register and change unit transaction types.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>The unique code.</td>
</tr>
<tr>
<td>Description</td>
<td>The description used for displaying on reports and/or screens.</td>
</tr>
<tr>
<td>Sort Order</td>
<td>A numeric value on which the unit transaction types are sorted when they are shown in a list box in a screen.</td>
</tr>
<tr>
<td>Reverse Sign</td>
<td>Indicates that the sign of the transactions will be reversed when checked. For example: a positive amount of units involved in a transaction will result in a decrease in stock if this field is checked and in an increase if this field is not checked.</td>
</tr>
<tr>
<td>Explanation</td>
<td>Possible explanation.</td>
</tr>
</tbody>
</table>

**Article Groups**

In this form you can register and change product groups.

The classification of products in groups can serve different purposes such as; facilitating the retrieval of articles, performing similar operations on a particular product group and displaying information on a specific product group.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>Unique code that identifies a product group.</td>
</tr>
<tr>
<td>Description</td>
<td>Description of the product group.</td>
</tr>
<tr>
<td>General Ledger Code</td>
<td>Reference to a general ledger code as registered in General Ledger Codes.</td>
</tr>
</tbody>
</table>

**Product**

In this screen you can register and edit products.

Products can have several roles within a project or within an organization. A product can be an end product, a half finished product, can be used as means of production or can fulfill a combination of these roles. A product can be both tangible and intangible.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>Unique alphanumeric code that identifies the product.</td>
</tr>
<tr>
<td>Description</td>
<td>Description of the product.</td>
</tr>
<tr>
<td>Product group</td>
<td>Reference to the Product Group.</td>
</tr>
<tr>
<td>VAT Code</td>
<td>The VAT code that applied to the product.</td>
</tr>
<tr>
<td>Supplier Reference</td>
<td>A unique feature by which the product is known to the supplier.</td>
</tr>
</tbody>
</table>
Redemption Price | The purchase price of the product.
---|---
Icon (URL) | The relative URL from the icon belonging to the product. The icon must be 16 pixels high and 16 pixels wide.
Sellable | Indicates if it is possible to sell the product.
Storeable | Indicates if it is possible to stock the product.
Splitable | Indicates if it is possible to split the product into separate parts.
Financial |
General Ledger Code | Reference to a general ledger code as registered in General Ledger Codes.
Properties |
Property | Reference to a property as registered in Properties.

The meaning of the other fields:

Icon (Image) | Image of the product.

Properties
In this screen you can register and edit properties.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1234</td>
<td>Description1</td>
</tr>
<tr>
<td>5678</td>
<td>Description2</td>
</tr>
<tr>
<td>9012</td>
<td>Description3</td>
</tr>
</tbody>
</table>

The meaning of the entry fields is:

Code | Unique alphanumeric code that identifies the property.
Description | Description of the property.
Sort Order | A numeric value on which the properties are sorted when they are displayed in a list box in a screen.
Counter | Indicator whether the property is a meter reading.
Explanation | Possible explanation.
Property Determination Methods

In this screen you can register and edit property determination methods.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>Unique alphanumeric code that identifies the property determination method.</td>
</tr>
<tr>
<td>Description</td>
<td>Description of the property determination method.</td>
</tr>
<tr>
<td>Sort Order</td>
<td>A numerical value on which the property determination methods are sorted if they are displayed in a list in a screen.</td>
</tr>
<tr>
<td>Explanation</td>
<td>Possible explanation.</td>
</tr>
</tbody>
</table>

Unit Relation Types

In this screen you can register and change unit relation types.

A unit relation type defines the relationship between units.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Code</th>
<th>Unique alphanumeric code that identifies the unit relation type as viewed from the perspective of the first party relation.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description from</td>
<td>Description of the unit relation type as viewed from the start of the relationship.</td>
</tr>
<tr>
<td>Code Reversed</td>
<td>Unique alphanumeric code that identifies the unit relation type as viewed from the perspective of the second party relation.</td>
</tr>
<tr>
<td>Description to</td>
<td>Description of the unit relation type as viewed from the end of the relationship.</td>
</tr>
<tr>
<td>Container</td>
<td>When checked the start of the relationship is a container unit.</td>
</tr>
</tbody>
</table>

### 1.2.7.6 Contract Management

Contract management can be summarized as the process, that ensures that systematic and efficient contracts are created, implemented, and analyzed, with the aim to achieve maximum financial goals with a controlled and minimized risk percentage.

**Conditions**

This screen lets you record and conditions change.

Conditions can be used in the preparation of various types of contracts or are included in larger conditions. Conditions can refer to costs and revenues, only to costs or only to revenues.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>Unique alphanumeric code that identifies the condition.</td>
</tr>
<tr>
<td>Description</td>
<td>Description of the condition.</td>
</tr>
<tr>
<td>Associate Indicator</td>
<td>Indicator which shows how the condition can be used.</td>
</tr>
<tr>
<td>Payment Condition</td>
<td>Reference to a payment condition as registered in Payment Terms.</td>
</tr>
<tr>
<td>Price List</td>
<td>Reference to a price list as registered in Price Lists.</td>
</tr>
<tr>
<td>Explanation</td>
<td>Textual explanation of the condition.</td>
</tr>
</tbody>
</table>

**Condition Elements**

In this screen you can register and change condition elements.

Condition elements are used in the preparation of conditions such as delivery or purchase conditions.
The meaning of the entry fields is:

**Condition**
Reference to a condition as registered in `Conditions.pdf`.

**Sort Order**
A numeric value on which the condition elements are sorted when they are shown in a list box in a screen.

**Placeholder**
This is the code of a ‘placeholder’, representing a condition element. When a contract is issued, the condition element can be inserted using this code. These ‘placeholder’s codes’ can be reused in other clauses by inserting in the text the `<< NAME OF THE PLACEHOLDER>>`.

**Depth**
Indicates at what level the condition element is included in the contract.

**Legal Header**
The header of the condition element.

**Legal Text**
The text of the condition element.

The meaning of the other fields:

**Code**
Unique alphanumeric code that identifies the condition element.

**Conditions.pdf**
This report shows the text of the in Invantive Estate registered `conditions.pdf`.
Payment Terms

This screen allows you to record and modify payment terms.

A payment term is the agreed time period within which a bill must be paid.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Code</th>
<th>The unique code of the payment term.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>The description of the payment term.</td>
</tr>
<tr>
<td>Number of Days</td>
<td>Number of days of the payment term.</td>
</tr>
<tr>
<td>Associate Indicator</td>
<td>Indicates the use of the payment term.</td>
</tr>
</tbody>
</table>

1.2.7.7 Audit

With the functions included in the submenu ‘Audit’, the user activity within `<% PRODUCT%>` can be checked.

Project Authorizations per Person

The first part of this report provides an overview of the authorization that a user has on the various projects. The second part of this report shows which users have access to all projects.
## Project Authorizations per Person (PDF)

<table>
<thead>
<tr>
<th>Project</th>
<th>User</th>
<th>Company</th>
<th>Allow Edit</th>
</tr>
</thead>
<tbody>
<tr>
<td>C264 - 1042 - Beheer Energetic (24-02-2003 t/m 2003)</td>
<td>Aellemna</td>
<td>AXA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Jakema</td>
<td>ST Advies</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mart-Engels</td>
<td>Koopman</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Smidi</td>
<td>Interwatch</td>
<td></td>
</tr>
<tr>
<td>C2108 - 1046 - Ontwikkeling Invantive Melba (11-08-2008 t/m 2008)</td>
<td>Aellemna</td>
<td>AXA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dirkstra</td>
<td>Moevenpick</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Jongen</td>
<td>KNMI</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Smeets</td>
<td>Arcadis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Aellemna</td>
<td>AXA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Klaassen</td>
<td>Tienhagen Stijn</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Schenki</td>
<td>Balance</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Smeets</td>
<td>Arcadis</td>
<td></td>
</tr>
<tr>
<td>IHOL09 - 1002 - Vakantie (Kenstmis etc.) 2009 (geheel 2009)</td>
<td>Aellemna</td>
<td>AXA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Jakema</td>
<td>ST Advies</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Leenderfs</td>
<td>van Oppen</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Seegors</td>
<td>De Jonge Notaris</td>
<td></td>
</tr>
<tr>
<td>IVAC09 - 1002 - Vacation 2009 (geheel 2009)</td>
<td>Aellemna</td>
<td>AXA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hemmers</td>
<td>Beaufort installatie techniek</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hoef van der</td>
<td>Royal Heukoning</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Klaassen</td>
<td>Tienhagen Stijn</td>
<td></td>
</tr>
<tr>
<td>MSL09 - 1002 - Sales 2009 hoofdproject (geheel 2009)</td>
<td>Aellemna</td>
<td>AXA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Jakema</td>
<td>ST Advies</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Jong de</td>
<td>Huftec</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lomans</td>
<td>Voper IT</td>
<td></td>
</tr>
<tr>
<td>MSL09.00.DALG - 1002 - Sales trajekt 2009 (geheel 2009)</td>
<td>Aellemna</td>
<td>AXA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Jakema</td>
<td>ST Advies</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Jassen</td>
<td>Dhr. Jansen</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Harp</td>
<td>Grootsluis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Klaassen</td>
<td>Tienhagen Stijn</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mertens</td>
<td>Daxo Catering</td>
<td></td>
</tr>
<tr>
<td>Plein - 1092 - Plein revisited (2009 t/m 01-09-2009)</td>
<td>Klaassen</td>
<td>Tienhagen Stijn</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Smeets</td>
<td>Arcadis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Smidi</td>
<td>Interwatch</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Leenderfs</td>
<td>van Oppen</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Seegors</td>
<td>De Jonge Notaris</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Leenderfs</td>
<td>van Oppen</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Seegors</td>
<td>De Jonge Notaris</td>
<td></td>
</tr>
<tr>
<td>Stad - 1092 - Stad (2004 t/m 01-04-2006)</td>
<td>Jongen</td>
<td>KNMI</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Schenki</td>
<td>Balance</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Smeets</td>
<td>Arcadis</td>
<td></td>
</tr>
<tr>
<td>Templates - 1002 - Templates onbekend t/m onbekend</td>
<td>Jakema</td>
<td>ST Advies</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Leenderfs</td>
<td>van Oppen</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Seegors</td>
<td>De Jonge Notaris</td>
<td></td>
</tr>
<tr>
<td>Hendrix - 1092 - Hendrixx (04-09-2009 t/m 01-10-2010)</td>
<td>Dirkstra</td>
<td>Moewenpick</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Habets</td>
<td>Holland Reitconsult</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Jokema</td>
<td>ST Advies</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mart-Engels</td>
<td>Koopman</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pol</td>
<td>RPM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Scharf van der</td>
<td>Familie Luijendijk</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Smidi</td>
<td>Interwatch</td>
<td></td>
</tr>
</tbody>
</table>

### Persons per Role

This report shows which Roles are assigned to Persons.
This report shows at which functions authorisations are assigned to Roles, 1 star = read;
2 stars = read and write.

<table>
<thead>
<tr>
<th>Legend</th>
<th>Read</th>
<th>Write</th>
<th>Read</th>
<th>Write</th>
<th>Read</th>
<th>Write</th>
<th>Read</th>
<th>Write</th>
<th>Read</th>
<th>Write</th>
<th>Read</th>
<th>Write</th>
<th>Read</th>
<th>Write</th>
<th>Read</th>
<th>Write</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>&quot;</strong> = Allow Read</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>&quot;</strong> = Allow Edit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Functions per Role (PDF) | Role | Expense | FA | DateAccounting | PO | Public | System | Financial Accounting | Specialised Accounting | MasterData | Marketing | Customer | Sales | Service | Project | WorkFlow |
|--------------------------|------|---------|----|----------------|----|--------|--------|----------------------|-----------------------|------------|----------|---------|--------|-------|--------|---------|---------|
|                         |      |         |    |                |    |        |        |                      |                       |            |           |         |        |       |        |         |         |
| 15-11-2012 20:44        | Page 2 / 24 |         |    |                |    |        |        |                      |                       |            |           |         |        |       |        |         |         |

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1.2.8 Advanced

Enter text here.

1.2.8.1 Background Jobs

Enter text here.

Submit Background Job

In this screen you can request background processes.

A background job is a program that is processed centrally, without requiring a logged on user. Background jobs are used for repetitive or time consuming processes. The number of background processes running simultaneously is limited. See also Submit Background Job [220], Background Scripts [314] and Background Schedulers [222].

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Script</td>
<td>The background script being requested.</td>
</tr>
<tr>
<td>Requested Start Time</td>
<td>The first possible point in time at which the user wants the background job to be executed.</td>
</tr>
</tbody>
</table>

Together with this screen a second screen will open if parameters are needed for processing. In the example below you are asked to enter an ‘Old prefix schema’ and a ‘New prefix schema prefix’:

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Old prefix schema</td>
<td>The prefix of the old schema.</td>
</tr>
<tr>
<td>New prefix schema</td>
<td>The prefix of the new schema.</td>
</tr>
</tbody>
</table>

Background Jobs

In this screen you can follow the status of background processes.

A background job is a program that is processed centrally, without requiring a logged on user. Background jobs are used for repetitive or time consuming processes. Background jobs automatically get less priority if multiple users are simultaneously active. The turnaround time may therefore change. See also Submit Background Job [220], Background Scripts [314] and Background Schedulers [222].
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>The unique number of the background job.</td>
</tr>
<tr>
<td>Script</td>
<td>The background script being executed.</td>
</tr>
<tr>
<td>Requested Start Time</td>
<td>The first possible point in time at which the user wants the background job to be executed.</td>
</tr>
<tr>
<td>Requester</td>
<td>The name of the user who has requested the job.</td>
</tr>
<tr>
<td>Start</td>
<td>The final start time of the job. This time will never be sooner than the requested start time, but can be significantly later, depending on the amount of background jobs requested.</td>
</tr>
<tr>
<td>End</td>
<td>The time that the execution of the background job ended.</td>
</tr>
<tr>
<td>Status</td>
<td>The current status of the job. The following statuses can occur:</td>
</tr>
<tr>
<td></td>
<td>- Planned: the job is registered and will be started as soon as possible after the requested start time.</td>
</tr>
<tr>
<td></td>
<td>- Locked: the job is locked and in this way can be assigned to a scheduler.</td>
</tr>
<tr>
<td></td>
<td>- Active: The job is currently being executed. The time the job started, is shown in the field 'Start'.</td>
</tr>
<tr>
<td></td>
<td>- Wait: the job has started another job and waits until that one is completed.</td>
</tr>
<tr>
<td></td>
<td>- Completed: the job is completed. The time when the job was completed, is recorded in the field 'End'.</td>
</tr>
<tr>
<td></td>
<td>- Canceled: the job is requested, but the request is canceled before the job has started.</td>
</tr>
<tr>
<td></td>
<td>- Terminated: the job is terminated due to a sudden stop of the system, for instance because the server is rebooted while the job was still being executed.</td>
</tr>
<tr>
<td>End Status</td>
<td>The result of the job. The following end statuses can occur:</td>
</tr>
<tr>
<td></td>
<td>- Unfinished: the job is not completed yet and thus has no end status.</td>
</tr>
<tr>
<td></td>
<td>- Successful: the job has been completed.</td>
</tr>
<tr>
<td></td>
<td>- Error: the job is terminated with one or more errors.</td>
</tr>
<tr>
<td></td>
<td>- Warning: the job has completed, but one or more warnings have been generated.</td>
</tr>
<tr>
<td></td>
<td>Errors can be found in the log file.</td>
</tr>
<tr>
<td>Exit Code</td>
<td>The final numerical value of the job.</td>
</tr>
<tr>
<td>Parent Job</td>
<td>The possible number of the job requested by this job.</td>
</tr>
<tr>
<td>Scheduler</td>
<td>The background scheduler that will execute, has executed or is executing the job.</td>
</tr>
<tr>
<td>Last Error Message</td>
<td>The last error message if the process has ended with one or more errors.</td>
</tr>
<tr>
<td>Database Session</td>
<td>The unique database session number of the background job.</td>
</tr>
<tr>
<td># Days to Keep</td>
<td>The number of days that the output file and the log file are stored.</td>
</tr>
<tr>
<td># Versions to Keep</td>
<td>The amount of versions retained.</td>
</tr>
<tr>
<td>Rerun on Error</td>
<td>When checked, the process is run again if it ended with one or more errors.</td>
</tr>
<tr>
<td>Rerun on Success</td>
<td>When checked, the process is run again if it was successful.</td>
</tr>
<tr>
<td>Rerun on Warning</td>
<td>When checked, the process is run again if it ended with a warning.</td>
</tr>
<tr>
<td>Rerun Every (sec)</td>
<td>The number of seconds before the process is restarted after a restart event.</td>
</tr>
<tr>
<td>Documents</td>
<td>Documents linked to the background process.</td>
</tr>
<tr>
<td>#Documents</td>
<td>The number of documents linked to the background process.</td>
</tr>
<tr>
<td>Size</td>
<td>The size of the documents linked to the background process.</td>
</tr>
<tr>
<td>Output File</td>
<td>The name of the output file.</td>
</tr>
<tr>
<td>Log File</td>
<td>The name of the log file.</td>
</tr>
</tbody>
</table>

**Schedulers**

In this screen you can register and change background schedulers.

A background scheduler is a process that executes background jobs requested by users. These jobs are based on [Background Scripts](#).
The meaning of the entry fields is:

**Code**
The unique code.

**Description**
The description.

**Activation Interval**
When they are not executing a job, the background schedulers often check whether there are jobs ready to be started. The activation interval determines the time in seconds between the checks.

**Category**
The skills the scheduler has to offer. A **Background Script** can only be executed on schedulers possessing the required skills.

**Activate on Startup**
The scheduler is activated while starting the web server when checked.

The meaning of the other fields:

**Status**
Status of the background scheduler:
- Off: the background scheduler is not activated while starting the web server.
- Initialising: the background planner is being initialised, but is not active yet. This status only occurs for a short moment of time while starting the web server.
- Active: the background scheduler is actively working to check whether there are background jobs to be started.
- Executing: the background scheduler is currently executing a background job.
- Sleeping mode: the background scheduler sleeps until the end of the activation interval.
- Error: the background scheduler is in error mode.

**Database Session**
A unique database session belonging to this background scheduler.

**Java Object**
The Java object that the background scheduler executes.

**Machine**
The machine on which the background scheduler runs.

**Last Installed**
The system time when the background scheduler was last installed.
Last Message
The last message of the scheduler.

Old Messages
Earlier values of the last message that the planner has given.

The background schedulers are also visible in, for example, Probe as Threads in Apache Tomcat:

1.2.8.2 Menu Structure
This chapter describes the screens of Invantive Estate with which you can change the menu.

A menu is a list of possible functions and is part of the graphical user interface. The implementation of menus is slightly different between operating systems, but generally they are similar in function and handling.

Under Microsoft Windows a window has a title bar at the top with directly below the menu bar. With the menu bar, menus can be opened. A menu item could also open a submenu or a report.

Menus
In this form you can register and change menus.

A menu is a logical collection of functions (forms and reports) and other menus. See Menu Items how screens, reports and submenus can be linked to a menu.

The meaning of the entry fields is:
Note that the menu with the code ‘Main’ is the central main menu and should therefore always exist.

**Menu Items**

In this screen you can register and change menu items.

A menu item is a part of a menu and refers to a screen, report or submenu.

<table>
<thead>
<tr>
<th>Code</th>
<th>The code of the menu.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>The description. This is translated, see ‘Translations’.</td>
</tr>
</tbody>
</table>

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Menu</th>
<th>The code of the menu where the menu item is part of.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sort Order</td>
<td>The numerical value used for sorting the items in a menu.</td>
</tr>
<tr>
<td>Submenu</td>
<td>In case the menu item has to open another menu, select here the name of the submenu.</td>
</tr>
<tr>
<td>Function</td>
<td>In case the menu item has to open another screen or report, select here the name of the function. In the screen ‘Functions’ you can indicate whether a function may be shown here.</td>
</tr>
<tr>
<td>Role</td>
<td>If the menu may only be displayed to a specific role, select this role here. This differs from the function security, because for each menu item you can define its display behavior, and not the safety of all menu items based on a function. You can base different menu items on the same function, but display the menu item only to a selected audience. In this way you can avoid confusion, however it is not a security function.</td>
</tr>
<tr>
<td>Menu Group</td>
<td>With menu group you can group menu items in a menu. In the menu, menu groups are separated from another via a horizontal line.</td>
</tr>
</tbody>
</table>
The meaning of the other fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Menu Code</td>
<td>The code of the menu where the menu item is part of.</td>
</tr>
<tr>
<td>Description</td>
<td>The description of the menu.</td>
</tr>
<tr>
<td>Submenu Code</td>
<td>The code from the submenu.</td>
</tr>
<tr>
<td>Submenu</td>
<td>The description of the submenu.</td>
</tr>
<tr>
<td>Function</td>
<td>The code of the function.</td>
</tr>
<tr>
<td>Description</td>
<td>The description of the function.</td>
</tr>
</tbody>
</table>

**Menu Structure**

This report displays the menu structure of the ‘Main’ menu of Invantive Estate.

**1.2.8.3 Audit**

Enter text here.

**Active Sessions**

This screen allows you to look up data from user sessions.

A session starts when a person logs into the application. A session is closed after the user
logs out or after a set time has elapsed after the last action of the user.

In the screen you cannot add or change data.

The meaning of the search fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session</td>
<td>Here you can choose the filter for a session. A session has a unique identification number.</td>
</tr>
<tr>
<td>Username</td>
<td>Here you can choose a filter for a user name.</td>
</tr>
<tr>
<td>Last Function</td>
<td>Here you can choose a filter for the name of the last function.</td>
</tr>
<tr>
<td>Last Function Opened - at</td>
<td>Here you can choose a filter for the period from for the last opened function.</td>
</tr>
<tr>
<td>Last Function - to</td>
<td>Here you can choose a filter for the period until for the last opened function.</td>
</tr>
<tr>
<td>Duration</td>
<td>Here you can choose the value for the filter for the duration of a session.</td>
</tr>
</tbody>
</table>

**Transactions**

In this form you can view transactions.

A transaction is a change of data registered by Invantive Estate. All transactions are stored, except the huge amount of transactions caused by the ERP interface.

For each transaction is recorded by whom (username), when (time), from which form (module), from which PC (machine), what action (action) was performed in which table (table) and within which session (database session). Moreover, an ascending transaction number is allocated. Finally, every transaction refers to the data which was being changed with a table reference. This is a unique number within the table, stored in the ID column, with which the modified data can be traced exactly.
There are no entry fields.

The meaning of the other fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Login</td>
<td>The user name as registered in Persons</td>
</tr>
<tr>
<td>Module</td>
<td>The module that was used for the transaction.</td>
</tr>
<tr>
<td>Machine</td>
<td>The IP address of the computer that generated the transaction.</td>
</tr>
<tr>
<td>Table</td>
<td>The name of the table in which the action was performed.</td>
</tr>
<tr>
<td>Action</td>
<td>The SQL action which was started by the transaction. It can be a 'select',</td>
</tr>
<tr>
<td></td>
<td>'update', an 'insert' or a 'delete' action.</td>
</tr>
<tr>
<td>Transaction</td>
<td>In the time ascending transaction number</td>
</tr>
<tr>
<td>Time</td>
<td>The date and time at which the transaction was executed.</td>
</tr>
<tr>
<td>Table Reference</td>
<td>Unique number within the table that is stored in the ID column and refers</td>
</tr>
<tr>
<td></td>
<td>to the data that has been changed.</td>
</tr>
<tr>
<td>Database Session</td>
<td>A unique alphanumeric value that identifies the Invantive Estate session.</td>
</tr>
<tr>
<td>Database Session ID</td>
<td>Specifies the unique database session for a given moment in time.</td>
</tr>
<tr>
<td>Database Session Serial</td>
<td>Specifies a unique database session together with the database session number until the database system is restarted, regardless of any given moment in time. A database session number can be reused after a certain period of time and is as such not unique. In combination with the database session sequence number a unique combination is formed.</td>
</tr>
<tr>
<td>Database Audit Session</td>
<td>ID to link with the database audit trail session.</td>
</tr>
</tbody>
</table>

Interactions

In this form you can view interactions.

An interaction is an activity a user executes with Invantive Estate. This usually is making requests of data via a screen or by opening a report.

With each interaction it is recorded by whom (logon code), when (point in time), in what screen (module), from which PC (machine), which action (query) is executed. Moreover, an
ascending interaction number is assigned. Finally, each interaction refers to the last assigned transaction number, so that a chronological dependency between transactions and interactions can be made to determine what information was available at the time of the request.

There are no entry fields.

The meaning of the other fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Username</td>
<td>The user name as registered in Persons.</td>
</tr>
<tr>
<td>Module</td>
<td>The module used for the interaction.</td>
</tr>
<tr>
<td>Machine</td>
<td>The IP address of the computer that generated the interaction.</td>
</tr>
<tr>
<td>Query</td>
<td>The query that was requested by the user.</td>
</tr>
<tr>
<td>URL</td>
<td>The URL of the screen of Invantive Estate from where the interaction was requested.</td>
</tr>
<tr>
<td>Action</td>
<td>The action which was initiated by the interaction.</td>
</tr>
<tr>
<td>Interaction</td>
<td>Unique numeric code that serves as a unique index, whose value is equal to the column ID.</td>
</tr>
<tr>
<td>Time</td>
<td>The date and time at which the interaction was requested.</td>
</tr>
<tr>
<td>Last Transaction</td>
<td>The number of the last transaction.</td>
</tr>
<tr>
<td>Database Session</td>
<td>A unique alphanumeric value that identifies the Invantive Estate session.</td>
</tr>
<tr>
<td>Database Session ID</td>
<td>Specifies the unique database session for a given moment in time.</td>
</tr>
<tr>
<td>Database Session Serial</td>
<td>Specifies a unique database session together with the database session number until the database system is restarted, regardless of any given moment in time. A database session number can be reused after a certain period of time and is as such not unique. In combination with the database session sequence number a unique combination is formed.</td>
</tr>
<tr>
<td>Database Audit Session</td>
<td>ID to link with the database audit trail session.</td>
</tr>
<tr>
<td>Project Versions</td>
<td>The project versions filter that was applicable at the moment of the interaction.</td>
</tr>
</tbody>
</table>

**Current Values**

In this screen you can request the outcomes of the tests of the control numbers.

See [Soll Values](#) for a more extensive explanation.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>The code for the used Soll value.</td>
</tr>
<tr>
<td>Date Valid</td>
<td>The time at which the test was performed.</td>
</tr>
<tr>
<td>Ist Value</td>
<td>The outcome of the test.</td>
</tr>
<tr>
<td>Integrity Proved</td>
<td>Checked in case the Ist value meets the Soll value.</td>
</tr>
<tr>
<td>Difference Accepted</td>
<td>Checked if the integrity is proven or when a difference was found, but the difference manually was approved.</td>
</tr>
<tr>
<td>Explanation</td>
<td>An explanation why the difference was approved.</td>
</tr>
</tbody>
</table>

**Soll Values**

In this form you can register and change soll values.

With the aid of value formulas, intended values and keys application controls can be realized in order to check the integrity of the stored data. With a value formula you store the calculation. Next, you specify in the intended values the parameters which need to be entered in the value formula and the expected outcome of a measuring date. Finally you can calculate the actual value with a background script.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>The unique code of a Soll value.</td>
</tr>
<tr>
<td>Description</td>
<td>The description of the Soll value.</td>
</tr>
<tr>
<td>Date Valid</td>
<td>The moment at which the norm was valid.</td>
</tr>
<tr>
<td>Value</td>
<td>The expected value.</td>
</tr>
<tr>
<td>Check Till</td>
<td>The time until which the Soll value must be included in the check.</td>
</tr>
<tr>
<td>Formula</td>
<td>The value formula which needs to be used to determine the actual value.</td>
</tr>
<tr>
<td>Parameter 1 Value</td>
<td>The value of parameter :1 in the formula.</td>
</tr>
<tr>
<td>Parameter 2 Value</td>
<td>The value of parameter :2 in the formula.</td>
</tr>
<tr>
<td>Parameter 3 Value</td>
<td>The value of parameter :3 in the formula.</td>
</tr>
<tr>
<td>Parameter 4 Value</td>
<td>The value of parameter :4 in the formula.</td>
</tr>
<tr>
<td>Parameter 5 Value</td>
<td>The value of parameter :5 in the formula.</td>
</tr>
<tr>
<td>Parameter 6 Value</td>
<td>The value of parameter :6 in the formula.</td>
</tr>
<tr>
<td>Parameter 7 Value</td>
<td>The value of parameter :7 in the formula.</td>
</tr>
<tr>
<td>Parameter 8 Value</td>
<td>The value of parameter :8 in the formula.</td>
</tr>
<tr>
<td>Parameter 9 Value</td>
<td>The value of parameter :9 in the formula.</td>
</tr>
<tr>
<td>Parameter 10 Value</td>
<td>The value of parameter :10 in the formula.</td>
</tr>
</tbody>
</table>

**Value Formulas**

In this form you can register and change value formulas.
A value formula is a formula in the form of an SQL statement which is used to check the integrity of the data recorded in Invantive Estate.

See Soll Values for a more extensive explanation.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>The code of the formula.</td>
</tr>
<tr>
<td>Description</td>
<td>The description of the formula.</td>
</tr>
<tr>
<td>Formula</td>
<td>The formula in the form of an SQL query. You can use variable texts, supplied by the Soll value. The variable texts are defined as ':1' to ':10'.</td>
</tr>
</tbody>
</table>

1.2.8.4 ERP Interface

This section contains information about the functions needed to exchange data with the general ledger and the accounts receivable and payable ledger. These functions are normally used by the person appointed in the organization to ensure that after the processing of the general ledger, the numbers in Invantive Estate are updated. This will often be the head of the administration.

Interface Screens

Enter text here.

Invoices Interface

Using the screen you can exchange invoice data with an ERP system.

The ERP system transfers data into ‘load tables’ in Invantive Estate. With the interface screens in Invantive Estate you can edit the data in these ‘load tables’ and save the edited data into ‘target tables’.

Profile Options are used to manage the process where ‘load tables’ are loaded or to save the data of the load tables into ‘target tables’.

When entering data in the entry fields of the interface screens, you should use internal
codes. For example when indicating the gender of a person you use ‘M’ for ‘Male’ and ‘F’ for ‘Female’.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invoice</td>
<td>An invoice can be sent by a supplier, can be sent to a client or can be created by the ledger system. An invoice can contain several Invoice Lines.</td>
</tr>
<tr>
<td>Payment Term (days)</td>
<td>The payment period in days of the invoice. This information is used when calculating the cash flow.</td>
</tr>
<tr>
<td>Invoice Date</td>
<td>The date as registered on the invoice.</td>
</tr>
<tr>
<td>Description</td>
<td>An explanation of the invoice.</td>
</tr>
<tr>
<td>Supplier Reference</td>
<td>The unique feature of the invoice of the sender. This field can be used to register the invoice number of the supplier in case the code of the invoice is based on its own invoice numbering.</td>
</tr>
<tr>
<td>Organization Code</td>
<td>The unique code of the organization (supplier) that has sent the invoice or the customer where the invoice has been sent to. Choose a generic supplier or buyer in the case of journal entries from the general ledger.</td>
</tr>
<tr>
<td>Cash Flow</td>
<td>The date the cash flow for this order is expected to begin.</td>
</tr>
<tr>
<td>Expected Maturity End</td>
<td>The date the cash flow for this order is expected to finish. The maturity date is only relevant if the cash flow projection method needs it.</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Description</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unique reference in Source System</td>
<td>Reference to the record in the system of origin with which the record can be identified.</td>
</tr>
<tr>
<td>Group in Originating System</td>
<td>Reference to a group of records in the system of origin. The grouping of records is often used to validate the loading process using 'application control'.</td>
</tr>
<tr>
<td>Loading Message</td>
<td>Displays a message on the most recent action of loading a record.</td>
</tr>
<tr>
<td>Loading Status</td>
<td>Displays status information about the loading process of the record. ‘E’ = ‘Error’ and ‘C’ = ‘Completed’. The completed load statuses will be automatically deleted at the end of the ERP processing.</td>
</tr>
<tr>
<td>Loaded</td>
<td>The point of time the record was loaded by the ERP interface.</td>
</tr>
</tbody>
</table>

The meaning of the other fields:

| Id                                               | The technical code with which the invoice can be identified.              |

**Invoice Lines Interface**

Via this screen, invoice line date can be exchanged with an ERP system.

The ERP system transfers data into ‘load tables’ in Invantive Estate. With the interface screens in Invantive Estate you can edit the data in these ‘load tables’ and save the edited data into ‘target tables’.

*Profile Options* are used to manage the process where ‘load tables’ are loaded or to save the data of the load tables into ‘target tables’.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invoice</td>
<td>The invoice code. In general the internally assigned invoice number will be used here.</td>
</tr>
<tr>
<td>Line</td>
<td>The line number within the invoice.</td>
</tr>
<tr>
<td>Amount</td>
<td>The amount invoiced. This normally will be the amount without VAT. In case your organization is not VAT payable, the amount must be entered including VAT.</td>
</tr>
<tr>
<td>VAT Code</td>
<td>The VAT code that applies to the invoice.</td>
</tr>
<tr>
<td>VAT Amount</td>
<td>The VAT amount on the invoice.</td>
</tr>
<tr>
<td>Description</td>
<td>A description of the products, activity or situation to which the invoice relates to.</td>
</tr>
<tr>
<td>Settled</td>
<td>If the checkbox is checked then the payable invoice line.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Credit/debit</td>
<td>In case of a cost driver: does it concerns a regular entry (debit) or a credit entry?</td>
</tr>
<tr>
<td>With Purchase Order</td>
<td>In case of a cost driver: is the realization based on an order?</td>
</tr>
<tr>
<td>In case of a revenue: does it concerns a regular entry (credit) or debit entry?</td>
<td>In case of a revenue: is the realization based on a contractual sales agreement?</td>
</tr>
<tr>
<td>Explanation</td>
<td>Possible explanation.</td>
</tr>
<tr>
<td>Project</td>
<td>The project to w hich the realization refers.</td>
</tr>
<tr>
<td>Cost Type</td>
<td>The cost category to w hich the realization refers. All cost categories can be chosen (costs, revenues, and results).</td>
</tr>
<tr>
<td>Contract</td>
<td>The contract w ithin the cost category to w hich the invoice line refers.</td>
</tr>
<tr>
<td>Cost center</td>
<td>Reference to a cost center as defined in the screen Cost Centers.</td>
</tr>
<tr>
<td>Cash Flow</td>
<td></td>
</tr>
<tr>
<td>Expected Maturity</td>
<td>The expected date w hen the cash flow starts.</td>
</tr>
<tr>
<td>Expected Maturity End</td>
<td>The expected date w hen the cash flow ends.</td>
</tr>
<tr>
<td>Distribution Method</td>
<td>The way the cash flow is distributed in time.</td>
</tr>
<tr>
<td>Document</td>
<td></td>
</tr>
<tr>
<td>Original File Name</td>
<td>The name of the invoice line file in the source system.</td>
</tr>
<tr>
<td>Content (URL)</td>
<td>Location of the invoice line file.</td>
</tr>
<tr>
<td>Comments</td>
<td>Explanation of the file.</td>
</tr>
<tr>
<td>Loading Information</td>
<td></td>
</tr>
<tr>
<td>Unique Reference in Source System</td>
<td>Reference w ith w hich the record in the system of origin can be identified.</td>
</tr>
<tr>
<td>Group in Originating System</td>
<td>Reference to a group of records in the system of origin. The grouping of records is often used to validate the loading process using 'application control'.</td>
</tr>
<tr>
<td>Loading Message</td>
<td>Displays status information about the loading process of the record.</td>
</tr>
<tr>
<td>Loading Status</td>
<td>Displays status information about the loading process of the record. 'E' = 'Error' and 'C' = 'Completed'. The completed load statuses w ill be automatically deleted at the end of the ERP processing.</td>
</tr>
<tr>
<td>Loaded</td>
<td>The point of tim e the record w as loaded by the ERP interface.</td>
</tr>
</tbody>
</table>

The meaning of the other fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Id</td>
<td>The technical code w ith w hich the invoice line can be identified.</td>
</tr>
</tbody>
</table>

**Revenue Interface**

Using the screen you can exchange invoice data with an ERP system.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project</td>
<td>The project of which the revenue is part of. A combination of project code and project name.</td>
</tr>
<tr>
<td>Cost Type</td>
<td>The cost category on which the revenue is registered. Often different cost category are used for different types of units. Only cost categories can be chosen from the master roll up of the type ‘Revenues’.</td>
</tr>
<tr>
<td>Contract</td>
<td>The contract for the grouping of a revenue. Two revenues cannot share the same contract.</td>
</tr>
<tr>
<td>Category</td>
<td>The type of revenue. See also Revenue Types.</td>
</tr>
<tr>
<td>Address 1</td>
<td>The address where the revenues are earned.</td>
</tr>
<tr>
<td>Address 2</td>
<td>An alternative address where the revenues are realized.</td>
</tr>
<tr>
<td>City</td>
<td>The place where the revenues are realized.</td>
</tr>
<tr>
<td>#Units</td>
<td>The number of units, expressed in units related to the category. Houses are generally expressed in ‘Numbers’, while ‘Commercial Space’ is expressed in ‘m2’.</td>
</tr>
<tr>
<td>Budgeted Result</td>
<td>The budgeted result of the unit.</td>
</tr>
<tr>
<td>Multiple</td>
<td>An indicator if more than one invoice will be sent in order to charge the agreed revenue. In case ‘1 period’ is</td>
</tr>
</tbody>
</table>
The activities will be charged by hour if selected.

A description of the products, activity or situation where revenues relate to.

An informative explanation such as the expected start or duration of the rental period.

The planned date to start realization.

The planned date of handover of the units.

The actual end date of construction of the units.

The realized revenue per unit. This is filled out as soon as the contractual agreement is signed. Note that reports may show a different contract revenue as entered here if ‘1 period’ is selected in the field ‘Multiple Periods’ and an invoice with contract is sent. In this case the reports will always show the total invoice amount instead of the here entered realized revenues.

The expected date that the customer will sign the sales contract.

The date when the sales contract was signed.

The name of the buyer.

The date the cash flow for this revenue is expected to finish. The maturity date is only relevant if the cash flow projection method needs it.

The date the cash flow for revenue is expected to begin.

Reference with which the record in the system of origin can be identified.

Reference to a group of records in the system of origin. The grouping of records is often used to validate the loading process using ‘application control’.

Displays status information about the loading process of the record.

Displays status information about the loading process of the record. ‘E’ = ‘Error’ and ‘C’ = ‘Completed’. The completed load statuses will be automatically deleted at the end of the ERP processing.

The point of time the record was loaded by the ERP interface.

The technical code with which the revenue can be identified.

Using this screen you can exchange personal data with an ERP system.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>The name of the person.</td>
</tr>
<tr>
<td>Gender</td>
<td>The gender of the person.</td>
</tr>
<tr>
<td>Initials</td>
<td>The initials of the person.</td>
</tr>
<tr>
<td>Initials</td>
<td>The unique abbreviation of the name. The initials are used in reports or in screens when there is not enough space available to show the whole name.</td>
</tr>
<tr>
<td>Middle Name</td>
<td>Middle name of the person.</td>
</tr>
<tr>
<td>Function</td>
<td>The function of the person within the company.</td>
</tr>
<tr>
<td>Business</td>
<td>The company where the person is employed.</td>
</tr>
<tr>
<td>Manager</td>
<td>The manager or supervisor of the person.</td>
</tr>
<tr>
<td>Employee Number</td>
<td>Identification number of the person within the organization where the person is employed.</td>
</tr>
<tr>
<td>System</td>
<td></td>
</tr>
<tr>
<td>Username</td>
<td>The code with which the person can log in (see Start up and Login). The user cannot log in if this field is not filled out.</td>
</tr>
<tr>
<td>Password</td>
<td>The password of the user. The user can change this password via screen My Preferences.</td>
</tr>
<tr>
<td>Administrator</td>
<td>If this box is checked, the user is shown in the list of administrators in the screen where projects are uploaded (see Projects).</td>
</tr>
<tr>
<td>Project developer</td>
<td>If this box is checked, the user is shown in the list of administrators in the screen where projects are uploaded (see Projects).</td>
</tr>
<tr>
<td>Surname</td>
<td>Surname.</td>
</tr>
<tr>
<td>Time Writer</td>
<td>If this box is checked, the user is shown in the list of persons that are allowed to write hours in the screen Timesheets.</td>
</tr>
<tr>
<td>Process Holder</td>
<td>In case this box is checked, the user is shown in the list of process holders in the screen where you can register processes (see Processes).</td>
</tr>
<tr>
<td>Signs timesheets</td>
<td>In case this box is checked, the user is shown in the list of timesheet signers in the project screen (see Projects).</td>
</tr>
<tr>
<td>Process Detector</td>
<td>In case this box is checked, the user is shown in the list of process reporters in the screen where you can register processes (see Processes).</td>
</tr>
<tr>
<td>Contact Information</td>
<td></td>
</tr>
<tr>
<td>Email address 1</td>
<td>The email address of the person. The application uses this email address in case it needs to send messages to the user.</td>
</tr>
<tr>
<td>Email Address 2</td>
<td>A second alternative email address of the person.</td>
</tr>
<tr>
<td>Email Address 3</td>
<td>A second alternative email address of the person.</td>
</tr>
<tr>
<td>Email Address 4</td>
<td>A fourth alternative email address of the person.</td>
</tr>
<tr>
<td>Mobile Number</td>
<td>The mobile number of the person.</td>
</tr>
<tr>
<td>Fax</td>
<td>The fax number of the person.</td>
</tr>
<tr>
<td>Home</td>
<td>The phone number where the person can be reached at home.</td>
</tr>
<tr>
<td>Address</td>
<td></td>
</tr>
<tr>
<td>Address 1</td>
<td>Address of the person (for example, street and house number)</td>
</tr>
<tr>
<td>Address 2</td>
<td>Extra address line, in case needed.</td>
</tr>
<tr>
<td>Zip Code</td>
<td>Postal code.</td>
</tr>
<tr>
<td>City</td>
<td>Place of residence.</td>
</tr>
<tr>
<td>Country</td>
<td>Country of residence.</td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
<tr>
<td>Date of Birth</td>
<td>The birth date of the user (only relevant for persons who represent physical persons).</td>
</tr>
<tr>
<td>Date of Death</td>
<td>The date of death.</td>
</tr>
<tr>
<td>Partner</td>
<td>The name of the partner.</td>
</tr>
<tr>
<td>Children</td>
<td>The names of any children, separated by a randomly chosen separator.</td>
</tr>
<tr>
<td>Nickname</td>
<td>The nickname.</td>
</tr>
<tr>
<td>Hobbies</td>
<td>The hobbies.</td>
</tr>
<tr>
<td>IBAN Number</td>
<td>The IBAN of the bank account of the person.</td>
</tr>
<tr>
<td>Remarks</td>
<td>Free text box where notes on the person can be added.</td>
</tr>
<tr>
<td>Loading Information</td>
<td></td>
</tr>
<tr>
<td>Unique Reference in Originating System</td>
<td>Reference with which the record in the system of origin can be identified.</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Group in Originating System</td>
<td>Reference to a group of records in the system of origin. The grouping of records is often used to validate the loading process using 'application control'.</td>
</tr>
<tr>
<td>Loading Message</td>
<td>Displays a message on the most recent action of loading a record.</td>
</tr>
<tr>
<td>Loading Status</td>
<td>Displays status information about the loading process of the record. 'E' = 'Error' and 'C' = 'Completed'. The completed load statuses will be automatically deleted at the end of the ERP processing.</td>
</tr>
<tr>
<td>Loaded</td>
<td>The point of time the record was loaded by the ERP interface.</td>
</tr>
</tbody>
</table>

The meaning of the other fields:

- **Id**: The technical code with which the person can be identified.

**Organization Interface**

Through this screen, data can be exchanged with organizations on an ERP system.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organization Code</td>
<td>The code with which the organization is identified within the administration.</td>
</tr>
<tr>
<td>Name</td>
<td>The name of the organization.</td>
</tr>
<tr>
<td>Short Name</td>
<td>The abbreviated name of the organization.</td>
</tr>
<tr>
<td>Primary contact</td>
<td>The contact of the organization, appointed within the framework of the project. In many cases this will be the responsible account manager.</td>
</tr>
<tr>
<td>Salesman</td>
<td>The person responsible for the sales of the organization.</td>
</tr>
<tr>
<td>Contact Sales</td>
<td>The contact of the organization, appointed within the framework of sales.</td>
</tr>
<tr>
<td>Contact Purchasing</td>
<td>The contact of the organization, appointed within the framework of purchasing.</td>
</tr>
<tr>
<td>Roles</td>
<td></td>
</tr>
<tr>
<td>Customer</td>
<td>The external or internal customer. For him the outcome of the project plays a role in the fulfillment of a mission or otherwise formulated objectives. The Project Manager is held responsible for its project by the external or internal customer.</td>
</tr>
<tr>
<td>Supplier</td>
<td>Can be used as a supplier when entering new orders in Orders or when entering new last estimates in Last Estimates. Do not check if the supplier is only used to relate realization figures based on invoice lines, for example, for artificial suppliers for results taken.</td>
</tr>
<tr>
<td>Project entity</td>
<td>The project is executed by an organization. This organization can be the same as the organization of the client. For most projects, this is not the case. The project manager also has to report within the organization which executes the project. The person to whom the project manager reports within its organization (the same as to the external customer) is the internal client.</td>
</tr>
<tr>
<td>Contact Information</td>
<td></td>
</tr>
<tr>
<td>Phone Work</td>
<td>The telephone number where the contact of the organization can be reached at work.</td>
</tr>
<tr>
<td>Mobile Number</td>
<td>The mobile number of the contact of the organization.</td>
</tr>
<tr>
<td>Fax</td>
<td>The fax number of the organization.</td>
</tr>
<tr>
<td>Home</td>
<td>The telephone number where the contact of the organization can be reached at home.</td>
</tr>
<tr>
<td>Email Address</td>
<td>The email address of the contact.</td>
</tr>
<tr>
<td>Address</td>
<td></td>
</tr>
<tr>
<td>Address 1</td>
<td>The address of the organization.</td>
</tr>
<tr>
<td>Address 2</td>
<td>An alternative address of the organization if the organization has several establishments.</td>
</tr>
<tr>
<td>Zip Code</td>
<td>The zip code.</td>
</tr>
<tr>
<td>City</td>
<td>The municipality where the organization is located.</td>
</tr>
<tr>
<td>Country</td>
<td>The country where the organization is located.</td>
</tr>
<tr>
<td>Visit Address</td>
<td></td>
</tr>
<tr>
<td>Visitor Address 1</td>
<td>Address for visitors.</td>
</tr>
<tr>
<td>Visitor Address 2</td>
<td>Alternative Address for visitors.</td>
</tr>
<tr>
<td>Zip Code</td>
<td>The zip code.</td>
</tr>
<tr>
<td>City</td>
<td>The city of the visitor address.</td>
</tr>
<tr>
<td>Country</td>
<td>The country of the visitor address.</td>
</tr>
<tr>
<td>Invoice Address</td>
<td></td>
</tr>
<tr>
<td>Per Address</td>
<td>Option to use an invoice address that does not belong to the organization.</td>
</tr>
<tr>
<td>Invoice Address 1</td>
<td>Address that is used for invoicing.</td>
</tr>
<tr>
<td>Invoice Address 2</td>
<td>Alternative address that can be used for invoicing.</td>
</tr>
<tr>
<td>Zip Code</td>
<td>The zip code.</td>
</tr>
<tr>
<td>City</td>
<td>The city of the invoice address.</td>
</tr>
<tr>
<td>Country</td>
<td>The country of the invoice address.</td>
</tr>
<tr>
<td>G account</td>
<td>The G account number of the organization. A G account is a blocked account that can be used by contractors to pay wage taxes (with or without VAT) of their employees to the tax authorities or to subcontractors. From a G account you cannot make other payments. The account protects parties against defaults of wage taxes.</td>
</tr>
<tr>
<td>Postal Address</td>
<td></td>
</tr>
<tr>
<td>Postal Address 1</td>
<td>Postal address of the organization.</td>
</tr>
<tr>
<td>Postal Address 2</td>
<td>Alternative mailing address of the organization.</td>
</tr>
<tr>
<td>Zip Code</td>
<td>The zip code.</td>
</tr>
<tr>
<td>City</td>
<td>The city of the postal address.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Country</td>
<td>The country of the postal address.</td>
</tr>
<tr>
<td>Legal Form</td>
<td>A unique alphanumeric code for the legal form of the organization.</td>
</tr>
<tr>
<td>Logo (URL)</td>
<td>The Internet address where the logo can be requested.</td>
</tr>
<tr>
<td>Icon (URL)</td>
<td>The Internet address where the icon can be requested.</td>
</tr>
<tr>
<td>Website (URL)</td>
<td>The Internet address of the website if the organization has a website.</td>
</tr>
<tr>
<td>IBAN Number</td>
<td>The International Banc Account Number of the organization. The IBAN identifies an individual bank account and is used in cross border payments.</td>
</tr>
<tr>
<td>VAT Number</td>
<td>The VAT number of the organization that is intended to settle the VAT with the tax authorities.</td>
</tr>
<tr>
<td>Number Chamber of Industry and Commerce</td>
<td>The number with which the organization is registered at the Chamber of Commerce.</td>
</tr>
<tr>
<td>Date Established</td>
<td>The date of creation of the organization as a legal entity.</td>
</tr>
<tr>
<td>Repealed</td>
<td>The repeal date of the organization as a legal entity.</td>
</tr>
<tr>
<td>Remarks</td>
<td>Any additional information about the organization can be included in this field.</td>
</tr>
<tr>
<td>Unique Reference in Originating System</td>
<td>Reference with which the record in the system of origin can be identified.</td>
</tr>
<tr>
<td>Group in Originating System</td>
<td>Reference to a group of records in the system of origin. The grouping of records is often used to validate the loading process using 'application control'.</td>
</tr>
<tr>
<td>Loading Message</td>
<td>Displays a message on the most recent action of loading a record.</td>
</tr>
<tr>
<td>Loading Status</td>
<td>Displays status information about the loading process of the record. 'E' = 'Error' and 'C' = 'Completed'. The completed load statuses will be automatically deleted at the end of the ERP processing.</td>
</tr>
<tr>
<td>Loaded</td>
<td>The point of time the record was loaded by the ERP interface.</td>
</tr>
</tbody>
</table>

The meaning of the other fields:

- **ID**: The technical code with which the revenue can be identified.

**Cost Categories Interface**

This screen cost categories can be exchanged with an ERP system.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>The code of the cost category.</td>
</tr>
<tr>
<td>Description</td>
<td>The description of the cost category.</td>
</tr>
<tr>
<td>Explanation</td>
<td>Free text.</td>
</tr>
<tr>
<td>Interest</td>
<td>This cost category is treated as interest if this box is checked.</td>
</tr>
<tr>
<td>Investment Real Estate</td>
<td>This cost category is treated as investment property if this box is checked.</td>
</tr>
<tr>
<td>Fees</td>
<td>This cost category is treated as Developer Costs if this box is checked.</td>
</tr>
<tr>
<td>Provision</td>
<td>This cost category is treated as a provision if this box is checked.</td>
</tr>
<tr>
<td>Ground</td>
<td>This cost category is treated as acquisition costs for land if this box is checked.</td>
</tr>
<tr>
<td>Unexpected</td>
<td>This cost category is treated as a reserve for contingencies if this box is checked.</td>
</tr>
<tr>
<td>General Costs</td>
<td>This cost category is treated as general expenses if this box is checked.</td>
</tr>
<tr>
<td>Own Capital</td>
<td>This cost category is treated as owner's capital if this box is checked.</td>
</tr>
<tr>
<td>Unique Reference in Originating System</td>
<td>Reference with which the record in the system of origin can be identified.</td>
</tr>
<tr>
<td>Group in Originating System</td>
<td>Reference to a group of records in the system of origin. The grouping of records is often used to validate the loading process using 'application control'.</td>
</tr>
<tr>
<td>Loading Message</td>
<td>Displays a message on the most recent action of loading a record.</td>
</tr>
<tr>
<td>Loading Status</td>
<td>Displays status information about the loading process of the record. 'E' = 'Error' and 'C' = 'Completed'. The completed load statuses will be automatically deleted at the end of the ERP processing.</td>
</tr>
<tr>
<td>Loaded</td>
<td>The point of time the record was loaded by the ERP interface.</td>
</tr>
</tbody>
</table>

The meaning of the other fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Id</td>
<td>The technical code with which the cost category can be identified.</td>
</tr>
</tbody>
</table>
ERP Jobs

In this screen you can see notifications from the ERP updates.

An ERP update is started via Retrieve data from ERP. The messages are retained for a certain time. You can set the retention period via Settings.

There are no entry fields. When processing an ERP job only the last error is shown in case multiple errors have occurred. When you select the ERP process you will see all messages. By sorting on the column ‘Error’ all error messages will appear on top.

Retrieve Data

With this screen you can retrieve data from the ERP system.

The data will not be modified or deleted within the ERP system.

The ERP system provides the figures on realization that are used in Invantive Estate. The following data is uploaded:

- Cost Categories.
- Revenues.
- Persons.
- Organizations.
- Mutations Ledger (debtors, creditors, memorial).

The data can be retrieved from Associated Master Administrations or from all ERP administrations where Invantive Estate is connected to via Associated Financial Administrations.

When data is exchanged, the program checks whether this data is already present. If this is not the case, the ERP system is used and data is uploaded, stored and added to Invantive Estate. If this data is already present, action is taken depending on the kind of data:

- Cost Categories: changing the description. Other changes are not accepted.
- Revenues: all changes are accepted.
- Persons: Changing a name. Other changes are not accepted.
- Organizations: changing a name. Other changes are not accepted.
- General Ledger mutations: print a warning that - after processing and retrieving- the entry is changed. No changes are accepted.
All messages of the processing are stored and can be seen in the screen ERP Jobs.

The retrieval of data is an intensive process. Therefore, it gets automatically less priority if other users are active.

**Time of processing**

The total processing of all data from ERP can take several minutes if the filter is not set. To process only a few corrections in the general ledger it is also possible to set in your filter the projects where these mutations refers to. Only data of the projects in the filter are processed.

The way the data is collected can be set in Profile Options.

**Signal List**

This process adds the data which was not added yet. Moreover, the process compares the data in the ERP system to the data saved in Invantive Estate. Possible deviations are saved as a signal list in the output of the process. These lists can be seen in in the screen ERP Jobs.

**Purge Retrieved General Ledger Information**

In this screen you can delete transferred invoices and invoice lines.

In incidental cases you can change the data in the ERP system after being processed in Invantive Estate, for example:

- if the administrations in the ERP system are recovered with a backup, changed and subsequently processed again.
- if after closing, mutations are entered in the general ledger because the period is opened.

In all these cases the situation of Invantive Estate will not match anymore with the ERP system. On the signal list as visible in ERP Jobs this kind of problems will be shown as as errors.

In order to actualize the data, in this menu you can turn back the general ledger mutations from the ERP system to the settings of a past date.
Per interface job it is shown how much data is transferred. These numbers are limited to information related to projects in the filter. If you then select and delete the job, then all invoice lines related to projects in the filter will be deleted. The corresponding invoices are only removed if they no longer have invoice lines.

**Associated Financial Administrations**

In this form you can change and register the associated financial administrations. During the data exchange information will be imported from the related financial administrations. The way the data is retrieved from the master administration or from the associated administrations can be changed for each data type as described in [ERP Interface](#).

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Admin</td>
<td>The code of the financial administration.</td>
</tr>
<tr>
<td>Description</td>
<td>The description used for displaying on reports and in screens.</td>
</tr>
<tr>
<td>Organization</td>
<td>Reference to a project entity as registered in Organizations [39].</td>
</tr>
</tbody>
</table>

**Associated Master Administrations**

In this form you can change and register the associated financial administrations. During the interfacing data descriptions are retrieved from the master administrations. The way the data is retrieved from the master administration or from the associated administrations can be changed for each data type as described in [ERP Interface](#).
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Users</td>
<td>The code of the administration where the users are retrieved from.</td>
</tr>
<tr>
<td>Cost Type</td>
<td>The code of the administration where the costs category descriptions are retrieved from.</td>
</tr>
<tr>
<td>Revenues</td>
<td>The code of the administration where the revenues are retrieved from.</td>
</tr>
<tr>
<td>Organization</td>
<td>The code of the administration where the suppliers are retrieved from.</td>
</tr>
<tr>
<td>Invoices</td>
<td>The code of the administration where the invoices are retrieved from.</td>
</tr>
<tr>
<td>Invoice Lines</td>
<td>The code of the administration where the invoice lines are retrieved from.</td>
</tr>
<tr>
<td>Description</td>
<td>The description used for displaying on reports and in screens.</td>
</tr>
<tr>
<td>Explanation</td>
<td>Possible explanation.</td>
</tr>
</tbody>
</table>

1.2.8.5 Technical Administration

This chapter contains information concerning the functions that can be found under 'Technical Administration' in a default menu structure.

Functions

Enter text here.

Functions

In this screen you can register and modify functions.

A function is a form or a report that can be requested via the user interface. Functions do not need to be included into a menu structure in order to use them, but it is recommended for the sake of navigation. See [Menus](#) and [Menu Items](#) for how to include functions in a menu structure.

The registration of functions is a typical activity for application developers. See the warning under [Application Development](#).
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>The code which refers to the function. Here you can also enter a 'http address' like for example: <a href="http://www.invantive.com">http://www.invantive.com</a>. However it is not allowed to use a relative URL.</td>
</tr>
<tr>
<td>Description</td>
<td>The description of the function. This message will be translated with Translations.</td>
</tr>
<tr>
<td>Includable in Menu</td>
<td>The function can be included in a menu or a submenu when checked.</td>
</tr>
<tr>
<td>Description (Translated)</td>
<td>The description used for displaying on reports and/or screens.</td>
</tr>
<tr>
<td>Icon (URL)</td>
<td>The relative URL of the icon belonging to the function. The icon must be 16 pixels high and 16 pixels wide.</td>
</tr>
<tr>
<td>Window Name</td>
<td>The name of the HTML window in which the function is opened in case it was selected via the menu. If the window name has not been entered, the function will be executed in the current window.</td>
</tr>
<tr>
<td>Javascript Code</td>
<td>If applicable, here you can include the javascript code associated with the function.</td>
</tr>
<tr>
<td>Program</td>
<td>The name of the program that needs to be executed.</td>
</tr>
<tr>
<td>Module Language</td>
<td>The Module language of the module of which the program is part of as registered in Module Languages.</td>
</tr>
</tbody>
</table>

If no javascript and no code in the format http:// or mailto:// or javascript:// was specified then the web page <CODE>.do will be opened.

Subfunctions

In this screen you can register and change subfunctions.

Subfunctions are used to compose reports using several report elements such as; the front page, the general conditions, a task overview.

A subfunction can be set for each report function, for example, for a report that can be requested via the user interface. This is especially possible with the custom reports bubs_custom1-99, see Building Reports.

On subfunctions, URL parameters can also be passed. These parameters are then subsequently passed to the report. If multiple parameters are used, they are split by the ‘&’ symbol.

The parameters are being ‘unescape’ just like in a URL. The escape function converts a parameter to a string in a URL encoded format whereby all non-alphanumeric characters are replaced with % hexadecimal. To do exactly the opposite you can use unescape.

For example: unescape ‘% 21’ becomes an exclamation, unescape ‘% 20’ becomes a space.

An example of two URL parameters separated with ‘&’ symbol: ‘P_TITEL=titel%20vof%20the%report&P_PJT_CODE=123456’.

Reports

Loops

Using subfunctions you can also build loops in reports.

An example:

For each line in ‘select gbr_naam from bubs_gebruikers_v order by gbr_naam’ the system runs a report. You can pass on parameters to this report using URL parameters which come from the query. The value of the parameters can be passed on to the report by using the ‘:’ notation. An example of this notation is: P_GBR_NAAM=:GBR_NAAM.

The content of a loop is also determined by the use of depth. A loop can contain another loop. The depth of this loop is one. Subsequently, within this ‘nested loop’ another loop can be included. In that case the depth of the loop will be two. The maximum depth of a loop de-
pends on the programming language and program function that you use.

Documents
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function</td>
<td>The name of the report function.</td>
</tr>
<tr>
<td>Sort Order</td>
<td>A numeric value on which the subfunctions are sorted when they are shown in a list box in a screen.</td>
</tr>
<tr>
<td>Active</td>
<td>When checked, the subfunction will be activated.</td>
</tr>
<tr>
<td>Depth</td>
<td>The depth also plays a role in the contents of the loop.</td>
</tr>
<tr>
<td>Description</td>
<td>The description of the subfunction.</td>
</tr>
<tr>
<td>Code</td>
<td>The code used to refer to the report.</td>
</tr>
<tr>
<td>URL Parameters</td>
<td>The URL parameters such as ‘A=B&amp;...&amp;Y=Z’. The parameters are passed on to the sub-function when it is executed.</td>
</tr>
<tr>
<td>Document Number</td>
<td>Reference to a document number as registered in Documents in a report, a document can be inserted or attached.</td>
</tr>
<tr>
<td>Looping Query</td>
<td>The SQL query used to generate the loop of the report. A loop is a sequence of instructions that are repeated for all rows in the query.</td>
</tr>
</tbody>
</table>

Profile Options

Enter text here.

Profile Options

In this screen you can register and change profile options.

Profile option are properties of Invantive Estate, which can be set.

Some examples:
- The profile option ‘Background color Invantive Estate’ has the default color ‘Gray’
- The profile option ‘Send application management email to sysadmin@invantive.com’;
- Using the profile option ‘1bubs-mnu-hoofdmenu-code’ you can indicate the starting point of the menu for each user of Invantive Estate. Default this is ‘Main’.

The values of profile options can be set with User Profile Option Values and User Profile Option Values.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>The code of the profile option.</td>
</tr>
<tr>
<td>Description</td>
<td>The description of the profile option.</td>
</tr>
<tr>
<td>Changeable for User Level</td>
<td>Indicates if the profile option can be changed at user level. To change profile options at user level see User Profile Option Values.</td>
</tr>
<tr>
<td>Changeable for System Level</td>
<td>Indicates if the profile option can be changed at user level. To change profile options at system level see Profile Option Values.</td>
</tr>
<tr>
<td>Use Historical Values</td>
<td>The historical values of this profile option will be used when time traveling is enabled, when checked. The current value will always be used if this indicator is not checked, even if time traveling is activated.</td>
</tr>
<tr>
<td>Default Value</td>
<td>The default value.</td>
</tr>
<tr>
<td>PL/SQL Function</td>
<td>The PL / SQL function of the profile option used to check new values. The outcome of the function can be 'true' or 'not true'. The function must have exactly one 'Oracle bind' variable and this variable will get the value of the current 'string'.</td>
</tr>
<tr>
<td>PL/SQL Error Message</td>
<td>The error message that will be generated as 'exception' when the outcome of PL/SQL function is 'not true'. This message will be translated with Translations.</td>
</tr>
<tr>
<td>Explanation</td>
<td>Possible explanation.</td>
</tr>
</tbody>
</table>

**Profile Option Values**

In this screen you can register, modify or delete profile option values.
Profile Option Values can be set system properties. In this screen profile options you can indicate if for this specific profile option, it is allowed to enter a profile option value. If a profile option value is entered, the default value of the profile option does not change, but a ‘adjustment record’ is made. The value of the ‘adjustment record’ will have priority above the default profile option.

For example: the profile option ‘Send application management mail to sysadmin@invantive.com’ will be overruled at system level because the email address ‘admin@acme.com’ was entered as profile option value.

User Profile Option Values are closely related to Profile Options and User Profile Option Values.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>The profile option value that will be assigned to the profile option at system level.</td>
</tr>
<tr>
<td>Explanation</td>
<td>Explanation of the assigned profile option value.</td>
</tr>
</tbody>
</table>

The meaning of the other fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profile Option</td>
<td>The code of the profile option.</td>
</tr>
<tr>
<td>Description</td>
<td>The description of the profile option.</td>
</tr>
<tr>
<td>Specified</td>
<td>There is a other value specified than the default value when checked.</td>
</tr>
<tr>
<td>Default Value</td>
<td>Value used if no other value is specified.</td>
</tr>
</tbody>
</table>
Additional Business Rules

In this screen you can enter and change supplementary business rules.

Additional business rules are used for:
- to add additional checks like ‘no orders out of budget’.
- to perform actions like ‘send email’.
- provide fields with a default value.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application</td>
<td>The name of the application to which the additional business rule applies.</td>
</tr>
<tr>
<td>View</td>
<td>Name of the view to which the additional business rule applies.</td>
</tr>
<tr>
<td>Column Name</td>
<td>The name of the column to which the additional business rule applies.</td>
</tr>
<tr>
<td>Event Category</td>
<td>Indicates the type of event that starts the additional business rule. Enter for standard filled in values, in all other cases always &quot;&lt;Action&gt;&quot;.</td>
</tr>
<tr>
<td>Sort Order</td>
<td>A numeric value used for sorting the additional business rule when they are shown in a list box in a screen.</td>
</tr>
<tr>
<td>Active</td>
<td>Indicates if the additional business rule is active.</td>
</tr>
<tr>
<td>Synchronization Required</td>
<td>The 'Package' needs to be recalculated if an additional business rule is changed in case this indicator is checked. The recalulation of the 'Package' takes place via Background Jobs.</td>
</tr>
<tr>
<td>Synchronization Executed</td>
<td>The date on which the last synchronization was performed to this additional business rule.</td>
</tr>
<tr>
<td>Group</td>
<td>The group of the additional business rule. Groups help to organize additional business rules</td>
</tr>
</tbody>
</table>
Expression

SQL expression to determine the values in the column (if the column is filled) and in other cases a SQL/PL code block (if column is '<Action>').

You can use the following references in a PL/SQL code block:
- :action: the SQL statement which executes the company rule; 'INSERT', 'UPDATE' or 'DELETE'.
- :action_moment: the moment when the additional business rule is executed, for ('B') or after ('A') the updating of the company object.
- :last: the last added value of the business object (when deleting, the situation before deleting, in all other cases equal to :new).
- :old: the previous value of the business object.
- :new: the new value of the business object.

Comments

Notes to the additional business rule.

The meaning of the other fields:

Package

The name of the 'package' which includes the additional business rule.

Errors

Possible errors in the 'Package'.

Server Pages

In this screen you can enter, modify or delete server pages.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application</td>
<td>The name of the application to which the server page applies.</td>
</tr>
<tr>
<td>Code</td>
<td></td>
</tr>
<tr>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>Constraint Specification</td>
<td></td>
</tr>
</tbody>
</table>

Counters

In this form you can register and change counters.

A counter can be used in additional business rules to calculate a sequence number. See Additional Business Rules [1].

The software creates for each counter a 'database sequence'. The name of the 'database
sequence’ is equal to the code of the counter. The next value of the counter can be requested in a calculated field as ‘<CODE>.nextval’.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>The unique code of the counter.</td>
</tr>
<tr>
<td>Description</td>
<td>The description of the counter.</td>
</tr>
<tr>
<td>Starting Value</td>
<td>The initial value of the counter.</td>
</tr>
<tr>
<td>Value Increase</td>
<td>With every increase, the counter is increased with this value.</td>
</tr>
<tr>
<td>Size of Cache</td>
<td>The size of the cache of ‘Counters’ is made adjustable to avoid any major holes in successive ‘counters’.</td>
</tr>
</tbody>
</table>

The meaning of the other fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>The name of the ‘counter’.</td>
</tr>
<tr>
<td>Counter</td>
<td>The code of the ‘counter’.</td>
</tr>
<tr>
<td>Minimum</td>
<td>The minimum value of the counter.</td>
</tr>
<tr>
<td>Maximum</td>
<td>The maximum value of the counter.</td>
</tr>
<tr>
<td>Cycle</td>
<td>The counter gets the first value again after exceeding the maximum value.</td>
</tr>
<tr>
<td>Ordered</td>
<td>Indicates if the value of the counter is sorted.</td>
</tr>
<tr>
<td>Size of Cache</td>
<td>The size of the cache memory.</td>
</tr>
<tr>
<td>Last Value</td>
<td>The last value of the counter.</td>
</tr>
</tbody>
</table>

**Requested Object Actions**

In this form you can register and change counters.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>Unique numeric code.</td>
</tr>
<tr>
<td>Source ID</td>
<td>Identification of the object.</td>
</tr>
<tr>
<td>Parent</td>
<td>The table code in which the object is included.</td>
</tr>
<tr>
<td>Finished</td>
<td>Indicator showing whether the action has been executed.</td>
</tr>
<tr>
<td>Action</td>
<td>An action that needs to be executed.</td>
</tr>
<tr>
<td>Date First Try</td>
<td>The date when the first attempt to execute the action was.</td>
</tr>
<tr>
<td>Last Try</td>
<td>The date when the last attempt to execute the action was.</td>
</tr>
<tr>
<td>Do not Deliver after</td>
<td>The system time when the requested action was cancelled and execution will no longer be attempted.</td>
</tr>
<tr>
<td>Next Try</td>
<td>The date when the next attempt will be made to execute the action. No date will be displayed here if the action has already been executed.</td>
</tr>
<tr>
<td>Number of Tries</td>
<td>The number of attempts that will be made to execute the action.</td>
</tr>
</tbody>
</table>
### Last Message
The message that was displayed during the last attempt to execute the action.

| Parameter 1 | The first parameter. |

### Overview Additional Business Rules (PDF)
This report shows the text of the Invantive Estate registered additional business rules.
Project Version Views

In this screen you can register project version views. If a project version is registered, then the data from these views will be saved in the specified tables at the historical point in ti-
me for this project version.

Project version views generate ‘replicas’ or ‘cubes’ in table format.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>View Name</td>
<td>The name of the view. The name of the view should always begin with 'bubs_', for example 'bubspproject_status_pjt_r'. If the view name begins with 'bubs_' then the view doesn't support time travelling and the contents of the table undetermined.</td>
</tr>
<tr>
<td>Table Name</td>
<td>Name of the table where the data is stored. It's preferred that the table name ends on '_p', for example 'bubsproject_status_pjt_p'.</td>
</tr>
<tr>
<td>Active</td>
<td>The project version view is active if it is checked.</td>
</tr>
<tr>
<td>Project Based</td>
<td>The view contains project data and only the project data for project version will be updated when checked. The view will contain all data when unchecked.</td>
</tr>
<tr>
<td>Select Columns</td>
<td>A voluntary selection of columns from the view as a regular expression. If nothing is entered, all columns will be selected.</td>
</tr>
<tr>
<td>Explanation</td>
<td>Possible explanation about the use of the view.</td>
</tr>
</tbody>
</table>

The meaning of the other fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table Structure Updated Till</td>
<td>The date is calculated by the system when the project version view becomes active.</td>
</tr>
<tr>
<td>Table Contents Last Filled On</td>
<td>The date is calculated by the system when the project version view becomes active.</td>
</tr>
<tr>
<td>Valid</td>
<td>Is checked when the system didn't find any changes in the view and recalculation is unnecessary.</td>
</tr>
</tbody>
</table>

Note: If the project version views change, the underlying tables will only be filled or rebuilt when necessary and when the changed project version view remains active. In this way you can deactivate the project version views and subsequently modify them without that the application will try to recalculate everything.

Overview Project Version Dates Eligible for Merging

This report shows a list of project versions in time and indicates which project versions can
be merged to the same time because in the meantime there have been no relevant modifications.

By merging project versions (see also Project Versions) to the same point in time, the performances of calculating the project version views are merged (see also Project Version Views). The reduction of the number of snapshots with factor two results in an equal reduction of necessary computation time.
Logging

In Invantive Estate error messages and system events are logged.
For example, you can see all the database errors, including those of the other users on the system.

The meaning of the entry fields is:

- **Database User**: The unique code with which the database user is identified.
- **Module**: Name of the installed module with which was called by the user.
- **Level**: The level at which the action is performed.
- **Action**: The executed action, for example 'INSERT' or 'COMPILE'.
- **Machine**: The name of the server used to get access to Invantive Estate.
- **Context**: The context in which the SQL code was executed ('call stack').
- **Number**: The unique number assigned to the logged message.
- **Time**: The date and time on which the logging of the log message took place.
- **Text**: The SQL statement that was executed.
- **OS User**: The name of the account on the operating system that was used.
- **Client Info**: Information of the client.

**CLOBs to be Loaded**

Via this screen you can load the ‘CLOBs’ in the database of Invantive Estate with SQL loader.

A CLOB (Character Large Object) is a - potentially large - data element in a database that consists of characters to which a character encoding in the database is connected (as opposed to 'BLOB'). It means that data stored in a CLOB with a specific character encoding will also be returned by the database using this character encoding.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of Object</td>
<td>The table in which the CLOBs are stored.</td>
</tr>
<tr>
<td>Column</td>
<td>The column in which the CLOBs are stored.</td>
</tr>
<tr>
<td>Natural Key</td>
<td>The natural key of the row in which the CLOB is stored.</td>
</tr>
<tr>
<td>Original System Reference Value</td>
<td>The reference value of CLOB in the system of origin.</td>
</tr>
<tr>
<td>CLOB</td>
<td>The CLOB which is stored.</td>
</tr>
<tr>
<td>Loading Message</td>
<td>Result of the last attempt to load CLOB in the database.</td>
</tr>
</tbody>
</table>

The meaning of the other fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sequence</td>
<td>The sequence number of the CLOB.</td>
</tr>
</tbody>
</table>

**Version History**

This screen provides information about different versions of Invantine Estate that were installed during the course of time.

A version is a modification of the software or a new delivery of the configuration settings.

Versions cannot be changed or removed. The registration of a version is done by the software of Invantine.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version ID</td>
<td>The ID number of the installation.</td>
</tr>
<tr>
<td>Version</td>
<td>The version number under which this version is known at the supplier.</td>
</tr>
<tr>
<td>Module</td>
<td>The module that has been replaced. This is 'All' if large parts of the application are replaced.</td>
</tr>
<tr>
<td>Installation Date</td>
<td>The moment at which the installation was finished.</td>
</tr>
<tr>
<td>Comments</td>
<td>Possible remarks on the installation of the software.</td>
</tr>
<tr>
<td>Object Versions</td>
<td>The version info from the database objects (packages, procedures).</td>
</tr>
<tr>
<td>Database Context</td>
<td>The variables that define the database context. These variables are, for example, used for debugging of time traveling over project versions.</td>
</tr>
<tr>
<td>Database NLS Parameters</td>
<td>Database NLS parameters determine the local behavior in the database runtime environment on the client and the server. Using NLS you can select a specific language and to store the data using a specific character set. NLS is part of the overall support provided by the database and it allows for developing multilingual applications and software that can be accessed and performed simultaneously from all parts of the world.</td>
</tr>
<tr>
<td>Database Parameters</td>
<td>Database parameters are used to initialize and configure the database.</td>
</tr>
<tr>
<td>Other Database Parameters</td>
<td>Settings that are not in the database configuration file can be realized using other database parameters.</td>
</tr>
<tr>
<td>Environment Variables</td>
<td>A set of variables that define the environment in which the software is executed on the web server.</td>
</tr>
<tr>
<td>Java System Variables</td>
<td>The Java system variables on the web server.</td>
</tr>
</tbody>
</table>

**Heavy SQL Statements**

This screen allows you to retrieve information about heavy SQL statements.

These SQL statements take a lot of the processor capacity of the database server during the 'parse' phase. With a background script '...' they can be prepared in the morning which allows the system to warm up more quick.
The meaning of the entry fields is:

**Date Last Seen**
The date and time the execution of the statement was seen for the last time in the part of Inventive Estate where SQL statements are executed.

**SQL Text**
The SQL statement.

**Tables**
In this form you can request data on columns in tables and views.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>The table type. ‘Table’ means a physical table, ‘business object view’ represents a business view and ‘reporting view’ represents a reporting view. See also Structure.</td>
</tr>
<tr>
<td>Table Name</td>
<td>The name of the table.</td>
</tr>
<tr>
<td>Definition</td>
<td>The definition of the data in the table (only available in English).</td>
</tr>
<tr>
<td>Example</td>
<td>An example of the data in the table (only available in English).</td>
</tr>
<tr>
<td>Short Name</td>
<td>The short name of the table.</td>
</tr>
<tr>
<td>Number of Rows</td>
<td>An indication of the number of rows in the table.</td>
</tr>
<tr>
<td>Average Size</td>
<td>An indication of the average size in bytes of a row in the table.</td>
</tr>
<tr>
<td>Date Last Analysis</td>
<td>The last time at which the statistics were recalculated.</td>
</tr>
<tr>
<td>Tablespace</td>
<td>The ‘tablespace’ where the table is stored.</td>
</tr>
<tr>
<td>Number of Indexes</td>
<td>The number of indexes in the table.</td>
</tr>
<tr>
<td>Size</td>
<td>The total size of the table and the related indexes.</td>
</tr>
<tr>
<td>Size Table</td>
<td>The size of the table.</td>
</tr>
</tbody>
</table>
Size Indexes
The size of the indexes belonging to the table.

Columns
In this form you can request data on columns in tables and views.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table Name</td>
<td>The name of the table.</td>
</tr>
<tr>
<td>Short Name</td>
<td>The short name of the table.</td>
</tr>
<tr>
<td>Table Definition</td>
<td>The definition of the data in the table (only available in English).</td>
</tr>
<tr>
<td>Table Example</td>
<td>An example of the data in the table (only available in English).</td>
</tr>
<tr>
<td>Column Name</td>
<td>The name of the column.</td>
</tr>
<tr>
<td>Definition</td>
<td>The definition of the data in the column (only available in English).</td>
</tr>
<tr>
<td>Example</td>
<td>An example of the data in the column (only available in English).</td>
</tr>
</tbody>
</table>

Database Objects
In this screen you can request data on the present database objects (packages).
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Name of Object</th>
<th>The name of the object.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>The type of object.</td>
</tr>
<tr>
<td>Valid?</td>
<td>Is the definition valid or are there errors in the software which cause that it does not compile?</td>
</tr>
<tr>
<td>Created at</td>
<td>The time at which the object was stored for the first time.</td>
</tr>
<tr>
<td>Date Last Modified</td>
<td>The last time at which the object was changed.</td>
</tr>
</tbody>
</table>

**Database Object Definitions**

In this screen you can request information on the present database objects (packages) at detail line level in the source code.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Name of Object</th>
<th>The name of the object.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Object Owner</td>
<td>The database schedule which is the owner of the object.</td>
</tr>
<tr>
<td>Type</td>
<td>The type of object.</td>
</tr>
<tr>
<td>Valid?</td>
<td>Is the definition valid or are there errors in the software which cause that it does not compile?</td>
</tr>
<tr>
<td>Line</td>
<td>The line number of the program.</td>
</tr>
<tr>
<td>Text</td>
<td>The statements of the program.</td>
</tr>
</tbody>
</table>

### 1.2.8.6 Application Development

This section contains information about the functions needed to realize extensions within Invantive Estate. This information is intended only for use by the technical employees of the supplier. Do not use these functions unless you are an employee of the supplier or unless you have been asked to use these function by the support desk of the supplier.

Improper use could make Invantive Estate completely unusable. Without prior approval the supplier can take no responsibility for the correct function of Invantive Estate and you will be charged for possible costs for correction, direct and indirect consequential damage and/or support.

### Invantive Producer

This chapter contains information about Invantive Producer. The functions normally can be found under the menu item 'Invantive Producer'.

Invantive Producer provides two of the three technical layers of Invantive Estate, namely the storage layer with tables and company layer with views and business logic. See also Structure.
Concept

This chapter describes the concepts of Invantive Producer.

Invantive Producer is a tool for developers to build applications that meet the requirements of the financial sector and other sectors with high standards of integrity and accountability. Invantive Producer applications are characterized by:

- being more early ready with construction and testing,
- delivering a consistently high quality product, and
- are flexible to adapt to changing circumstances.

The basis of Invantive Producer is a repository of functional metadata. These metadata describe the normalized data model, the objects of the business and the business rules. Using this metadata, as shown in the figure below, a result will be produced by Invantive Producer Invantive without human intervention.
The result is a three-tier architecture:

- **User interface:** display of information.
- **Business logic:** validation, image of actions on the data, business objects.
- **Database:** the storage of data in tables.

The three-tier architecture separates the functionality and data. The data can be reused or combined with other applications.

The functionality of the result include:

- **Normalized data model:** single version of the truth.
- **Automatic upgrade of the data model between versions.**
- **Constraints and referential constraints to guard the integrity of the data.**
- **Data security:** users have access only to the information they are allowed to.
- **AAA:** standard features for authentication, authorization and audit trail.
- **Image data to manageable business objects.**
- **Image of transactions on business objects to the underlying data model.**
- **Open:** focus on data integration, both incoming and outgoing.
- **Historical trail with time traveling.**
- **The result is expandable with handwritten code.**

The following simple example shows how, based on a data model and relationships, a business layer is realized:

The business object `acme_gebruiker_rollen_v` is composed of three elements (for example, registered with use of the screen Views)

- **Element 1:** `acme_gebruiker_rollen`, alias `grl`.
- **Element 2:** `acme_rollen`, alias `rol`, relation: `rol.id=grl.rol_id`.
- **Element 3:** `acme_gebruikers`, alias `gbr`, relation: `gbr.id=grl.gbr_id`. 
Based on this specification Invantive Producer will produce a database view similar with the following view:

```sql
create or replace force view acme_gebruiker_rollen_v
as
/*
* Generated by it_install, version:
*/
select grl.id                    grl_id
,      grl.orig_system_reference  grl_orig_system_reference
,      grl.datum_intrf_geladen    grl_datum_intrf_geladen
,      grl.datum_intrf_bijgewerkt grl_datum_intrf_bijgewerkt
,      rol.id                     rol_id
,      rol.code                   rol_code
,      rol.omschrijving           rol_omschrijving
,      rol.alle_prjctn_zien_vlag  rol_alle_prjctn_zien_vlag
,      ...
,      gbr.wachtwoord             gbr_wachtwoord
,      gbr.orig_system_reference  gbr_orig_system_reference
,      gbr.datum_intrf_geladen    gbr_datum_intrf_geladen
from   acme_gebruiker_rollen          grl
join   acme_rollen                    rol
on     rol.id = grl.rol_id
join   acme_gebruikers                gbr
on     gbr.id = grl.gbr_id

This view can easily be used to present data in the normalized data model as a business object. It is no longer necessary that users of this view have to determine every time again relationships: all information is already available as fields in the business object, even though the information comes from multiple tables.

Moreover, the result contains a number of instead-of triggers. These ensure that any changes or additions of data in the view result in the correct actions on the underlying tables:

```sql
create or replace trigger acme_gebruiker_rollen_ord
instead of delete on acme_gebruiker_rollen_v
for each row
...
begin
  -- Populate the old and new records...
  -- Check the Access Control list for this transaction...
  -- Fill-in default values...
  -- Call the before-delete user hook if available...
  -- Delete from base table...
  delete
  from   acme_gebruiker_rollen grl
  where  1=1
  and    grl.id = l_old.grl_id
; ...
  -- Call the after-delete user hook if available.
```
The result of Invantive producer is based on metadata defined in the Invantive Producer repository. The Invantive Producer repository will be installed along with an application.

The normalized data model of the Invantive Producer repository is as follows:

Each application has a row in `itgen_applications` (loading via `itgen_applications_v`). Normally each application has two rows:
- A row for Invantive Producer.
- A row for the application.

The loading of data into Invantive Producer is done through the business layer. This business layer is produced by Invantive Producer.

After creating the application you specify the data model by loading data in:
• Tables in itgen_tables_v.
• Columns in itgen_table_columns_v.
• Indexes in itgen_indexes_v and itgen_index_columns_v.
• Referential constraints in itgen_ref_constraints_v.

Then you specify the business tier:
• Views in itgen_views_v.
• Parts of the view in itgen_view_elements_v.
• Business rules in itgen_attribute_rules_v.

Invantive Producer knows the ‘AUTOCOMPLETE’ function to complete a basic data model to a production-ready data model. The autocomplete is controlled based on settings in the application and data in the code tables itgen_codes_v and itgen_code_values_v.

You can load the repository via screens or via insert statements. In practice, it is very easy to load the data using a Microsoft Excel worksheet. This worksheet is called default <application code>_metadata.xlsx and creates a control file for SQL * Loader with the name<application code>_metadata.ctl en <application code>_metadata.dat.

After defining the metadata, the data model can be generated with the next statements:

```sql
begin
--
-- Aanmelden op Invantive Producer.
--
itgen_session.set_session_info
('<application code> installatie.sql',
'install',
'system',
'various',
sys_Filter('userenv', 'ip_address'),
sys_Filter('userenv', 'host'),
'n/a',
to_char(sysdate,'yyyymmddhh24miss'));
--
-- Aanmaken van:
-- * tabellen
-- * indexen
-- * referentiële constraints
--
<application code>_install.sync_db_with_metadata;
end;
/
```

These statements ensure that the physical data model will be similar to the data model in the repository. New columns get - if a conversion function is known - automatically a new value.

To generate the business layer, run the following statement:

```sql
begin
    <application code>_sct_generate.run('&&bubs_usr', '&&bubs_user_role','&&bubs_user_reader_role');
```
The generation process checks all parts of the business layer to see if changes should be made. This takes approximately 2 to 5 seconds per business object. For large systems this can be slow and hinder the development process. Therefore you can use the following call:

```sql
begin
     <applicatie code>_sct_generate.run('&bubs_usr', '&bubs_user_role', '&bubs_reader_role', 'PATROON');
end;
```

For example consider the following statement to update all business objects with 'project_saldo_vnr' in the name:

```sql
begin
     bubs_sct_generate.run(user, user || '_USER', user ||'_READER', 'project_saldo_vnr');
end;
```

Based on a minimum of data input, the function autocomplete of Invantive Producer, will produce and add the necessary requirements to run the application. This usually saves a factor five to ten in volume of work.

The necessary data for autocomplete are:

- Application.
- Tables.
- Table columns with the exception of system columns, but including referential ID columns.
- Natural key indexes and columns.
- Image Function for the view name to the alias via the Invantive Producer code domain `<application code>_lov_view_name_to_code`.
- Names of business views.
- Reporting views.
- Business rules.
- Possible extra view elements which cannot be determined automatically. For these views, use serial numbers of 900 or higher.

The autocomplete subsequently performs the following actions:

**Cleanup:**

- Remove remains of data in the repository that were created previously with the autocomplete function for the selected application.

**Add technical fields:**

- Create for each table a column 'ID' that will be used as primary key if it does not exist already.
- Each table gets a primary key named `<application code>_<table alias>_pk` with the column 'ID'.
- Create for each table the following audit columns if these do not exist already: creation da-
te, created by, created in, transaction creation, date last updated, last updated by, last up-
dated in, transaction last updated, date created by interface, date updated by interface, ini-
tial system group, unique original system reference, free column type and ten free-co-
lumns.

- A unique index named ‘<application code>_<table alias>_uk_orig’ is created for the original
  unique system reference.

LOV-views:
- LOV views for each column in the data model with a name ending with the code column
  postfix as set in the application (usually ‘ind’). The name of the view is based on the appli-
cation setting View name, in which the occurrences of ‘:tcn_name’ will be replaced by the
name of the column, without the code column postfix. The alias of the LOV view will be re-
trieved from the description of the code value in the code ‘<application code>_lov_view_
-name_to_code’ in Invantive Producer. The definition of the view is based on the application
setting View template, in which the occurrences of ‘:tcn_name’ are being replaced by the
name of the column, without the code column postfix.
  For example: The column ‘gender_ind’ results to a LOV view named ‘<application co-
de>_lov_gender_r’.
  No LOV view is added if a view with this name already exists.
- For each LOV view an artificial table will be rendered, so LOV views can also be used to
  establish relationships.
- For each LOV view also a referential constraint will be created between the artificial table
  and the related column.

Referential constraints and related indexes:
- A referential constraint is added for each column that begins with three letters and ends in
  ‘_id’ or ‘_id_’. The three letters are used to determine the appropriate table.
- Referential indexes are added for each column that refers to a different table.

Business Objects
- For each table a business object will be created which contains all the tables to which this
  table refers directly or indirectly.

To use Invantive Producer you will need:
- Oracle RDBMS for data storage, metadata and business tier.

The performance of Invantive Producer is based on a duo core workstation:
- Full production of 125 business objects with over 3,000 database objects and 240,000 co-
de lines: 20 minutes.
- Incremental production with a few changes: a few seconds.
- Typical number of business transactions pro minute > 15.000 tpm. Less in case of com-
  plex business rules.
- Manual coding: usually <2%.

Applications

In this form you can register and change applications.

An application is a coherent group of data and functions.

The registration of applications is a typical activity for application developers. See the
warning under Application Development[27].
The meaning of the entry fields is:
<table>
<thead>
<tr>
<th><strong>General</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Code</strong></td>
</tr>
<tr>
<td><strong>Name</strong></td>
</tr>
<tr>
<td><strong>Include call additional business rules</strong></td>
</tr>
<tr>
<td><strong>Prefix procedure additional business rule</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Include Natural Key Columns</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Column Specifications</strong></td>
</tr>
<tr>
<td><strong>Column identity</strong></td>
</tr>
<tr>
<td><strong>Column 'date created'</strong></td>
</tr>
<tr>
<td><strong>Column 'created by'</strong></td>
</tr>
<tr>
<td><strong>Column 'created in'</strong></td>
</tr>
<tr>
<td><strong>Column 'date last update'</strong></td>
</tr>
<tr>
<td><strong>Column 'updated by'</strong></td>
</tr>
<tr>
<td><strong>Column 'updated in'</strong></td>
</tr>
<tr>
<td><strong>Column 'transaction created'</strong></td>
</tr>
<tr>
<td><strong>Column 'transaction updated'</strong></td>
</tr>
<tr>
<td><strong>Column 'original system reference'</strong></td>
</tr>
<tr>
<td><strong>Column 'original system group'</strong></td>
</tr>
<tr>
<td><strong>Column 'date interface created'</strong></td>
</tr>
<tr>
<td><strong>Column 'date interface updated'</strong></td>
</tr>
<tr>
<td><strong>Column 'column type'</strong></td>
</tr>
<tr>
<td><strong>Column 'column prefix'</strong></td>
</tr>
<tr>
<td><strong>Column 'history event'</strong></td>
</tr>
<tr>
<td><strong>Column 'history date start'</strong></td>
</tr>
<tr>
<td><strong>Column 'historical date ends'</strong></td>
</tr>
<tr>
<td><strong>Column 'history active when filled'</strong></td>
</tr>
<tr>
<td><strong>Column 'session created'</strong></td>
</tr>
<tr>
<td><strong>Column 'session updated'</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Other</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Documentation</strong></td>
</tr>
<tr>
<td><strong>Postfix for Code Field</strong></td>
</tr>
<tr>
<td><strong>Autocompleted</strong></td>
</tr>
<tr>
<td><strong>Template for LOV View Name</strong></td>
</tr>
<tr>
<td><strong>Template for LOV View</strong></td>
</tr>
<tr>
<td><strong>Postfix for flag field</strong></td>
</tr>
<tr>
<td><strong>Flag field value for 'no'</strong></td>
</tr>
<tr>
<td><strong>Flag field value for 'yes'</strong></td>
</tr>
<tr>
<td>Role</td>
</tr>
<tr>
<td>-------------------------------------------</td>
</tr>
<tr>
<td>Table with Interactions</td>
</tr>
<tr>
<td>Table with Transactions</td>
</tr>
<tr>
<td>Procedure for Logging Execution of Attribute Rules</td>
</tr>
<tr>
<td>Copyright</td>
</tr>
<tr>
<td>Expression point_in_time</td>
</tr>
<tr>
<td>Expression Set Point in Time</td>
</tr>
<tr>
<td>Expression set_session_info</td>
</tr>
<tr>
<td>Expression unset_session_info</td>
</tr>
<tr>
<td>Expression Effective Date</td>
</tr>
<tr>
<td>Expression Translate Keys</td>
</tr>
<tr>
<td>Standard Where Clause</td>
</tr>
<tr>
<td>Standard Select Clause</td>
</tr>
<tr>
<td>Natural Key Column</td>
</tr>
<tr>
<td>Expression to get last Identity Assigned</td>
</tr>
<tr>
<td>Expression to Get Session User Identity</td>
</tr>
</tbody>
</table>

**Tables**

In this screen you can register and change tables.
The meaning of the entry fields for a table is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application</td>
<td>The application of which the table is part.</td>
</tr>
<tr>
<td>Code</td>
<td>The code with which is referred to the table. Usually, three-letter codes are used.</td>
</tr>
<tr>
<td>Name</td>
<td>The name of the table.</td>
</tr>
<tr>
<td>Legacy Name</td>
<td>The name of the table in an earlier stage.</td>
</tr>
<tr>
<td>Default Reference Columns</td>
<td>By default all reference columns from the table are included. If you would like you can include an other list of columns. Then, the reference columns are not included. If you use a '+' in the list of reference columns, all reference columns of the table will be included.</td>
</tr>
<tr>
<td>Label singular</td>
<td>The label of the table if the data is used in singular, for example 'Project'. It is also possible to use resources.</td>
</tr>
<tr>
<td>Label Plural</td>
<td>The label of the table if the data is used in plural, for example 'Projects'. It is also possible to use resources.</td>
</tr>
<tr>
<td>Label Singular when Referenced</td>
<td>Reference to resource if the data is used in singular.</td>
</tr>
<tr>
<td>Label plural when Referenced</td>
<td>Reference to resource if the data is used in plural.</td>
</tr>
<tr>
<td>Create</td>
<td>Checked in case the index must be included in the database.</td>
</tr>
<tr>
<td>Interface?</td>
<td>The table can be accessed via the web user interface if checked.</td>
</tr>
<tr>
<td>Maintain History?</td>
<td>The history of the table will be maintained if checked.</td>
</tr>
<tr>
<td>Show History</td>
<td>The history will be displayed if checked.</td>
</tr>
<tr>
<td>Number of Rows</td>
<td>The number of rows of the table.</td>
</tr>
<tr>
<td>Definition</td>
<td>Definition of the data visible in the table.</td>
</tr>
<tr>
<td>Example</td>
<td>An example of the data in the table.</td>
</tr>
<tr>
<td>Documentation</td>
<td>Documentation about the table.</td>
</tr>
<tr>
<td>User May Select</td>
<td>Checked in case the application user is allowed to read data from this table.</td>
</tr>
<tr>
<td>User May Insert</td>
<td>Checked in case the application user is allowed to add data to this table.</td>
</tr>
<tr>
<td>User May Update</td>
<td>Checked in case the application user is allowed to update data from this table.</td>
</tr>
<tr>
<td>User May Delete</td>
<td>Checked in case the application user is allowed to delete data from this table.</td>
</tr>
<tr>
<td>Data Category</td>
<td>Data category of the table.</td>
</tr>
</tbody>
</table>

The meaning of the entry fields for a table column is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application</td>
<td>The application of which the column is part of.</td>
</tr>
<tr>
<td>Name</td>
<td>The name of the column.</td>
</tr>
<tr>
<td>Legacy Name</td>
<td>The name of the column in an earlier stage.</td>
</tr>
<tr>
<td>Data Type</td>
<td>The column data type.</td>
</tr>
<tr>
<td>Data Length</td>
<td>The maximum length of the data type.</td>
</tr>
<tr>
<td>Data Length Type</td>
<td>The data length type.</td>
</tr>
<tr>
<td>Data Precision</td>
<td>The maximum number of digits in a number for a numeric data type.</td>
</tr>
<tr>
<td>Data Scale</td>
<td>The number of decimal places in a number.</td>
</tr>
<tr>
<td>Label singular</td>
<td>The label of the column if the data is used in singular.</td>
</tr>
<tr>
<td>Label Plural</td>
<td>The label of the column if the data is used in plural.</td>
</tr>
<tr>
<td>Label Singular when Referenced</td>
<td>Reference to resource if the data is used in singular.</td>
</tr>
<tr>
<td>Label plural when Referenced</td>
<td>Reference to resource if the data is used in plural.</td>
</tr>
<tr>
<td>Create</td>
<td>Checked in case the column is included in the database.</td>
</tr>
<tr>
<td>Definition</td>
<td>Definition of the data visible in the column.</td>
</tr>
<tr>
<td>Example</td>
<td>An example of the data in the column.</td>
</tr>
<tr>
<td>Add Purchase Order</td>
<td>Here you can indicate the sequence of the column in the table.</td>
</tr>
<tr>
<td>Conversion</td>
<td>Possible conversion applied to the data in the column.</td>
</tr>
<tr>
<td>Documentation</td>
<td>Documentation concerning the column.</td>
</tr>
<tr>
<td>Nullable</td>
<td>The column does not need to contain a value if checked.</td>
</tr>
<tr>
<td>Show in search filter</td>
<td>The values of the column are displayed in the search filter if checked.</td>
</tr>
<tr>
<td>Show in search results</td>
<td>The values of the column are displayed in the search results if checked.</td>
</tr>
</tbody>
</table>
Attribute Rules

In this form you can register and change attribute rules.

An attribute rule is a specification of a business rule. There are two types of attribute rules:

- checks on validity: attribute rules that impose requirements on data to approve them. Examples are ‘the amount of the invoice line must be different than 0’ or ‘the user being the task owner must have checked the task owner flag’.
- actions: actions are pieces of programs being executed under special conditions.

Actions can be classified in two sorts of actions:

- actions being executed before a changed piece of data is stored, for example, when entering the default or constant values in fields.
- actions being executed after a changed piece of data is stored, for example, when sending an e-mail.

The registration of attribute rules is a typical activity for application developers. See the warning under Application Development.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Application</th>
<th>The application of which the attribute rule is part.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table Code</td>
<td>The table and the related business view of which the attribute rule is part of.</td>
</tr>
<tr>
<td>Code</td>
<td>The unique code of an attribute rule.</td>
</tr>
<tr>
<td>Sort Order</td>
<td>A numeric value used to sort the referential rules in terms of sequence of execution.</td>
</tr>
<tr>
<td>Event Category</td>
<td>The sort of event that triggers the processing of the attribute rule. The following events can occur:</td>
</tr>
<tr>
<td></td>
<td>- A: Every event (edit, add or delete)</td>
</tr>
<tr>
<td></td>
<td>- M: Mutation (edit or delete)</td>
</tr>
<tr>
<td></td>
<td>- I: add</td>
</tr>
<tr>
<td></td>
<td>- U: edit</td>
</tr>
<tr>
<td></td>
<td>- D: delete</td>
</tr>
<tr>
<td>Action Category</td>
<td>The action category. The following kinds of actions can occur:</td>
</tr>
<tr>
<td></td>
<td>- E: validity check.</td>
</tr>
<tr>
<td></td>
<td>- A: action.</td>
</tr>
<tr>
<td>Action Moment</td>
<td>Has meaning only if the action category 'Action' is selected. The moment on which an action is executed: before or after executing the event.</td>
</tr>
<tr>
<td>Create</td>
<td>Checked in case the attribute rule needs to be included in the business layer.</td>
</tr>
<tr>
<td>Constraint Specification</td>
<td>Limiting condition which needs to be met aside of the event category, expressed as a SQL where clause. You can refer to the table's respective row with the following texts:</td>
</tr>
<tr>
<td></td>
<td>- ': old': the value of the row before the event (empty in case of adding).</td>
</tr>
<tr>
<td></td>
<td>- ': new': the value of the row after the event (empty in case of deleting).</td>
</tr>
<tr>
<td></td>
<td>- ': last': the last known value of the row (equivalent to ': new' in case of adding or changing and equal to ': old' in the case of deleting).</td>
</tr>
<tr>
<td></td>
<td>- ': event': the type of event, with the following possible values: 'insert', 'update' and 'delete'.</td>
</tr>
<tr>
<td>Action Specification</td>
<td>Has meaning only if the action category 'Action' has been selected. Specification in the PL/SQL of the to be executed action. You can refer to the table's respective row with the following texts:</td>
</tr>
<tr>
<td></td>
<td>- ': old': the value of the row before the event (empty in case of adding).</td>
</tr>
<tr>
<td></td>
<td>- ': new': the value of the row after the event (empty in case of deleting).</td>
</tr>
<tr>
<td></td>
<td>- ': last': the last known value of the row (equivalent to ': new' in case of adding or changing and equal to ': old' in the case of deleting).</td>
</tr>
<tr>
<td></td>
<td>- ': event': the type of event, with the following possible values: 'insert', 'update' and 'delete'.</td>
</tr>
<tr>
<td>User Message</td>
<td>Has meaning only if the action category 'Validity Check' has been selected. The message which warns you, in case the row does not meet the validity check.</td>
</tr>
<tr>
<td>Documentation</td>
<td>Documentation of the attribute rule.</td>
</tr>
</tbody>
</table>

Attribute rules offer many options. Below are some examples.

**Enter an amount greater or less than 0 for a contract.**

Action category: E

Specification: :last.odt_bedrag_verlening is null or :last.odt_bedrag_verlening<>0

Other: None.

**Only one row of settings is allowed.**

Action category: E

Specification: :last.isg_seq = 1

Other: Make a unique index on column 'seq'.
A role can only have the rights to change all projects when the role also has the rights to see all projects.

Action category: E

Specification: :last.rol_alle_prjctn_wijzigen_vlag = 'N' or ( :last.rol_alle_prjctn_wijzigen_vlag = 'Y' and :last.rol_alle_prjctn_zien_vlag = 'Y')

Other: None.

The project type cannot be changed to Master Project in case a project has costs categories, revenues, orders, invoice rules, last estimates or contract budgets.

Action category: E

Specification: :last.pjt_projectvorm_ind in ('S', 'I') or ( :last.pjt_projectvorm_ind = 'M' and not exists ( select 1 from bubs_kostenplaatsen_v where pjt_id = :last.pjt_id ) )

Other: None.

This cost type prefix is used already in this master project.

Action category: E

Specification: (:last.pjt_projectvorm_ind in ('M', 'I') or ( :last.pjt_projectvorm_ind = 'S' and not exists ( /* Another subproject of the same master project with the same prefix. */ select 1 from bubs_projecten_v where pjt_projectvorm_ind = 'S' and pjt_code <> :last.pjt_code and hpt_code = :last.hpt_code and pjt_volgnummer_prefix = :last.pjt_volgnummer_prefix)))

Other: None.

New access requests always have an open status.

Action category: A
Action moment: B

Specification: 1=1

Action specification: :new.atg_afgesloten_vlag := 'N';

Other: None.

Send an e-mail when a process is changed.

Action category: A
Action moment: A

Specification: 1=1

Action specification: bubs#processen.send_message(:old, :new, :last);

Other: None.

If possible, change the status of the background process from F (input parameters) to P (planned) when a parameter is updated.

Action category: A
Action moment: B
Specification: 1=1
Action specification: update bubs_background_jobs_v set bjb_status_ind='P' where 1=1 and bjb_status_ind='F' and bjb_id = :new.bjb_id;
Other: None.

Indexes

In this form you can register and change indexes.

An index is a quick access path to the data stored in a table. Multiple indexes can be uploaded per table.

There are two kinds of indexes:

- Unique indexes: act as a constraint on the table by preventing duplicate entries in the index and thus in the backing table. Unique indexes are used to protect the uniqueness of the artificial key as defined in the column 'id'. The index then has a name in the format '<application>_<table alias>_pk'. Unique indexes are also used to guarantee the unicity of the natural keys. A natural key index will have a name in the format '<application>_<table alias>_nk' for a primary unique natural key and '<application>_<table alias>_uk_<column>' for all other natural keys.

- Non-unique indexes: these are indexes used to quickly find data in a table. The most common non-unique index is the referential index: for each referential column '<table alias>_id_<possible postfix>' exists an index with the name '<application>_<table alias>_uk_<possible postfix>'.

The registration of indexes is a typical activity for application developers. See the warning under Application Development.
The meaning of the entry fields for indexes is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application</td>
<td>The application of which the index is part of.</td>
</tr>
<tr>
<td>Table Code</td>
<td>The table of which the index is part of.</td>
</tr>
<tr>
<td>Name</td>
<td>The name of the index.</td>
</tr>
<tr>
<td>Unique</td>
<td>Checked in case the index is unique.</td>
</tr>
<tr>
<td>Create</td>
<td>Checked in case the index needs to be included in the database.</td>
</tr>
</tbody>
</table>

The meaning of the entry fields for indexes is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>The name of the column.</td>
</tr>
<tr>
<td>Position</td>
<td>The number of the position of the column in the index.</td>
</tr>
</tbody>
</table>

**Business Objects**

In this form you can register and change views.

A view is a business object or a reporting object.

A view is a prepared collection of data from one or more tables.

There are two kind of views:
• reporting views: views only used for retrieving data. Their name is ‘<application>_<name>_r’.

• Business views: view in a logical format for organizational activities for loading and changing data. Their name is ‘<application>_<name>_v’.

Reporting views are specified as SQL text, while business views are a collection of view elements per used table.

The registration of views is a typical activity for application developers. See the warning under Application Development.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application</td>
<td>The application of which the view is part of.</td>
</tr>
<tr>
<td>Code</td>
<td>The code with which is referred to the view. Usually, three-letter codes are used.</td>
</tr>
<tr>
<td>Name</td>
<td>The name of the view.</td>
</tr>
<tr>
<td>Label singular</td>
<td>The label of the view when the data is used in singular, for example ‘Project’. It is also possible to use resources.</td>
</tr>
<tr>
<td>Label Plural</td>
<td>The label of the view when the data is used in plural, for example ‘Projects’. It is also possible to use resources.</td>
</tr>
<tr>
<td>Label Singular when Referenced</td>
<td>Reference to resource if the data is used in singular.</td>
</tr>
<tr>
<td>Label plural when Referenced</td>
<td>Reference to resource if the data is used in plural.</td>
</tr>
<tr>
<td>Additional Where Clause</td>
<td>An extra limitation to the data visible in the view. In the format of a ‘SQL where clause’.</td>
</tr>
<tr>
<td>Additional Select Clause</td>
<td>An extra list of columns, expressed as SQL, available in the column list of the view.</td>
</tr>
<tr>
<td>Order by Clause</td>
<td>An ordering of the data in the view. Expressed as SQL.</td>
</tr>
<tr>
<td></td>
<td>Do mind: use the ‘order by clause’ for simple views only. Applying this to complex views might lead to performance reduction.</td>
</tr>
<tr>
<td>Create</td>
<td>Checked in case the view needs to be included in the database.</td>
</tr>
<tr>
<td>Hard Coded</td>
<td></td>
</tr>
<tr>
<td>Optimizer Hint</td>
<td>A hint for the view, expressed in SQL.</td>
</tr>
<tr>
<td>Definition</td>
<td>Definition of the data visible in the view.</td>
</tr>
<tr>
<td>Example</td>
<td>An example of the data in the view.</td>
</tr>
<tr>
<td>Documentation</td>
<td>Documentation concerning the view.</td>
</tr>
<tr>
<td>User May Select</td>
<td>Checked in case the application user is allowed to read data from this view.</td>
</tr>
<tr>
<td>User May Insert</td>
<td>Checked in case the application user is allowed to add data from this view.</td>
</tr>
<tr>
<td>User May Update</td>
<td>Checked in case the application user is allowed to update data from this view.</td>
</tr>
<tr>
<td>User May Delete</td>
<td>Checked in case the application user is allowed to delete data from the view.</td>
</tr>
<tr>
<td>Hard Coded Definition</td>
<td>The possible hard coded definition. Only for reporting views. For business views use view elements (see below).</td>
</tr>
</tbody>
</table>

A business view can consist of multiple view elements, whereby each view element will be a table or a ‘pseudo table’ for a report view that will be joined in the business object:

- Sequence: A view consists of several view elements. The sequence indicates on what position the view element is included in the view. Usually, the base table gets the lowest sequence.
- Application: The application of which the view element is part of.
- Table: The name of the table forming the view element.
- Alias: The alias for the data in the table. Usually this will be the same as the table alias, but in case a table is used in more locations in a business view, every location will get a different alias.
<table>
<thead>
<tr>
<th>Column Name</th>
<th>The name of the column on which the join is built.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joined Alias</td>
<td>The alias of the table with which the view element is joined.</td>
</tr>
<tr>
<td>Joined Column Name</td>
<td>The name of the column used to make the join.</td>
</tr>
<tr>
<td>Additional Where Clause</td>
<td>An extra where clause, expressed in SQL.</td>
</tr>
<tr>
<td>Reference Columns</td>
<td>By default all reference columns from the table are included. If you would like you can include an other list of columns. Then, the reference columns are not included. If you use a '+' in the list of reference columns, all reference columns of the table will be included.</td>
</tr>
<tr>
<td>Left outer join</td>
<td>Checked if a left outer join should be used.</td>
</tr>
</tbody>
</table>

**Referential Constraints**

This screen lets you record and referential rules change.

A referential constraint is a connection between the data in two tables.

The registration of referential constraints is typically an activity for application developers. See the warning under Application Development [272].
The meaning of the entry fields is:

**Name**
The name of the referential constraint.

**Role**
The role of the referential constraint in case there are multiple referential constraints between two tables.

**Sort Order**
A numeric value used for sorting the referential constraints when they are shown in a list box in a screen. This functionality is not supported yet.

**From**
The application of which the from column is part of.

**Table**
The name of the table of which the from column is part of.

**Column**
The name of the column.
**Modules**

In this screen you can register and change modules.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application</td>
<td>The application of which the module is part of.</td>
</tr>
<tr>
<td>Module Language</td>
<td>The programming language of the module.</td>
</tr>
<tr>
<td>Code</td>
<td>The code used to refer to the module.</td>
</tr>
<tr>
<td>Description</td>
<td>Description of the module.</td>
</tr>
<tr>
<td>Legacy Name</td>
<td>The name of the module in an earlier stage.</td>
</tr>
<tr>
<td>Autocompleted</td>
<td>Checked if the module autocompletes missing data.</td>
</tr>
<tr>
<td>Create</td>
<td>Checked if the module must be included in the database.</td>
</tr>
</tbody>
</table>

**Module View Usage**

In this screen you can register and change modules for view usage.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module</td>
<td>The name of the module.</td>
</tr>
<tr>
<td>View</td>
<td>The view used by the module.</td>
</tr>
<tr>
<td>Autocompleted</td>
<td>Checked if the module autocompletes missing data.</td>
</tr>
<tr>
<td>Select</td>
<td>Checked in case the application user is allowed to select data via this module.</td>
</tr>
<tr>
<td>Add</td>
<td>Checked in case the application user is allowed to add data via this module.</td>
</tr>
<tr>
<td>Update</td>
<td>Checked in case the application user is allowed to update data via this module.</td>
</tr>
<tr>
<td>Delete</td>
<td>Checked in case the application user is allowed to delete data via this module.</td>
</tr>
<tr>
<td>Opzoeken</td>
<td>Checked in case the application user is allowed to lookup data via this module.</td>
</tr>
</tbody>
</table>

The meaning of the other fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>The code used to refer to the module.</td>
</tr>
<tr>
<td>Module Language Description</td>
<td>The programming language of the module.</td>
</tr>
<tr>
<td>Application</td>
<td>The application which the module is part of.</td>
</tr>
</tbody>
</table>

**Users (Invantive Producer)**

In this form you can register and change the users of Invantive Producer.

Users of Invantive Producer are different than users in Invantive Estate. You cannot log on as user of Invantive Producer. In order to do this you first need to relate a user in Invantive Estate to a user of Invantive Producer. See [Users](#).

The registration of Invantive Producer users is typically an activity for application developers. See the warning under [Application Development](#).
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Code</th>
<th>The code used to refer to the user.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Username</td>
<td>The name used to identify the user.</td>
</tr>
<tr>
<td>Name</td>
<td>The full name of the user.</td>
</tr>
</tbody>
</table>

**Roles (Invantive Producer)**

In this screen you can register and change the roles of Invantive Producer.

A role is a function within an organization (for example ‘Project Developer’) that can be performed by a person. Rights can be assigned to this role with [Role Functions](#) and next this role can be assigned to users that are going to perform the function with [User Roles](#).
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Role</td>
<td>The code of the role.</td>
</tr>
<tr>
<td>Description</td>
<td>The description.</td>
</tr>
</tbody>
</table>

**Functions (Invantive Producer)**

In this screen you can register and change the functions of Invantive Producer.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>The code of the function.</td>
</tr>
</tbody>
</table>
Description

User Roles (Invantive Producer)

In this form you can register and change the roles of Invantive Producer.

A user with a role, subsequently has all rights that belong to the role as defined in the screen Role Functions and Roles. The user roles also define which Menu Items a user could see.

When implementing Invantive Estate you can directly use the example roles included in Invantive Estate. However, it is preferred to copy these roles. Example roles can be identified by the prefix 'Example' in the role code.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Name</th>
<th>The name of the user.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Role</td>
<td>The role assigned.</td>
</tr>
</tbody>
</table>

Role Functions (Invantive Producer)

In this screen you can register and change the role authorisations of Invantive Producer.

A role authorisation is a link between a role and a screen or report. A user with this role subsequently has access to the form or report. Moreover, the user can change the data if editing rights have been granted.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Role Description</th>
<th>The role.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function</td>
<td>The function (form or report).</td>
</tr>
</tbody>
</table>

**Interactions**

In this screen you can see the interactions with Invantive Producer.

An interaction is an activity a user executes with Invantive Producer. This usually is requesting data via a screen.

With each interaction it is recorded by whom (logon code), when (point in time), in what screen (module), from which PC (machine), which action (query) was executed. Moreover, an ascending interaction number is assigned. Finally, each interaction refers to the last assigned transaction number, so that a chronological dependency between transactions and interactions can be made to determine what information was available at the time of the request. The list ends with the characteristic of the session.
There are no entry fields.

The meaning of the other fields:

- **Login**: The user name as registered in Persons.
- **Module**: The module that was used for the transaction.
- **Machine**: The Internet address of the computer that generated the transaction.
Query | The request made by the user using a query.
---|---
URL | The URL of the screen of Invantive Estate from where the interaction was requested.
Action | The SQL action that was initiated by the interaction. The actions can be 'select', 'update', 'insert' or 'delete'.
Interaction | Unique numeric code that serves as a unique index, whose value is equal to the 'column ID'.
Time | The date and time at which the interaction was requested.
Last Transaction | The number of the last transaction.
Database Session | A unique alphanumeric value that identifies the database session.

**Transactions**

In this form you can view transactions, specifically for Invantive Producer.

A transaction is a change of the data which are registered by Invantive Producer. All transactions are saved.

For each transaction is recorded by whom (username), when (time), from which form (module), from which PC (machine), what action (action) was performed in which table (table) and within which session (session). Moreover, an ascending transaction number is allocated. Finally, every transaction refers to the data which was being changed with a table reference. This is a unique number in the table, so that changed data can be traced.

There are no entry fields.

The meaning of the other fields:

- **Login** | The user name as registered in Persons.
- **Module** | The module that was used for the transaction.
- **Machine** | The Internet address of the computer that generated the transaction.
- **Table** | The name of the table in which the action was performed.
The SQL action which was started by the transaction. The actions can be 'select', 'update', 'insert' or 'delete'.

Transaction Ascending transaction number

Time The date and time the transaction was requested.

Table Reference Unique number within the table that is stored in the ID column and refers to the data that has been changed.

Database Session A unique alphanumeric value that identifies the database session.

**Settings (Invantive Producer)**

Enter text here.

**License (Invantive Producer)**

The authorization to use a computer program may be specified in a contract, a license, and often contains restrictions regarding copying the program or the number of simultaneous users that may use the program. Usually a fee is demanded for using the program by the person who owns the copyrights.

This screen allows you to activate the license of Invantive Producer.

Only the user ‘system’ can use the application as long as the license is not activated.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name Licensee</td>
<td>Name on which the license is registered.</td>
</tr>
<tr>
<td>Location</td>
<td>Location where the license is installed.</td>
</tr>
<tr>
<td>License Code</td>
<td>The license code of the application as registered by Invantive.</td>
</tr>
<tr>
<td>System Name</td>
<td>The name of the server where the database is installed.</td>
</tr>
<tr>
<td>Database</td>
<td>The name of the database on which the application is installed.</td>
</tr>
<tr>
<td>Product Name</td>
<td>The name of the application to which the license applies.</td>
</tr>
<tr>
<td>Schema</td>
<td>The name of the schema in the database used to install the tables.</td>
</tr>
<tr>
<td>Valid From</td>
<td>The beginning of the validity of the license.</td>
</tr>
<tr>
<td>Valid To</td>
<td>The end date of the validity of the license.</td>
</tr>
<tr>
<td>Key</td>
<td>The key to activate the license.</td>
</tr>
<tr>
<td>Maximum Number of Own Attribute Rules</td>
<td>The maximum number of own attribute rules that can be registered.</td>
</tr>
<tr>
<td>Maximum Number of Own Modules</td>
<td>The maximum number of project developers for which projects can be active.</td>
</tr>
<tr>
<td>Maximum Number of Own Tables</td>
<td>The maximum number of own tables that can be created.</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>------------------------------------------------------</td>
</tr>
<tr>
<td>Maximum Number of Own Views</td>
<td>The maximum number of own views that can be created.</td>
</tr>
<tr>
<td>Maximum Number of Control Users</td>
<td>The maximum number of named users for Invantive Control.</td>
</tr>
<tr>
<td>Maximum number of Query Tool users</td>
<td>The maximum number of named users for Invantive Query Tool.</td>
</tr>
<tr>
<td>Maximum Number of Developers</td>
<td>The maximum number of developers.</td>
</tr>
<tr>
<td>Maximum Number of Named Users</td>
<td>The maximum number of named users.</td>
</tr>
</tbody>
</table>

**Support Options**

| Helpdesk Number | The helpdesk number for the database. |

**Database**

| Database Purchase Order | Purchase Order from the database supplier for the database license. |
| Database Helpdesk Number | The helpdesk number for the database. |
| Database License Description | Description of the database license. |
| Database Maximum Number of Named Users | The maximum number of named users for the database. |
| Database Maximum Number of Concurrent Users | The maximum number of simultaneous users for the database. |
| Database Maximum Number of CPUs | The maximum number of processors for the database. |

**Languages (Invantive Producer)**

In this form you can register and change languages for Invantive Producer.

The registration of languages is a typical activity for developers of Invantive Producer. See the warning under [Application Development][272].
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>The code used to refer to the language. It is recommended to conform to the international language codes.</td>
</tr>
<tr>
<td>Description</td>
<td>The description of the language.</td>
</tr>
<tr>
<td>Database NLS Date Format</td>
<td>The selected date format. This should always be 'dd-mm-yyyy hh24:mi:ss'. Other date formats are not yet supported.</td>
</tr>
<tr>
<td>Database NLS Language</td>
<td>The language setting in the database which makes that database errors are displayed in the correct language.</td>
</tr>
<tr>
<td>Database NLS Territory</td>
<td>The region setting in the database which makes that region dependent settings are displayed in a correct way.</td>
</tr>
</tbody>
</table>

Module Languages

In this screen you can register and change the programming languages of modules.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Code</th>
<th>The code used to refer to the programming language.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>The description of the programming language.</td>
</tr>
</tbody>
</table>

**Codes (Invantive Producer)**

In this form you can register and change codes.

A code is a list of values that belong to a common denominator. They are widely used in application development to construct 'domains'. A domain, for example, can be used to store a list of values for a field.
Code Values (Invantive Producer)

In this screen you can register and change code values.

A code is a list of values that belong to a common denominator. They are widely used in application development to construct ‘domains’. A domain, for example, can be used to store a list of values for a field. For example the screen ‘Revenues’ shows a code list for the number of periods.

Use the screen Codes to register codes and consequently use this screen to register the individual values.

The registration of code values is a typical activity for application developers. See the warning under Application Development.

<table>
<thead>
<tr>
<th>Code</th>
<th>The code referring to the code list.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>The description of the code list.</td>
</tr>
</tbody>
</table>

The meaning of the entry fields is:

- Code: The code referring to the code list.
- Code Value: The code of the individual value, for example ‘date’.
- Description: The description of the code value, for example ‘(res.itgen_data_type_char’.
- Sort Order: A numeric value used for sorting the codes when they are shown in a list box in a screen.

Glossaries

Enter text here.
**Glossary Terms**

Enter text here.
Data model (pdf)

This report shows the data model of an application within Invantive Producer.
This report has the following optional parameters:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P_APN_CODE</td>
<td>The application about which is reported.</td>
</tr>
<tr>
<td>P_VMW_NAME_PATTERN</td>
<td>The name of the views have to satisfy this pattern for 'like'.</td>
</tr>
<tr>
<td>P_TBE_NAME_PATTERN</td>
<td>The name of the views have to satisfy this pattern for 'like'.</td>
</tr>
<tr>
<td>P_INCL_TBE_VLAG</td>
<td>Indicator Yes ('Y') / No ('N') if the tables should be included in the report.</td>
</tr>
<tr>
<td>P_INCL_VMW_VLAG</td>
<td>Indicator Yes ('Y') / No ('N') if the views should be included in the report.</td>
</tr>
<tr>
<td>P_INCL_TCN_VLAG</td>
<td>Indicator Ja ('Y') / Nee ('N') if the columns should be included in the report.</td>
</tr>
<tr>
<td>P_INCL_IDX_VLAG</td>
<td>Indicator Yes ('Y') / No ('N') if the indexes should be included in the report.</td>
</tr>
<tr>
<td>P_INCL_RCT_VLAG</td>
<td>Indicator Ja ('Y') / Nee ('N') if the referential constraints should be included in the report.</td>
</tr>
<tr>
<td>P_INCL_ARE_VLAG</td>
<td>Indicator Yes ('Y') / No ('N') if the attribut rules should be included in the report.</td>
</tr>
<tr>
<td>P_INCL_TCL_VLAG</td>
<td>Indicator Yes ('Y') / No ('N') if the short list of columns should be included in the report.</td>
</tr>
<tr>
<td>P_INCL_TBE_CONTENTS_VLAG</td>
<td>Indicator Yes ('Y') / No ('N') if the contents of trunk tables should be included in the report.</td>
</tr>
</tbody>
</table>

**Implementation (xls)**

This report shows the information necessary for the implementation of an application within Invantive Producer.
This report has the following optional parameters:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P_APN_CODE</td>
<td>The application about which is reported.</td>
</tr>
<tr>
<td>P_TCN_COL_INCL_AUDIT_FLAG</td>
<td>Indicator Yes ('Y') / No ('N') if the audit columns should be included.</td>
</tr>
<tr>
<td>P_TCN_COL_INCL_DATA_EXTENSIONS_FLAG</td>
<td>Indicator Yes ('Y') / No ('N') if the free columns should be included.</td>
</tr>
</tbody>
</table>

Tips

In this screen you can register and change tips.

Tips are instructions that show you how you can use Invantive Estate efficiently. In the screen My Preferences you can indicate if you wish to get tips after you have logged on.

The registration of tips is a typical activity for application developers. See the warning under Application Development.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Code</th>
<th>The code used to refer to the tip.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Message (HTML)</td>
<td>The text that appears when the tip is displayed. The text may be entered as HTML. The preference is to include the tip in the format of a Translation.</td>
</tr>
</tbody>
</table>

System Messages

In this form you can register and change messages.

A message is a text which is shown when an error occurs during the processing of a change. Error messages from the software use an internal error code and the message translates this internal code in a comprehensible text.

The registration of messages is a typical activity for application developers. See the warning under Application Development.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>They internal code used to refer to the message.</td>
</tr>
<tr>
<td>User Message</td>
<td>The message that will be displayed. This message will be translated with Translations.</td>
</tr>
<tr>
<td>Constraint Code</td>
<td>The database error code from the software. These error codes usually have the format ORA-99999.</td>
</tr>
</tbody>
</table>
| Constraint Name    | A part of the database error codes are provided with a reference to the exact location of the message. When translating the database error code to the message, the program will first check if the combination of constraint code and constraint name already exists:  
  - If so, the respective message will be used.  
  - If not, a general constraint code will be looked for, without a filled out constraint name. |

Background Scripts

In this screen you can register and change background scripts.

With the help of background scripts management processes and other time-consuming manual processes can be automated.

An example of a background script that automated an administrative process, is 'BUBS_EMPTY_INTERFACES'. With this script the contents of the ERP interface tables are removed.

If a background script requires parameters for processing they can be specified in the part of the screen with the name 'Script Parameters'.

The registration of background scripts is a typical activity for application developers. See the warning under Application Development[275].
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Code</th>
<th>The unique code of the script.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>The description of the script.</td>
</tr>
</tbody>
</table>
| Type of Program | The type of program, including:  
- Oracle PL/SQL; for executing database packages, ideally suited for database changes.  
- Java Class; for executing a Java program, ideally suited for executing mathematically intensive or non-database processes.  
- System Shell; for executing everything that cannot be executed as Oracle PL/SQL or Java class. |
| Required Capacity Scheduler | The required skills of the scheduler to be allowed to process background jobs based on this script. |
| # Days to Keep | The minimum amount of days after which the background jobs based on this script may be automatically removed. |
| # Versions to Keep | The minimum amount of versions after which the background jobs based on this script may be automatically removed. The oldest versions are deleted first. |
| Runs Alone | The maximum number of simultaneously running background jobs based on this script is only one, when checked. |
| Rerun on Success | A successfully completed background job based on this script will automatically start again when checked. |
| Rerun on Warning | When a background job based on this script was completed with a warning, it will automatically start again when checked. |
| Rerun on Error | When a background job based on this script was completed with an error based on this script it is automatically restarted when checked. |
| Rerun Every (sec) | The amount of time in seconds after which a background job based on this script will automatically be requested, if one of the options ‘Rerun on Success’, ‘Rerun on Warning’ and/or ‘Rerun on Error’ is checked. |
| MIME Type Output | The MIME type of the output of this script, for example ‘text/html’. |
| MIME-type Log File | The MIME type of the log output of this script, for example ‘text/html’. |
| Executable Program | The name of the executable program or the code of the script to be executed in case of Oracle PL/SQL.  
The following variables in the code are replaced by their respective values during the execution of the background script as a background process:  
- :bjb_id: ID of the background process.  
- :bjb_seq: number of the background process.  
- :sdr_code: code of the background planner.  
- :sdr_omschrijving: description of the background planner.  
- :gbr_naam: user that requested the background process. |
| Program is Expression | Indicates that the program text is a SQL expression when checked |
| Code | The unique code of the script parameters. |
| Description | Description of the script parameters. |
| Sort Order | Numerical value that determines the order in which the script parameters will appear in an entry form. |
| Required | Indicates if it is obliged to specify a value for the script parameter. |

The meaning of the other fields:

<table>
<thead>
<tr>
<th>Number of Executions</th>
<th>The total amount of finished background jobs that were based on this script.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Execution Time (sec)</td>
<td>The total time in seconds that background jobs have run, based on this script.</td>
</tr>
<tr>
<td>Minimum Execution Time (sec)</td>
<td>The minimum time in seconds that a background job has run, based on this script.</td>
</tr>
<tr>
<td>Maximum Execution Time (sec)</td>
<td>The minimum time in seconds that a background job has run, based on this script.</td>
</tr>
</tbody>
</table>

Scripts of the category ‘System Shell’ are executed with the applicable system shell (command.com for Windows 95, cmd.exe for other Windows versions and /bin/ksh for UNIX and Linux).
Codes

In this form you can register and change codes.

A code is a list of values that belong to a common denominator. They are widely used in application development to construct ‘domains’. A domain, for example, can be used to store a list of values for a field. For example the screen ‘Revenues’ shows a code list for the number of periods.

The registration of codes is a typical activity for application developers. See the warning under Application Development.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>The code referring to the code list.</td>
</tr>
<tr>
<td>Description</td>
<td>The description of the code list.</td>
</tr>
</tbody>
</table>

Code Values

In this screen you can register and change code values.

A code is a list of values that belong to a common denominator. They are widely used in application development to construct ‘domains’. A domain, for example, can be used to store a list of values for a field. For example the screen ‘Revenues’ shows a code list for the number of periods.

Use the screen Codes to register codes and consequently use this screen to register the individual values.

The registration of code values is a typical activity for application developers. See the warning under Application Development.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>The code referring to the code list.</td>
</tr>
<tr>
<td>Code Value</td>
<td>The code of the individual value, for example 'K'.</td>
</tr>
<tr>
<td>Description</td>
<td>The description of the code value, for example 'Costs'.</td>
</tr>
<tr>
<td>Sort Order</td>
<td>A numeric value used for sorting the codes when they are shown in a list box in a screen.</td>
</tr>
</tbody>
</table>

The meaning of the other fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>The description of the code list.</td>
</tr>
</tbody>
</table>

**Reporting Units**

In this screen you can register and change reporting units.

A reporting unit is a constant number, used to divide amounts in reports. Often reports contain large numbers, and small details are not important. By using another reporting unit, such amounts can be expressed, for example, in millions.

The registration of reporting units is a typical activity for application developers. See the warning under Application Development [273].
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>The code used to refer to the reporting unit.</td>
</tr>
<tr>
<td>Description</td>
<td>The description. Typical descriptions consist of the multiplication factor according to the ISO system (K for 1.000, M for 1.000.000), followed by the currency unit (EUR, USD). For multi-language purposes, the program usually refers to a 'resource'. This resource will be translated during the execution of the application. A resource has the format left accolade, 'res:' followed by a key which must reoccur in the screen and is closed with a right accolade, ‘Translators { and ends with ’}.</td>
</tr>
<tr>
<td>Sort Order</td>
<td>A numeric value on which the reporting units are sorted when they are shown in a list box in a screen.</td>
</tr>
<tr>
<td>Divider</td>
<td>The constant by which the amounts in reports are divided in order to end up with a report with this type of reporting unit.</td>
</tr>
</tbody>
</table>
| Presentation mask | A pattern that describes how the amount must be displayed after division by the 'divider'. The presentation mask consists of a number of characters, of which each character describes exactly one character in the presentation. The following characters are possible in the presentation mask:
- G: the grouping character (in Europe this is a point ’’).  
- D: the decimal character (in Europe this is a comma ’’).  
- 9: the number at this position before or after the comma, in case before the number at least one other number is placed other than 0.  
- 0: the number at this position before or after the comma.  
A presentation mask ‘990D 00’ gives the following results: ‘12.3’ will become ‘12.30’ ‘0’ becomes ‘0.00’ |

Monetary Units

This screen allows you to record and change currencies.

Registering monetary units is a typical activity for application developers. See the warning under Application Development.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>The ISO 4217 currency code. This is the international standard that defines three-letter codes for currencies.</td>
</tr>
<tr>
<td>Description</td>
<td>The description of the code.</td>
</tr>
<tr>
<td>Presentation Symbol</td>
<td>Defines the character which is used as a currency symbol. Some currencies do not have their own character. In that case, often the symbol ‘¤’ is used.</td>
</tr>
</tbody>
</table>
| Presentation mask | A pattern that describes how the amount must be displayed after division by the ‘divider’. The presentation mask consists of a number of characters, of which each character describes exactly one character in the presentation. The following characters are possible in the presentation mask:  
  - G: the grouping character (in Europe this is a point ‘.’).  
  - D: the decimal character (in Europe this is a comma ‘,’).  
  - 9: the number at this position before or after the comma, in case before the number at least one other number is placed other than 0.  
  - 0: the number at this position before or after the comma.  
  A presentation mask ‘990D00’ gives the following results:  
  - ‘12.3’ will become ‘12.30’  
  - ‘0’ will become ‘0.00’ |

**Countries**

this form you can register and change countries.

The registration of countries is a typical activity for application developers. See the warning under [Application Development](#).
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Code</th>
<th>The two letter code of the country according to ISO 3194.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>The name of the country.</td>
</tr>
<tr>
<td>ISO-Land Number</td>
<td>Unique country number according to ISO 3166.</td>
</tr>
<tr>
<td>ISO-Land Code 3</td>
<td>Unique three letter country codes according to ISO 3166.</td>
</tr>
<tr>
<td>Sort Order</td>
<td>Indicates the position of a country when a country is displayed in a list box.</td>
</tr>
</tbody>
</table>

**Reporting Time Units**

In this screen you can register and change reporting time units.

A reporting time unit is a breakdown of time-dependent data in a time range.

The registration of reporting time units is a typical activity for application developers. See the warning under Application Development [here].
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>The code used to refer to the reporting time unit.</td>
</tr>
<tr>
<td>Description</td>
<td>The description.</td>
</tr>
<tr>
<td>Sort Order</td>
<td>A numeric value on which the reporting time units are sorted when they are shown in a list box in a screen.</td>
</tr>
</tbody>
</table>
| Presentation mask | A pattern describing how a date must be shown. The presentation mask consists of a number of characters, of which each character describes exactly one character in the presentation. The following characters are possible in the presentation mask:  
  - 'YYYY': the year in four figures.  
  - 'MM': the number of the month in two digits.  
  - 'DD': the number of the day in two digits.  
  - 'YY': the last two digits of the year.  
  - 'RR': The last two digits of the year. The first 2 digits of the year will be determined by the current date of the database server and the figures provided. Four rules will be applied:  
    - If the provided year is between 00 and 49 and the current year is between 00 and 49, the century will be the same as the current century. For example, if the provided year is 15 and the current year is 2005, the result will be 2015.  
    - If the provided year is between 50 and 99 and the current year is between 00 and 49, the century is the current century minus one. For example, if the provided year is 75 and the current year is 2005, the result will be 1975.  
    - If the provided year is between 00 and 49 years and the current year is between 50 and 99, the century is the same as the current century. For example, if the provided year is 55 and the current year is 2075, the result will be 2055.  
    - 'RRR': The year in four-digits whereby the first 2 digits of the year will be determined with the current date on the database server and the figures provided. Four rules will be applied (see 'RR').  
  - 'W': The week number of the year based on the ISO 8601 standard.  
  - etc. (see SQL language reference Oracle). |

LOV Cache

In this screen you can register and change values for the lov-cache. The 'list of values'-cache contains translated choice list values.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domain Code</td>
<td>Reference to a domain code as registered in view BUBS_CODES_V.CDE_CODE.</td>
</tr>
<tr>
<td>Domain Value Code</td>
<td>Reference to a domain value code as registered in BUBS_CODE_VALUES_V.CWE_CODE.</td>
</tr>
<tr>
<td>Untranslated Value</td>
<td>Reference to an untranslated value as registered in BUBS_CODE_VALUES_V.CWE_DESCRIPTION.</td>
</tr>
<tr>
<td>Translated Value</td>
<td>Translation based on the language and the untranslated value.</td>
</tr>
<tr>
<td>Language</td>
<td>Reference to a language code as registered in BUBS LANGUAGES_V.TAL_CODE.</td>
</tr>
<tr>
<td>Key</td>
<td>Key Value as registered in BUBS_CODE_VALUES.</td>
</tr>
<tr>
<td>Sort Order</td>
<td>A numeric value where the translated values are sorted if several are shown in a choice list.</td>
</tr>
</tbody>
</table>

Languages

In this form you can register and change languages.

The registration of languages is a typical activity for application developers. See the warning under [Application Development](#).
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Code</th>
<th>The code used to refer to the language. It is recommended to conform to the international language codes as registered in ISO 639.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>The description of the language.</td>
</tr>
<tr>
<td>Usable In User Interface</td>
<td>If checked, the language can be used in the user interface.</td>
</tr>
<tr>
<td>Database</td>
<td>The language setting in the database which makes that database errors are displayed in the correct language.</td>
</tr>
<tr>
<td>NLS Language</td>
<td>The region setting in the database which makes that region dependent settings are displayed in a correct way.</td>
</tr>
<tr>
<td>NLS Date Format</td>
<td>The desired date format of the database. This should always be ‘dd-mm-yyyy hh24:mm:ss’.</td>
</tr>
</tbody>
</table>
Translations

In this form you can register and change translations.

he registration of translations is a typical activity for application developers.. See the warning under Application Development.

The meaning of the entry fields is:

- **Language**: The language of the translation.
- **Key**: The unique identification of the translation. This key word is also used in the resource for...
<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Include in Resources</td>
<td>The term included in the translation list when checked. This translation list is used as a ‘translation memory’ in the translation of this manual for example.</td>
</tr>
<tr>
<td>Include in Glossary</td>
<td>The term is included in the translation list for support of translators when checked.</td>
</tr>
<tr>
<td>Translation</td>
<td>The translation of the keyword in the selected language. You can use \ u, followed by a hexadecimal number of four positions to enter special characters.</td>
</tr>
</tbody>
</table>

**Workbench Translations**

In this screen you can maintain translations online.

Online maintenance of translations is a typical activity for application developers. See the warning under [Application Development](#).
The meaning of the entry fields is:

**Target translation** The translation of the source translation.

The meaning of the other fields:

**Target language** The language to which the source language will be translated.

**Key** The unique identification of the translation. This key word is also used in the resource formats between `{res:` and `}`.

**Translation is outdated** If checked, there is a more recent translation available.

**Translation Missing** If checked, the source text is not translated.

**Source Translation** The text to be translated to the target language.
MIME Types

In the following screen MIME types can be recorded and changed.

The MIME specification (Multipurpose Internet Mail Extensions) was proposed in 1992 to ensure that non-ASCII files could be sent by email. Because the ASCII standard consists of the standard Western European and American characters, it could not be used for images or other material. Today, the MIME specification is also used by the HTTP protocol to present all kinds of files in web pages.

![Image of MIME Types screen]

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Code</th>
<th>The code of the MIME type.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>The description of the MIME type.</td>
</tr>
</tbody>
</table>

The MIME types are used to link file extensions to MIME types. In this way you can determine a MIME type even in the absence of the correct MIME type.

The registration of MIME types is a typical activity for application developers. See the warning under Application Development.

Extensions

This screen allows you to record and change extensions.

A file extension is an addition to the end of a filename indicating what type of file it is. This extension consists of one or more letters (usually three) after the last point in the name. For example, in the filename 'contract.doc' is '.doc' the file extension.

File extensions are used in most computer operating systems to enable the computer to determine the type of a file in order to start the appropriate program to open the file with.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Code</th>
<th>The code of the extension.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>The description of the extension. For example, with which program the extension can be opened or the function of files with this extension.</td>
</tr>
<tr>
<td>MIME Type</td>
<td>Reference to the MIME Type as registered in [MIME Types](MIME Types)</td>
</tr>
</tbody>
</table>

**Cash Flow Projection Methods**

In this screen you can register and change cash flow projection methods.

To have profit as objective and as a basis for decision making in a project, has the disadvantage, that no account is taken of time preference and risk. An alternative is to think in the present value of the future cash flows of the project. In this screen the desired cash flow projection methods can be entered with which the present value of future cash flows can be calculated.

Cash flow projections can be calculated for sub- and independent projects, but not for master projects.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Sort Order</th>
<th>PL/SQL Script</th>
<th>PL/SQL Script Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The code used to refer to the cash flow projection method.</td>
<td></td>
<td>The number used to sort cash flow projection methods in 'drop boxes'.</td>
<td>The PL/SQL-script used to calculate the cash flow projection method.</td>
</tr>
</tbody>
</table>

Note: cash flow projections can be used for cash flows, invoice flows, revenue flows and other distributions of amounts over time.

**Aggregation Methods**

In this screen you can register and edit aggregation methods.

An aggregation method is an allocation of days in a time range in summaries. An example:

- Today: today.
- Last week: 1 till 7 days ago.
- Last month: 1 till 30 days ago.
- etc.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>The code with which is referred to the aggregation method.</td>
</tr>
<tr>
<td>Description</td>
<td>The description of the aggregation method.</td>
</tr>
<tr>
<td>#Units</td>
<td>The number of units to be aggregated.</td>
</tr>
<tr>
<td>Unit of Time</td>
<td>The time unit over which the aggregation takes place.</td>
</tr>
<tr>
<td>Label Expression</td>
<td>SQL expression that calculates the first day in the period. All variables of type <code>: start_date</code> will be replaced by the first day in the period. They are summed for all times after the previous period specification. For example:</td>
</tr>
<tr>
<td></td>
<td>- 2 days --&gt; day 0 till 2.</td>
</tr>
<tr>
<td></td>
<td>- 7 days --&gt; day 2 till 7.</td>
</tr>
<tr>
<td></td>
<td>- 1 month --&gt; day 7 till the end of the month which contains day 7.</td>
</tr>
</tbody>
</table>

Repeat Generators

In this screen you can register and change repeat generators.

With a repeat generator you can start events which should be initiated after the expiration of a specified time interval.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>The code used to refer to the repeat generator.</td>
</tr>
<tr>
<td>Description</td>
<td>The description of the repeat generator.</td>
</tr>
<tr>
<td>PL/SQL Function</td>
<td>The name of the PL/SQL function that calculates the next date using the last date and the repeat generator code.</td>
</tr>
<tr>
<td>PL/SQL Function Previous</td>
<td>The name of the PL/SQL function that calculates the previous date using the last date and the repeat generator code.</td>
</tr>
<tr>
<td>Explanation</td>
<td>Possible explanation.</td>
</tr>
</tbody>
</table>

1.2.9 Messages

In this form you can register and change messages.

A message is an asynchronous exchange of information, for example, by email.

If a message is delivered by e-mail, then you can find the following fields in the headers of the e-mail:

- **X-Priority**: priority, described of the Invantive priority where 0 is neutral to SMTP priority where 3 is neutral.
- **X-Mailer**: site identification.
- **X-Invantive-ID**: number of the message.
- **X-Invantive-Tries**: number of tries of the message.
- **X-Invantive-Send-Delay**: time passed between the recording of the message and the actual sending.
- **X-Invantive-Recipient**: recipient of the message as it has been requested to the e-mail server.
- **X-Invantive-Table-Code**: source of the message.
- **X-Invantive-Table-ID**: linking-ID of the message.
- **X-Invantive-Category**: category of the message.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>The unique number that identifies the message.</td>
</tr>
<tr>
<td>Category</td>
<td>Message Category is used for deleting double messages or for sending only the last message of a specific category for an object ID.</td>
</tr>
<tr>
<td>Priority</td>
<td>Numeric value for the priority that this message should be processed. Zero means neutral, negative means bulk and positive means urgent.</td>
</tr>
<tr>
<td>Finished</td>
<td>The message is processed when this box is checked.</td>
</tr>
<tr>
<td>Translate Subject</td>
<td>When checked, the subject of the message will be translated to the specified language before delivery.</td>
</tr>
<tr>
<td>Translate Content</td>
<td>The message will be translated when checked.</td>
</tr>
<tr>
<td>Recipient</td>
<td>Email address of the recipient.</td>
</tr>
<tr>
<td>Name of Recipient</td>
<td>The name of the recipient.</td>
</tr>
<tr>
<td>Sender</td>
<td>Email address of the sender of the message.</td>
</tr>
<tr>
<td>Name of Sender</td>
<td>The name of the sender.</td>
</tr>
<tr>
<td>Subject</td>
<td>The subject of the message.</td>
</tr>
<tr>
<td>MIME Type</td>
<td>The <a href="#">MIME type</a> of the message, for example 'text/html'.</td>
</tr>
<tr>
<td>Language</td>
<td>Reference to a language, used for the translation, as registered in Languages.</td>
</tr>
<tr>
<td>Last Message</td>
<td>The last message that occurred in an attempt to process the message.</td>
</tr>
<tr>
<td>Date First Try</td>
<td>Point in time at which the first attempt has taken place to process the message.</td>
</tr>
</tbody>
</table>
1.2.10 User Messages

Here, personal messages to a user entered. These messages are displayed after the user has logged on.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sequence</td>
<td>The unique number of the message.</td>
</tr>
<tr>
<td>User</td>
<td>The name of the user who received the message.</td>
</tr>
<tr>
<td>Do not Show After</td>
<td>After this date, the message will not appear anymore.</td>
</tr>
<tr>
<td>Message (HTML)</td>
<td>The HTML code of the message. The HTML code may also contain resource strings like</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th><strong>Message (text)</strong></th>
<th>The text of the message. The message may also contain resource strings like {res:bubs_code}. These resource strings are shown to the user in the correct language.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Show n</strong></td>
<td>Indicator which shows if the message already has been shown.</td>
</tr>
</tbody>
</table>

### 1.2.11 System Checks

If a user logs on as ‘Application Manager’ (see Settings) or as ‘System’, Invantive Estate will perform several system checks. If these system checks generate errors, a popup window will appear asking to go to the screen ‘System Checks’.

The current versions of Invantive Estate runs three system checks:

- In the first check verifies if all files are present and checks if the file names contain no special characters.

- The second check verifies if the URL in the browser is similar to the one in the Settings. If you check the box ‘Execute Proposed Action’ and subsequently click on ‘Save’, then the settings are automatically adjusted. For example, this functionality is useful if you have made a copy of an existing environment on a new location.

- The third check verifies whether the stored and real-time contract positions match.
The meaning of the entry fields is:

| Execute Proposed Action | If checked, the ‘proposed action’ will be executed when you click ‘Save Change’. Not in all cases is it possible to execute the ‘proposed action’ automatically and manual actions will be required. An error message appears if you check the box and click on ‘Save Change’ when manual actions are necessary. |

The meaning of the other fields:

<table>
<thead>
<tr>
<th>Code</th>
<th>The code of the system check.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Component</td>
<td>The part of the application where the code relates to.</td>
</tr>
<tr>
<td>Failure</td>
<td>If checked this indicates that a malfunction occurs within the application.</td>
</tr>
<tr>
<td>Explanation Problem</td>
<td>An explanation of the occurring problem.</td>
</tr>
<tr>
<td>Explanation Importance</td>
<td>An explanation of the importance of the problem.</td>
</tr>
<tr>
<td>Proposed Action</td>
<td>Proposal to solve the problem.</td>
</tr>
</tbody>
</table>

1.2.12 Settings

In this form you can register and change settings.

It may take up to 30 seconds until a change of a setting becomes effective. If you want to avoid this, restart the web server.

The settings apply to the entire application and all users.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>In each screen this text will appear in the footer. In this footer you can use HTML codes, such as <code>&lt;b&gt;</code> for bold printed text. See, for example, <a href="http://www.blooberry.com/indexdot/html">http://www.blooberry.com/indexdot/html</a> for more information.</td>
</tr>
<tr>
<td>Retention Period Jobs (days)</td>
<td>The minimum number of days that the ERP jobs and the associated messages are preserved.</td>
</tr>
<tr>
<td>Retention Period Messages (days)</td>
<td>The minimum number of days that messages are kept before being automatically deleted. Relieving the server can cause that the realized retention period of messages is longer than the indicated retention period. However, the realized retention period will never be shorter.</td>
</tr>
<tr>
<td>Documents Folder on Server</td>
<td>The folder on the server in which attached documents are stored. Do mind: both the web server and the database must have write permissions for this!</td>
</tr>
<tr>
<td>Documents Load Folder on Server</td>
<td>The folder on the server in which attached documents are temporarily stored until they can be moved to the document folder after being fully received. Do mind: both the web server and the database of Invantive Estate must have write permissions for this!</td>
</tr>
<tr>
<td>Documents Recycle Bin Folder on Server</td>
<td>The folder on the server in which the attached documents are stored after being deleted. The administrator can choose to delete the documents from the recycle bin after a short or long period of time. Do mind: both the web server and the database of Invantive Estate must have write permissions for this!</td>
</tr>
<tr>
<td>Maximal Document Size (KB)</td>
<td>The maximum size of the new documents in kilobytes.</td>
</tr>
<tr>
<td>Mail Server via SMTP</td>
<td>The name or the address of the SMTP mail server with which outgoing email messages can be sent.</td>
</tr>
<tr>
<td>Email Address Sender</td>
<td>The email address from where sent emails originate.</td>
</tr>
<tr>
<td>Name of Sender</td>
<td>The name of the sender.</td>
</tr>
<tr>
<td>Email Address Dealer</td>
<td>The email address of the dealer of Invantive Estate.</td>
</tr>
<tr>
<td>Proxy Server</td>
<td>The Internet address of the proxy server. A proxy server is a server located between a user's computer and the computer containing the requested information by the user (the English word proxy means 'intermediary'). If someone on a computer, where the address of a proxy server is set, is trying to reach another computer, then this will not be done directly but via the proxy server. The goal of this intermediate step depends on the type of proxy server.</td>
</tr>
<tr>
<td>Proxy Port</td>
<td>The computer port that the client computer uses to connect with the proxy server.</td>
</tr>
<tr>
<td>Domains not through Proxy</td>
<td>Domains that do not make contact via the proxy server.</td>
</tr>
<tr>
<td>Interval between Message Delivery Retry (sec)</td>
<td>Outgoing messages are queued. In case delivering a message fails, it is tried again after the interval, until it is processed successfully.</td>
</tr>
<tr>
<td>Number of Days Anniversaries to be Shown</td>
<td>Indicates the number of days in the future that anniversaries are displayed after logging in in Invantive Estate.</td>
</tr>
<tr>
<td>Organization</td>
<td>The organization for which the application runs.</td>
</tr>
<tr>
<td>Application Administrator</td>
<td>The name of the person responsible for application management. This name is displayed for information on several locations within the application.</td>
</tr>
<tr>
<td>Purchasing Conditions</td>
<td>The standard conditions of purchase applicable to purchases.</td>
</tr>
<tr>
<td>Selling Conditions</td>
<td>The standard selling conditions applicable to sales.</td>
</tr>
<tr>
<td><strong>VAT Code</strong></td>
<td>VAT is within Invantive Estate automatically calculated using a VAT code. The standard VAT code can be selected here.</td>
</tr>
<tr>
<td>--------------</td>
<td>---------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Allow Budget Movements Across Master Rollup Cost Categories</strong></td>
<td>If this box is checked it is allowed to move budgets across Master Rollup Cost Categories in the screen Budget Movements.</td>
</tr>
<tr>
<td><strong>Check Existence of URL</strong></td>
<td>If this box is checked, the existence of the specified URL will be checked when logging in.</td>
</tr>
<tr>
<td><strong>Explanation</strong></td>
<td>Possible explanation.</td>
</tr>
<tr>
<td><strong>Database</strong></td>
<td>Unique prefix per Invantive Estate environment in the database. Often 'P_' is used for production and 'A_' for acceptance.</td>
</tr>
<tr>
<td><strong>PL/SQL Profiling</strong></td>
<td>When checked, all software written in PL/SQL will be profiled. See PL/SQL Profiling.</td>
</tr>
<tr>
<td><strong>Log Business Rules</strong></td>
<td>When checked, a print about the execution of a business rule will be sent to the 'dbms_output'.</td>
</tr>
<tr>
<td><strong>PL/SQL Report Function for URL Authentication</strong></td>
<td>Name of the PL/SQL function that provides data authentication for p_user_name and p_password to make it possible to download URL's from subfunctions.</td>
</tr>
<tr>
<td><strong>PL/SQL Function for PDF Watermark</strong></td>
<td>The name of the PL/SQL function that determines watermark or letterhead for reports and documents in PDF format. The parameters have to be equal to the parameters of the supplied PL/SQL function bubs_get_pdf_watermark. See also Report Building.</td>
</tr>
<tr>
<td><strong>PL/SQL Function for Report Location</strong></td>
<td>The name of the function that determines the location of the reports and the ETL-scripts. This PL/SQL function returns the location of a report and ETL script if at another place to be searched than the default location. This function is used to store custom reports to a different place so they do not need to be installed again after an upgrade. An example:</td>
</tr>
</tbody>
</table>

```
create or replace function bubs_get_report_location
(p_master_report_name varchar2 /* Example: bubs_arf */
, p_mime_type varchar2 /* Example: application/pdf */
, p_parameter_list varchar2 /* Example: {REPORT_LOCALE=nl_NL...} */
, p_user_friendly_name varchar2 /* Example: Functies per Rol (PDF) */
, p_uri varchar2 /* Example: /usr_gle_bubs/bubs_arf_pdf_rpt.do */
, p_user_name varchar2 /* Example: system */
, p_report_name varchar2 /* Example: bubs_arf, can differ when using subfunctions. */
)
return varchar2
is
/*
 * $Id: bubs_isg_all.xml,v 1.35 2009-11-20 21:32:40 jen Exp $
 * (C) Copyright 2004-2012 Invantive Software BV, the Netherlands. All rights reserved.
 * Function to get a different location from which to load a report.
```
```
* Especially useful to load files from /local.
* /
begin
  return '';
end;
/*
```

<table>
<thead>
<tr>
<th><strong>PL/SQL function for Connection Name</strong></th>
<th>Name of the PL/SQL function that specifies the name of the connection for a report.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th><strong>PL/SQL function for Pre-report trigger</strong></th>
<th>Name of the PL/SQL function that returns 'Y' if the connection of the report supports 'pre-report events'.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th><strong>PL/SQL function for Post-report trigger</strong></th>
<th>Name of the PL/SQL function that returns 'Y' if the connection of the report supports 'post-report events'.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th><strong>PL/SQL function for System Compliant Report</strong></th>
<th>Name of the PL/SQL function that returns 'Y' if the connection of the report supports Invantive Estate JDBC-driver.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th><strong>Data security</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>All Projects Visible</strong></td>
<td>When this field is checked, every user will be able to see all projects.</td>
</tr>
<tr>
<td><strong>All Projects Editable</strong></td>
<td>When this field is checked, each user can edit all projects when having edit rights in the screen.</td>
</tr>
<tr>
<td><strong>Audit Interaction</strong></td>
<td>This permits to set the auditing of interactions on/off. Disabling the auditing of interactions increases the performance of the system. To make the changed setting to become active you need to restart the web server.</td>
</tr>
<tr>
<td><strong>Audit Transactions</strong></td>
<td>This permits to set the auditing of transactions on/off. Disabling the auditing of transactions increases the performance of the system. To make the changed setting to become active you need to restart the web server.</td>
</tr>
<tr>
<td><strong>Close Inactive Connection After (sec)</strong></td>
<td>Indicates how many seconds after user inactivity via the web front end the connection will be broken.</td>
</tr>
<tr>
<td><strong>Show Warning on Upcoming Closing due to Inactivity (sec)</strong></td>
<td>Indicates after how many seconds the warning appears that the connection will be broken due to inactivity of the user via the web front end. Between the warning and the disconnection there is usually a time lag of a few hundred seconds.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Prognosis Model</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Automatically Create Contract Budget of 0</strong></td>
<td>When checked, when using a new contract automatically a contract budget of zero will be created if no contract budget exists.</td>
</tr>
<tr>
<td><strong>Explanation on Automatically Created Contract Budget</strong></td>
<td>The explanation that is added to a contract budget in the event a contract budget is automatically created.</td>
</tr>
<tr>
<td><strong>Release Balance on Automatically Created Contract Budget</strong></td>
<td>A budgetary surplus is used to compensate for shortages on automatically created contract budgets when this is checked.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>-------------</td>
</tr>
<tr>
<td>Automatically Create contract budget for Remaining Cost Category Budget</td>
<td>When checked, a remaining cost category budget is automatically created when using a new contract.</td>
</tr>
<tr>
<td>Notes for Automatically Created Contract Budgets for Remaining Cost Category Budget</td>
<td>The explanation that is added to a contract budget in the event a contract budget is automatically created for a remaining cost category.</td>
</tr>
<tr>
<td>Contract for Remaining Cost Category Budget</td>
<td>Identification of the contract for the remaining cost category budget. This identification can be a number, letters or a combination of both.</td>
</tr>
<tr>
<td>Release Deviation for Automatic Contract Budget for Remaining Cost Category Budget</td>
<td>A budgetary surplus is used to compensate for shortages on automatically created for remaining cost category budgets when this is checked.</td>
</tr>
<tr>
<td>General Ledger</td>
<td></td>
</tr>
<tr>
<td>Monetary Unit</td>
<td>The currency unit used by the general ledger.</td>
</tr>
<tr>
<td>Expression Period (SQL)</td>
<td>The SQL expression that delivers the period to the general ledger based on posting date.</td>
</tr>
<tr>
<td>Layout</td>
<td></td>
</tr>
<tr>
<td>Company Name (short)</td>
<td>The company name which will be printed on the reports when little space is available on the pages.</td>
</tr>
<tr>
<td>Company Name (long)</td>
<td>The company name which will be printed on the reports when plenty space is available on the pages.</td>
</tr>
<tr>
<td>Logo on Reports (URL)</td>
<td>The URL being used to show the logo on the reports. This URL will be searched from the application server because the report is generated on the application server.</td>
</tr>
<tr>
<td>Footer Logo on Reports</td>
<td>Footer Logo shown on Reports.</td>
</tr>
<tr>
<td>Logo on Displays (URL)</td>
<td>The URL being used to show the logo on the screens. This URL will be searched from the user’s PC.</td>
</tr>
<tr>
<td>Vvoorvoegsel Server (URL)</td>
<td>The path to find the application, in the format of a URL.</td>
</tr>
<tr>
<td>Main Menu (URL)</td>
<td>The URL that will be used to specify the main menu in the event the field ‘Start page (URL)’ in My Preferences is empty. The URL will be requested with the parameter MNU_CODE = Main. The URL will be searched from the user’s PC.</td>
</tr>
<tr>
<td>Splash (URL)</td>
<td>The URL used to find the image of the login screen. See also Start up and Login. The URL will be searched from the user’s PC.</td>
</tr>
<tr>
<td>Title (HTML)</td>
<td>The application’s title as shown on the login screen. See also Start up and Login.</td>
</tr>
<tr>
<td>Company Logo (URL)</td>
<td>The URL used to put the company logo on letter paper, such as for time registration.</td>
</tr>
<tr>
<td>Screen CSS (URL)</td>
<td>The URL of a CSS style sheet used to determine the color scheme and style elements.</td>
</tr>
<tr>
<td>Handheld CSS (URL)</td>
<td>The URL of a CSS style sheet used to determine the color scheme and style elements on a PDA or any other mobile device.</td>
</tr>
<tr>
<td>Print CSS (URL)</td>
<td>The URL of a CSS style sheet used to determine the color scheme and style elements on a print.</td>
</tr>
<tr>
<td>Parameter</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Prefix Background Output File</td>
<td>The prefix for the file name of the output file of a background job.</td>
</tr>
<tr>
<td>Postfix Background Output File</td>
<td>The postfix for the file name of the output file of a background job.</td>
</tr>
<tr>
<td>Prefix Background Log File</td>
<td>The prefix for the file name of the log file of a background job.</td>
</tr>
<tr>
<td>Postfix Background Log File</td>
<td>The postfix for the file name of the log file of a background job.</td>
</tr>
<tr>
<td>Payoff Company (Input with Layout)</td>
<td>The payoff of the company for use on letter paper, directly below the logo,</td>
</tr>
<tr>
<td></td>
<td>used, for example, for time registration. See Input with Layout for layout</td>
</tr>
<tr>
<td></td>
<td>possibilities.</td>
</tr>
<tr>
<td>Footer (Input with Layout)</td>
<td>The footer's layout for use on the bottom of letter paper, used, for example,</td>
</tr>
<tr>
<td></td>
<td>for time registration. See Input with Layout for layout possibilities.</td>
</tr>
<tr>
<td>Company Address (Input with Layout)</td>
<td>The company address' layout under the payoff and the logo for use on letter</td>
</tr>
<tr>
<td></td>
<td>paper, used, for example, for time registration. See Input with Layout</td>
</tr>
<tr>
<td></td>
<td>for layout possibilities.</td>
</tr>
<tr>
<td>Local HTML Head</td>
<td>With local HTML you can change the layout of the screen. In this case, it</td>
</tr>
<tr>
<td></td>
<td>concerns the section above the head of the screen.</td>
</tr>
<tr>
<td></td>
<td>The following parameters can be used:</td>
</tr>
<tr>
<td></td>
<td>• :productname: the name of the used product, for example 'Invantive Vision'</td>
</tr>
<tr>
<td></td>
<td>• :userid: the preferred telephone number of the user, for example '088 0026500'</td>
</tr>
<tr>
<td></td>
<td>• :siteid: the unique identification of the installation, for example 'L123-ACME'</td>
</tr>
<tr>
<td></td>
<td>• :useremail: the e-mail address of the user, for example '<a href="mailto:j.doe@acme.com">j.doe@acme.com</a>'</td>
</tr>
<tr>
<td></td>
<td>• :userlogon: the login code of the user, for example 'j.doe'</td>
</tr>
<tr>
<td></td>
<td>• :username: the name of the user, for example 'John Doe'</td>
</tr>
<tr>
<td></td>
<td>• :language: the language in which the user operates, for example 'nl' for</td>
</tr>
<tr>
<td></td>
<td>Dutch.</td>
</tr>
<tr>
<td></td>
<td>• :locale: the region code of the language in which the user operates, for</td>
</tr>
<tr>
<td></td>
<td>example 'UK' for Great Britain.</td>
</tr>
<tr>
<td>Local HTML Header</td>
<td>With local HTML you can change the layout of the screen. In this case, it</td>
</tr>
<tr>
<td></td>
<td>concerns the head section of the screen. You can use the same parameters as</td>
</tr>
<tr>
<td></td>
<td>with 'Local HTML Above Head'.</td>
</tr>
<tr>
<td>Local HTML Footer</td>
<td>With local HTML you can change the layout of the screen. In this case, it</td>
</tr>
<tr>
<td></td>
<td>concerns the foot section of the screen. You can use the same parameters as</td>
</tr>
<tr>
<td></td>
<td>with 'Local HTML Above Head'.</td>
</tr>
<tr>
<td>Default Preferences New User</td>
<td>The setting for language in the context of new users. See My Preferences</td>
</tr>
<tr>
<td>Financial Unit Reporting</td>
<td>The settings for financial unit reporting in the context of new users.</td>
</tr>
<tr>
<td></td>
<td>See My Preferences</td>
</tr>
<tr>
<td>Time Unit Reporting</td>
<td>The setting for time unit reporting in the context of new users.</td>
</tr>
<tr>
<td></td>
<td>See My Preferences</td>
</tr>
<tr>
<td>Records per Page</td>
<td>The number of rows in the Search Results is shown for new users.</td>
</tr>
<tr>
<td>Merge Sub-projects</td>
<td>The settings in the filter of new users for merging subprojects for reporting</td>
</tr>
<tr>
<td></td>
<td>purposes. See My Preferences</td>
</tr>
<tr>
<td>Receive New Sletter</td>
<td>When checked, the user will receive the new sletter of the dealer. A message</td>
</tr>
<tr>
<td></td>
<td>will be sent to the dealer with the request to subscribe you to the new</td>
</tr>
<tr>
<td></td>
<td>sletter. There are no charges. Besides your email address also your name</td>
</tr>
<tr>
<td></td>
<td>will be passed on.</td>
</tr>
<tr>
<td>Show Tips</td>
<td>When checked, after you log on, tips for using Invantive Estate will be</td>
</tr>
<tr>
<td></td>
<td>shown.</td>
</tr>
<tr>
<td>Show Anniversaries</td>
<td>When checked, after you log on, the near birthdays of users of Invantive</td>
</tr>
<tr>
<td></td>
<td>Estate are shown.</td>
</tr>
<tr>
<td>Main Menu (URL)</td>
<td>The URL used to determine the main menu. This URL will be requested with the</td>
</tr>
<tr>
<td></td>
<td>parameter MN Cuộc_CODE=Main. The URL will be searched from the user's PC.</td>
</tr>
<tr>
<td></td>
<td>Using the field 'Start page (URL)' in the screen, the user can specify a</td>
</tr>
<tr>
<td></td>
<td>different start page if desired.</td>
</tr>
<tr>
<td>Start Date</td>
<td>The settings for starting date reporting in the context of new users.</td>
</tr>
<tr>
<td></td>
<td>See My Preferences</td>
</tr>
<tr>
<td>End Date</td>
<td>The settings for end date reporting in the context of new users. See My</td>
</tr>
<tr>
<td></td>
<td>Preferences</td>
</tr>
</tbody>
</table>

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## Default Settings New Users

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
<th>See: My Preferences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use Encryption</td>
<td>The settings for encryption in the context of new users.</td>
<td></td>
</tr>
<tr>
<td>Password Owner</td>
<td>The settings for the password of the owner in the context of new users.</td>
<td></td>
</tr>
<tr>
<td>Password User</td>
<td>The settings for the password of the user in the context of new users.</td>
<td></td>
</tr>
<tr>
<td>Allow Printing</td>
<td>The setting of allow printing in the context of new users.</td>
<td></td>
</tr>
<tr>
<td>Allow Copying</td>
<td>The setting of allow copying in the context of new users.</td>
<td></td>
</tr>
<tr>
<td>Allow Modifying</td>
<td>The setting of allow modifying in the context of new users.</td>
<td></td>
</tr>
<tr>
<td>Allow Annotating</td>
<td>The setting of allow annotating in the context of new users.</td>
<td></td>
</tr>
<tr>
<td>Allow Fill In</td>
<td>The setting of allow fill in, in the context of new users.</td>
<td></td>
</tr>
<tr>
<td>Enable Screen Reader Options</td>
<td>The setting of enable screen reader options in the context of new users.</td>
<td></td>
</tr>
</tbody>
</table>

## Microsoft Excel Settings

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Read-only</td>
<td>If this box is checked, then the authorized user, can only read the Excel file. However, no changes can be made.</td>
</tr>
<tr>
<td>Change Password</td>
<td>The password of the Excel files necessary to change them.</td>
</tr>
</tbody>
</table>

### 1.2.13 License

The authorization to use a computer program may be specified in a contract, a license, and often contains restrictions regarding copying the program or the number of simultaneous users that may use the program. Usually a fee is demanded for using the program by the person who owns the copyrights.

This screen allows you to activate the license of &lt;%PRODUCT%&gt;.

Only the user ‘system’ can use the application as long as the license is not activated.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name Licensee</td>
<td>Name on which the license is registered.</td>
</tr>
<tr>
<td>Location</td>
<td>Location where the license is installed.</td>
</tr>
<tr>
<td>License Code</td>
<td>The license code of the application as registered by Invantive.</td>
</tr>
<tr>
<td>System Name</td>
<td>The name of the server where the database is installed.</td>
</tr>
<tr>
<td>Database</td>
<td>The name of the database on which the application is installed.</td>
</tr>
<tr>
<td>Product Name</td>
<td>The name of the application to which the license applies.</td>
</tr>
<tr>
<td>Schema</td>
<td>The name of the schema in the database used to install the tables.</td>
</tr>
<tr>
<td>Valid From</td>
<td>The beginning of the validity of the license.</td>
</tr>
<tr>
<td>Valid To</td>
<td>The end date of the validity of the license.</td>
</tr>
<tr>
<td>Key</td>
<td>The key to activate the license.</td>
</tr>
<tr>
<td>Challenge</td>
<td>A system determined number that combined with the correct number provided by the dealer shows that your license is legal.</td>
</tr>
<tr>
<td>Maximum Number of Active Projects</td>
<td>The maximum number of active projects that can be registered.</td>
</tr>
<tr>
<td>Maximum Number of Active Project Developers</td>
<td>The maximum number of project developers for which projects can be active.</td>
</tr>
<tr>
<td>Maximum Number of Named Users</td>
<td>The maximum number of users that can access the application.</td>
</tr>
<tr>
<td>Maximum Number Inventive Control Users</td>
<td>Maximum number of named users for Inventive Control.</td>
</tr>
<tr>
<td>Maximum Work in Progress per Project</td>
<td>Maximum amount of work in progress per project.</td>
</tr>
<tr>
<td>Source</td>
<td></td>
</tr>
<tr>
<td>Active Directory Gateway</td>
<td>Is checked when a link can be made using Active Directory to check user passwords.</td>
</tr>
<tr>
<td>ERP Gateway</td>
<td>Is checked when a link can be made with Exact or another ERP system.</td>
</tr>
<tr>
<td>Invantive Estate for Outlook</td>
<td>Checked if the Invantive Estate for Outlook can be used.</td>
</tr>
<tr>
<td>Languages</td>
<td></td>
</tr>
<tr>
<td>Dutch</td>
<td>Checked if the application can be used in Dutch.</td>
</tr>
<tr>
<td>English</td>
<td>Checked if the application can be used in English.</td>
</tr>
<tr>
<td>German</td>
<td>Checked if the application can be used in German.</td>
</tr>
<tr>
<td>French</td>
<td>Checked if the application can be used in French.</td>
</tr>
<tr>
<td>Spanish</td>
<td>Checked if the application can be used in Spanish.</td>
</tr>
<tr>
<td>Russian</td>
<td>Checked if the application can be used in Russian.</td>
</tr>
<tr>
<td>Hindi</td>
<td>Checked if the application can be used in Hindi.</td>
</tr>
<tr>
<td>Modules</td>
<td></td>
</tr>
<tr>
<td>Timeline</td>
<td>Checked if the timeline (time traveling) can be used.</td>
</tr>
<tr>
<td>Data security</td>
<td>Checked if data security can be used per individual project.</td>
</tr>
<tr>
<td>Document Management System</td>
<td>Checked if documents can be saved.</td>
</tr>
<tr>
<td>Web Services</td>
<td>Checked if Web Services can be used.</td>
</tr>
<tr>
<td>Customer Relationship Management</td>
<td>Checked if CRM functionality can be used.</td>
</tr>
<tr>
<td>Additional Business Rules</td>
<td>Checked if additional business rules can be used.</td>
</tr>
<tr>
<td>Cash Flow Projections</td>
<td>Checked if cash flow projections can be used.</td>
</tr>
<tr>
<td>Registration of hours worked</td>
<td>Checked if timesheets can be used.</td>
</tr>
<tr>
<td>Processes</td>
<td>Checked if processes can be used.</td>
</tr>
<tr>
<td>Units</td>
<td>Checked if units can be used.</td>
</tr>
<tr>
<td>Support Options</td>
<td></td>
</tr>
<tr>
<td>Upgrades</td>
<td>Checked if you have a maintenance agreement with a right to new versions.</td>
</tr>
<tr>
<td>Help desk</td>
<td>Checked if you have a maintenance agreement with a right to help desk support.</td>
</tr>
<tr>
<td>Helpdesk Number</td>
<td>Helpdesk Nummer for the application.</td>
</tr>
<tr>
<td>Database</td>
<td></td>
</tr>
<tr>
<td>Database Purchase Order</td>
<td>Purchase Order from the database supplier for the database license.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Database Helpdesk Number</td>
<td>The helpdesk number for the database.</td>
</tr>
<tr>
<td>Database License Description</td>
<td>Description of the database license.</td>
</tr>
<tr>
<td>Database Maximum Number of Named Users</td>
<td>The maximum number of named users for the database.</td>
</tr>
<tr>
<td>Database Maximum Number of Concurrent Users</td>
<td>The maximum number of simultaneous users for the database.</td>
</tr>
<tr>
<td>Database Maximum Number of CPUs</td>
<td>The maximum number of processors for the database.</td>
</tr>
</tbody>
</table>

The meaning of the other fields:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Licensed</td>
<td>The permitted numbers per license element.</td>
</tr>
<tr>
<td>Used</td>
<td>The actual numbers per license element.</td>
</tr>
</tbody>
</table>

1.2.14 Help

This section contains information about the functions which can normally be found under the menu item ‘Help’.

1.2.14.1 Help

Through this option in the menu the document you currently are reading will open. This document is the manual of Invantive Estate.

1.2.14.2 Invantive Website

This function opens the [website of Invantive Software Ltd](http://www.invantive.com).
1.2.14.3 Invantive Support

This function automatically sends you a pre-addressed e-mail for asking support at Invantive support.

1.2.14.4 About

Enter text here.

1.2.14.5 System Information

This screen provides technical information concerning the used system.

The shown information can be used by Invantive support to analyse errors.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Browser</td>
<td>the name of the used browser.</td>
</tr>
<tr>
<td>Version</td>
<td>The version of the browser. Only IE6, IE7, IE8, FF2, FF3 are supported.</td>
</tr>
<tr>
<td></td>
<td>Version IE5.5 is not supported anymore.</td>
</tr>
<tr>
<td>Code Name</td>
<td>The code name from the used browser.</td>
</tr>
<tr>
<td>Resolution</td>
<td>The current maximum presentation capacity of the screen in pixels along</td>
</tr>
<tr>
<td></td>
<td>the horizontal and vertical axes.</td>
</tr>
<tr>
<td>Maximal Resolution</td>
<td>The maximum presentation capacity of the form in pixels along the</td>
</tr>
<tr>
<td></td>
<td>horizontal and vertical axes.</td>
</tr>
<tr>
<td>Color Depth</td>
<td>The maximum amount of colors as a power of $2^{8}$ means 256 colors.</td>
</tr>
<tr>
<td>Number of Colors</td>
<td>The maximum number of colors.</td>
</tr>
</tbody>
</table>
1.2.15 Customize Screens with JavaScript

Within Invantive Estate you can adjust screens dynamically for the local installation, without losing the changes when a new version is installed. When installing a new version you only need to check if the local adjustments still work properly.

This functionality can be used for:
- Placing a button that can be used for showing and printing the purchase order of a contract.
- Linking a house with a map of the area within a web application elsewhere.
- Placing a button that can be used to access the phone number of a relation in a phone directory.
- Placing a button that can be used to complete an online form of another web application, for example, to request additional budget.

To modify screens you need to insert HTML code in three places in the screens of Invantive Estate. This HTML code can be entered in the screen Settings. After modification you need to log off and log on again to activate the new settings for your web session.

The HTML code may call to JavaScript and may contain other valid HTML code, as long as the complete set of code is valid.

Notice! It is easy to harm the functioning of the web interface of Invantive Estate by adding incorrect or slow HTML code. For support purposes it may be asked to undo the adding of HTML code in the settings screen.

The recommended approach for the use of JavaScript:
- Create a file in the directory ‘local’ with local modifications. Name this file ‘xxNAME.js’, where ‘NAME’ will be replaced by the company name in small letters.
- Include the JavaScript functions ‘xxNAME_after_payload’ and ‘xxNAME_before_payload’ (see below for an example).
- Include in ‘Local HTML Head’ the following (see also Customize Screens):

  `<script language="JavaScript1.2" src="local/xxNAAM.js" type="text/javascript"></script>`

- Include in ‘Local HTML Header’ the following (see also Customize Screens):

  `<script language="JavaScript" type="text/javascript"> xxNAAM_before_payload(); </script>`

- Include in ‘Local HTML Footer’ the following (see also Customize Screens):

  `<script language="JavaScript" type="text/javascript"> xxNAAM_after_payload(); </script>`

For example, the contents of xxNAAM.js could be something like this:
The before_payload is executed after the head section of the html and within the body section, but before the contents of the webpage.

function xxNAAM_before_payload()
{
    // Empty.
}

The before_payload is executed after the head section of the html and within the body section, but after the contents of the webpage.

function xxNAAM_after_payload()
{
    // Disable contract number on purchase order form.
    // The contract number is auto-generated using a calculated field.
    // You may not disable the field. CodeCharge 3 then tries to set it to null within SQL.
    // With CCS 4, this restriction has been lifted.
    // You might use bubs_set_element_readonly as an alternative.
    //
    if (bubs_get_page() == "bubs_odt_all")
    {
        // Make field gray.
        //
        BUBS_OPDRACHTEN_V1.ODT_VOLGNUMMER.style.backgroundColor="#cccccc";
        //
        // Associate events leading to a change with a function that bails out with false and therefore makes the event non-operable.
        //
        BUBS_OPDRACHTEN_V1.ODT_VOLGNUMMER.onkeypress = function()
        {
            window.event.returnValue = false;
return false;
};
BUBS_OPDRACHTEN_V1.ODT_VOLGNUMMER.onkeydown = function()
{
  window.event.returnValue = false;
  return false;
};

// Show a button for a purchase order PDF when on the purchase order form.
// The button is only shown when a purchase order selected (as signalled through ODT_ID as a GET-parameter on the URL).
if (bubs_get_page() == "bubs_odt_all" && bubs_get_parameter("ODT_ID"))
{
  document.write('<div id="customizations">');
  bubs_show_hyperlink_button('bubs_custom21_pdf_rpt.do?P_ODT_ID=' + bubs_get_parameter("ODT_ID"), 'Opdrachtformulier (PDF)');
  document.write('<p/>');
  document.write('</div>');
}

// Create button on the projects page to an outside webpage.
// This is meant for the connection with the ERP system.
if (bubs_get_page() == "bubs_pjt_all" && bubs_get_parameter("PJT_ID"))
{
  document.write('<div id="customizations">');
  bubs_show_hyperlink_button('http://my-erp-system/show-project-data?PJT_CODE=' + bubs_get_parameter("PJT_CODE") + "&" + escape(BUBS_PROJECTEN_V1.PJT_JURIDISCHE_EENHEID.value), 'Open project in ERP');
  document.write('<p/>');
  document.write('</div>');
}

</style LISTING>

1.2.16 Edit Screen Template
De screens in Invantive Estate consist of a combination of data and a division into a ‘template’. A template is an html file containing specific text to ensure that the information appears. You can customize the format with the help of your own templates.
It is also possible to customize the screens dynamically with JavaScript keeping the templa-
Your own template is normally based on an existing template, for example, such as bub-s_tak_all.html. The template can then be adjusted according to the capabilities of CodeCharge (see www.codecharge.com). These adjustments can be made with an HTML editor that does not change the existing comments.

To use your own template in a menu item, you need to add the URL parameter TEMPLATE_PATH. This URL should point to the path of your own template, for example, 'local/xxacme_tak_all_simple.html'.

Moreover, you need to add a URL parameter TEMPLATE_ORIG_PATH. This parameter contains the original name of the template that you want to replace. This additional URL is required to prevent that the URL parameter TEMPLATE_PATH, by mistake, will be applied to a different screen, for example, when opening a hyperlink.

The URL parameters TEMPLATE_PATH and TEMPLATE_ORIG_PATH can be added to menu item, see Menu Items.

Hint: use the Firefox extension URLParams to easily change the parameters.

Having the original template the next customizations are possible:

- Omit fields.
- Provide fields with a default value or a different design.
- Change locations of fields.
- Add pictures or work instructions.
- Add links to other websites.

You cannot remove completely one set of data (search, search results, create or change), but you can make this set invisible.

Customizing a template is relatively labor intensive and requires an inspection with each upgrade. It is often possible to achieve the required functionality with local HTML using the screen Settings.

1.2.17 Hide screen partially

The parts of a screen with a framework can be hidden. For this you use the following URL parameters:

- HIDE_SEARCH: search part.
- HIDE_GRID: search results.
- HIDE_DATAENTRY: enter/edit.
- HIDE_GRIDDETAIL: search results of details.
- HIDE_DATAENTRYDETAIL: enter/edit of details.

The part is hidden during the composing of the screen if a certain parameter gets the value 'Y'.

1.2.18 Building Reports

This chapter provides information on how you can build reports that seamlessly integrate in Invantive Estate.

The reports are built using JasperReports and (optional) PL/SQL.
It is not always possible to retain the functioning of reports over releases of Invantive Estate. With an upgrade you need to check if the reports still function properly.

Each release of Invantive Estate can use a different version of JasperReports. Always use the version of JasperReports which belongs to the file named jasperreports-x.y.z.jar in the folder web/Web-INF/lib of Apache Tomcat. For designing reports, we recommend using iReport.

A report consists of several elements:
- Menu: a menu item in the menu that the user can select.
- Pre-report trigger: a program in PL/SQL that prepares or change data before the execution of the report.
- Report: the actual report that combines data with the desired layout.
- Post-report trigger: a program in PL/SQL that after the execution will clean up or change the temporary data.

The following sections explain how you can build a report.

1.2.18.1 Menu

For customized reports, fifty reports are predefined, numbered bubs_custom01 to bubs_custom49. For these fifty functions are available. These functions are called bubs_-customXX_pdf_rpt or bubs_customXX_xls_rpt.

Follow the next steps to make the menu items available to the users:
- Determine which users need access to the report.
- If necessary, create a role in Roles.
- Assign to the role of this user the rights on the function in Role Authorisations.

1.2.18.2 Pre-report and Post-report Trigger

The pre-report trigger is a PL/SQL stored procedure that is called up before the execution of the actual report. The post-report trigger is a PL/SQL stored procedure that is called after the actual implementation of the report.

These stored procedures are performed in a package. This package requires the name of the report, followed by '_rpt', for example 'bubs_custom01_rpt'. The procedure pre_report is performed as pre-report trigger and the procedure post_report as post-report trigger.

An example of such a package is:

```sql
create or replace package bubs_custom01_rpt
as
/*
 * (C) Copyright 2004-2009 Invantive Software BV, the Netherlands. All rights reserved..
 */
procedure pre_report
( p_functie bubs_functies_v.fte_code%type
)
```

(C) Copyright 2004-2013 Invantive Software B.V., the Netherlands. All rights reserved.
procedure post_report
  ( p_functie bubs_functies_v.fte_code%type )
;
-- Return the version ID of CVS for the package.
--
function get_version_id
  return varchar2
;
end;
/
grant execute on bubs_custom01_rpt to &&bubs_user_role
/
create or replace package body bubs_custom01_rpt
as
/*
 * $Header: http://svn.invantive.com/repos/p104/trunk/help/nl/
manual/Topics/rap-bouwen-pre-report-trigger.xml 19891 2012-10-09
13:23:03Z gle3 $ *
 * (C) Copyright 2004-2009 Invantive Software BV, the Nether-
lands. All rights reserved..
 */
procedure pre_report
  ( p_functie bubs_functies_v.fte_code%type )
as
begin
  null;
end;
procedure post_report
  ( p_functie bubs_functies_v.fte_code%type )
as
begin
  null;
end;
--
-- Return the version ID of CVS for the package.
--
function get_version_id
  return varchar2
as
begin
The pre-report trigger can be used to improve performance by preparing and storing common data in a temporary table or to feed the report with different data, depending on the settings of the user. For example, the following pre-report trigger is used to fill a report with data of the current situation if that is possible and with historical data if such is requested:

```sql
--
-- Delete possible remaining data from a previous report on the same connection.
--
delete bubs_fdt_t;
commit;
if bubs_session.get_session_reporting_date is null then
  -- Current situation requested.
  --
  insert into bubs_fdt_t
  select * from bubs_fdt_r;
  commit;
else
  -- Historical situation requested.
  -- Somewhat slower.
  --
  insert into bubs_fdt_t
  select * from bubspfdt_r;
  commit;
end if;
```

The post-report trigger is then:

```sql
delete bubs_fdt_t;
commit;
```

For example, it is also possible to highlight in the pre-report trigger the information that needs to be printed and to highlight them in the post-report trigger as being 'reported'.

Normally the post-report trigger is only used to remove temporary data.

### 1.2.18.3 Report

The report is built in Jasper Reports. As a report needs to log on to the middle tier, the report gets via the parameter REPORT_CONNECTION a prepared database connection for the user. This database connection has to be passed on to subreports.
The web page will pass on all GET and POST parameters to the report. The value of GET and POST parameters can be used in the report if a report parameter exists with the same name.

In addition the following parameters will always be delivered:

- **P_SYSDATE_C**: the date and time of the first report being executed, formatted for use in the report as a String. For use in combination with subfunctions to always use the same time.
- **P_PAGENUMBER_OFFSET**: contains the number of pages filled prior to this report if a function consists of several subreports with the help of Subfunctions(|). Is 0 in all other cases. Can be used to have a correct page numbering when using several subfunctions. P_PAGENUMBER_OFFSET is passed on as an integer.
- **P_CONNECTION_ESTATE**: an already open connection with Invantive Estate, based on the class java.sql.Connection.
- **P_CONNECTION_REPORT**: an already open connection as specified for the report, based on the class java.sql.Connection. Has the same connection as REPORT_CONNECTION.
- **P_URL**: the URL used to open the report.
- **RPT_CODE**: the code of the report that is running, not taking into account if code which was passed on via FTE_ID or possibly via MIM_ID or via FTE_CODE in the URL.
- **P_CIG_OMSCHRIJVING_LANG**: long description of the filter.
- **P_CIG_OMSCHRIJVING**: description of the filter.
- **P_MAT_SERVER_PREFIX_URL**: prefix for web pages of the application.
- **P_MAT_REQUEST_URL_HOOFTIEND**: the URL from the main menu of the web frontend.
- **P_MAT_LOGO_URL**: URL to the logo to print each page (LOGO_BKG_URL uit bubs._mijn_rechten_r).
- **P_MAT_LOGO_URL_ULT**: URL to the most specified logo to print each page. The most-specified logo is: when there is 1 logo that applies for all projects in the filter, choose that. Otherwise, if there is 1 logo that applies for all project entities, choose that. Otherwise, the system-wide logo, which is also to be found in P_MAT_LOG_URL (LOGO_BKG_URL uit bubs._mijn_rechten_r).
- **P_MAT_GBR_AANMELD_CODE**: registration code of the current user.
- **P_ISG_ONDERTITEL_LOGO_RAPPORTEN**: subtitle for the logo.

### 1.2.18.4 Subreports

You can use subreports. For this parameters must be set by opening the Properties of the subreport in the main report. The following parameters have to be set:

- Possible parameters that limits the results of the query in the subreport to the relevant information of the master project. A common parameter is P_PJT_CODE for the project. In the main report this is filled with the project code with the help of for example `$F{PJT_CODE}`.

The Subreport Parameters need to have the next values:

- **REPORT_RESOURCE_BUNDLE**: this parameter should be filled with `$P{REPORT_RESOURCE_BUNDLE}`. This will ensure that the report will get the same translations as the main report.
- **REPORT_LOCALE**: this parameter should be filled with `$P{REPORT_LOCALE}`. This will ensure that the report will get the same translations as the main report.
The field Connection Expression: this should be filled in with 'REPORT_CONNECTION', to assure that the subreport shares the same database connection with the main report.

The location of the subreport is either filled with the URL of the report, for example, 'http://SERVER/tbubs/bubs_custom_sub1.jasper', or is calculated via a column in the query. The use of a query is recommended since the report will take transparently the appropriate report file in any environment. The preferred name for this column is SUBREPORT<number>_URL and the value will be filled with '$F{SUBREPORT<number>_URL}'.

1.2.18.5 Error reports

The following error appears when the parameters of the Jasper subreport are not filled in. The solution is to provide the subreport parameters, see Subreports.

An error occurred during processing the report. Please contact support.

Phase Fill report
Error message:
java.lang.RuntimeException: Filling the report bubs_custom26 failed: java.util.MissingResourceException: Can't find bundle for base name bubs, locale nl_NL
An error occurred during processing the report. Please contact support.

Phase Fill report

Error message:
java.lang.RuntimeException: Filling the report bubs_custom26 failed: java.util.MissingResourceException: Can't find bundle for base name bubs, locale nl NL
at java.util.ResourceBundle.throwMissingResourceException(Unknown Source)
at java.util.ResourceBundle.getBundleImpl(Unknown Source)
at java.util.ResourceBundle.getBundle(Unknown Source)
at net.sf.jasperreports.engine.util.JRResourcesUtil.loadResourceBundle(JRResourcesUtil.java:568)
at net.sf.jasperreports.engine.util.JRResourcesUtil.loadResourceBundle(JRResourcesUtil.java:506)
at net.sf.jasperreports.engine.fill.JRFillDataset.loadResourceBundle(JRFillDataset.java:529)
at net.sf.jasperreports.engine.fill.JRFillDataset.setParameterValues(JRFillDataset.java:564)
at net.sf.jasperreports.engine.fill.JRBaseFiller.setParameterValues(JRBaseFiller.java:1246)
at net.sf.jasperreports.engine.fill.JRBaseFiller.fill(JRBaseFiller.java:877)
at net.sf.jasperreports.engine.fill.JRBaseFiller.fill(JRBaseFiller.java:826)
at net.sf.jasperreports.engine.fill.JRFillSubreport.fillSubreport(JRFillSubreport.java:557)
at net.sf.jasperreports.engine.fill.JRSubreportRunnable.run(JRSubreportRunnable.java:59)
at java.lang.Thread.run(Unknown Source)
at com.codecharge.util.JasperReports.getReport(JasperReports.java:1280)
at com.codecharge.util.JasperReports.runReportList(JasperReports.java:1665)
at com.codecharge.util.JasperReports.runReport(JasperReports.java:1811)
at com.codecharge.util.JasperReports.runReport(JasperReports.java:1831)
at bubs_custom26_pdf_rpt.bubs_custom26_pdf_rptPageHandler.beforeShow(bubs_custom26_pdf_rptPageHandler.java:51)
at com.codecharge.View.init(View.java:1823)
at bubs_custom26_pdf_rpt.bubs_custom26_pdf_rptView.getContent(bubs_custom26_pdf_rptView.java:27)
at com.codecharge.ViewerServlet.service(ViewerServlet.java:50)
at javax.servlet.http.HttpServlet.service(HttpServlet.java:717)
at org.apache.catalina.core.ApplicationFilterChain.internalDoFilter(ApplicationFilterChain.java:290)
at org.apache.catalina.core.ApplicationFilterChain.doFilter(ApplicationFilterChain.java:206)
at org.apache.catalina.core.ApplicationDispatcher.invoke(ApplicationDispatcher.java:594)
MIME types for Reports

Deviating MIME types for reports can be specified in the URL via the reportparameter MIME_TYPE. These parameters can have the next values:

- application/pdf (.pdf). PDF is a page description language which accurately displays the layout, fonts and images of the source file. PDF files can be viewed with Adobe Reader and give identical results on each platform. Any extra URL-parameters will be saved as 'custom properties' at the PDF. This way you can quickly and easily structured add metadata to PDF reports.
- text/xml (.xml).
- text/csv (csv)
- text/plain (txt)
- text/html (html)
- application/vnd.openxmlformats-officedocument.presentationml.presentation (pptx)
- application/vnd.google-earth.kml+xml (.kml).
- application/rtf (.rtf).
1.2.18.7 Other Report Parameters

The following parameters can be passed via the URL to a report:

- **ADD_CUSTOM_PROPS**: By default, the Adobe PDF custom properties will be filled with a list of the elements in the report. If this parameter is 'N', then the customer properties will not be filled. When there is a large amount of elements in the report (over 100) it is recommended to add **ADD_CUSTOM_PROPS** because retrieving the custom properties will take a substantial amount of time.

- **ADD_BOOKMARKS**: By default, a table of contents is added to Adobe PDF documents. If this parameter is 'N', no table of contents will be added.

- **ADD_BOOKMARK_THIS_REPORT**: By default, the first element in the table of contents of a Adobe PDF document is an URL to the source of the report. If this parameter is 'N', the first element will not be included in the table of contents.

- **REPORT_RESOURCE_BUNDLE_NAME_OVERRIDE**: The prefix of the filename where the resources are in the form $R{} are used to translate the report. By default, this is the value of the setting messagesBundleReport in the site.properties.

- **SUPPRESS_FILTER_IN_PARS**: The filter is not in the list of parameters that are left above on every report if this parameter has the value 'Y'. For example for custom modules that the user filter does not use.

- **SUPPRESS_FUNCTION_IN_PARS**: The function code is not on the list of parameters that are left above on every report if this parameter has the value 'Y'.

- **FILENAME_ADDITION**: A text that is inserted into the filename of the output of the report. This text is in between the name of the report and the date/time.

In **FILENAME_ADDITION** you can capture values of parameters so that the generated output file also displays information about any project, person or period in question. You can capture a parameter with the text `':PARAM[x]'`. For 'x' enter the name of the parameter as specified in the screen **Functions**.

1.2.18.8 Pass Report Parameters via URL

For the various output formats, you can pass report parameter values via the URL.

For example `P_OFFSET_X = 100` ensures that each page in a PDF moves 100 pixels to the right.

The following code gives a description of the possible parameters.

```java
static void setGenericExporterOptions
(
  JRExporter exporter
,  Map parameters
)
{
  String stringType = "empty";
```
Integer integerType = 1;
Character characterType = 'a';
Float floatType = 1.0f;
Boolean booleanType = true;

// Boolean moet worden opgegeven als string "true" of "false".

// Algemeen. Voor alle uitvoer formaten.

// Codering kan gevonden worden op http://download.oracle.com/javase/1.3/docs/guide/intl/encoding.doc.html en bevat:

// * ASCII: American Standard Code for Information Interchange
// * Cp1252: Windows Latin-1
// * ISO8859_1: ISO 8859-1, Latin alphabet No. 1
// * Cp500: EBCDIC 500V1
// * UTF-8: Eight-bit Unicode Transformation Format
// * UTF-16: Sixteen-bit Unicode Transformation Format, byte order specified by a mandatory initial byte-order mark.

setParameterWhenProvided(exporter, parameters, "P_CHARACTER_ENCODING", JRExporterParameter.CHARACTER_ENCODING, "De tekencodering die wordt gebruikt voor de export.", "UTF-8", stringType);
setParameterWhenProvided(exporter, parameters, "P_OFFSET_X", JRExporterParameter.OFFSET_X, "Een parameter waarmee gebruikers de volledige inhoud van elke pagina horizontaal kunnen verplaatsen.", null, integerType);
setParameterWhenProvided(exporter, parameters, "P_OFFSET_Y", JRExporterParameter.OFFSET_Y, "Een parameter waarmee gebruikers de volledige inhoud van elke pagina verticaal kunnen verplaatsen.", null, integerType);

// Tekst formaat.

setParameterWhenProvided(exporter, parameters, "P_BETWEEN_PAGES_TEXT", JRTextExporterParameter.BETWEEN_PAGES_TEXT, "Een tekenreeks in de vorm van tekst die wordt ingevoegd tussen de pagina's van het gegenereerde rapport.", null, stringType);
setParameterWhenProvided(exporter, parameters, "P_CHARACTER_HEIGHT", JRTextExporterParameter.CHARACTER_HEIGHT, "Een geheel getal dat de verticale verhouding tussen pixel/ka- rakter geeft.", null, floatType);
setParameterWhenProvided(exporter, parameters, "P_CHARACTER_WIDTH", JRTextExporterParameter.CHARACTER_WIDTH, "Een geheel getal dat de horizontale verhouding tussen pixel/ka- rakter geeft.", null, floatType);
setParameterWhenProvided(exporter, parameters, "P_LINE_SEPARATOR", JRTextExporterParameter.LINE_SEPARATOR, "Een tekenreeks in de vorm van een scheiding tussen twee regels tekst.", null, stringType);
setParameterWhenProvided(exporter, parameters, 
"P_PAGE_HEIGHT", JRTextExporterParameter.PAGE_HEIGHT, "Een geheel getal dat de paginahoogte in karakters geeft.", null, integerType);
setParameterWhenProvided(exporter, parameters, 
"P_PAGE_WIDTH", JRTextExporterParameter.PAGE_WIDTH, "Een geheel getal dat de pagina breedte in karakters geeft.", null, integerType);

// Docx formaat.

setParameterWhenProvided(exporter, parameters, 
"P_FLEXIBLE_ROW_HEIGHT", JRDocxExporterParameter.FLEXIBLE_ROW_HEIGHT, "Geef aan of een tabelrij kan groeien als er meer tekst wordt toegevoegd in een cel.", null, booleanType);
setParameterWhenProvided(exporter, parameters, 
"P_FRAMES_AS_NESTED_TABLES", JRDocxExporterParameter.FRAMES_AS_NESTED_TABLES, "Geef aan of frames worden geëxporteerd als geneste tabellen.", null, booleanType);

// Html formaat.

setParameterWhenProvided(exporter, parameters, 
"P_BETWEEN_PAGES_HTML", JRHtmlExporterParameter.BETWEEN_PAGES_HTML, "Een tekenreeks in de vorm van HTML-code die zal worden ingevoegd tussen de pagina's van het gegenereerde rapport.", null, stringType);
setParameterWhenProvided(exporter, parameters, 
"P_FRAMES_AS_NESTED_TABLES", JRHtmlExporterParameter.FRAMES_AS_NESTED_TABLES, "Geef aan of frames worden geëxporteerd als geneste HTML-tabellen.", null, booleanType);
setParameterWhenProvided(exporter, parameters, 
"P_HTML_FOOTER", JRHtmlExporterParameter.HTML_FOOTER, "Een tekenreeks in de vorm van HTML-code die zal worden ingevoegd na het gegenereerde rapport.", null, stringType);
setParameterWhenProvided(exporter, parameters, 
"P_HTML_HEADER", JRHtmlExporterParameter.HTML_HEADER, "Een tekenreeks in de vorm van HTML-code die zal worden ingevoegd voor het gegenereerde rapport.", null, stringType);
setParameterWhenProvided(exporter, parameters, 
"P_IS_REMOVE_EMPTY_SPACE_BETWEEN_ROWS", JRHtmlExporterParameter.IS_REMOVE_EMPTY_SPACE_BETWEEN_ROWS, "Een boolean die aan geeft of de blanco lijnen, die soms verschijnen tussen de rijen, moet worden verwijderd.", null, booleanType);
setParameterWhenProvided(exporter, parameters, 
"P_IS_USING_IMAGES_TO_ALIGN", JRHtmlExporterParameter.IS_USING.Images_TO_ALIGN, "Een boolean die aangeeft of de uitvoer module kleine afbeeldingen voor het uitlijnen dient te gebruiken.", null, booleanType);
setParameterWhenProvided(exporter, parameters, 
"P_IS_WHITE_PAGE_BACKGROUND", JRHtmlExporterParameter.IS_WHITE_PAGE_BACKGROUND, "Een boolean die aangeeft of de rapport achtergrond wit is.", null, booleanType);
setParameterWhenProvided(exporter, parameters, "P_IS_WRAP_BREAK_WORD", JRHtmlExporterParameter.IS_WRAP_BREAK_WORD, "Een boolean die aangeeft of de export module regelafbreking door het opsplitsen van woorden (CSS word-wrap: break-woord) moet toepassen.", null, booleanType);
setParameterWhenProvided(exporter, parameters, "P_SIZE_UNIT", JRHtmlExporterParameter.SIZE_UNIT, "Een waarde die de te gebruiken eenheid aangeeft bij het meten van lengte of de tekengrootte.", null, stringType);
setParameterWhenProvided(exporter, parameters, "P_ZOOM_RATIO", JRHtmlExporterParameter.ZOOM_RATIO, "De zoomfactor die wordt gebruikt voor de uitvoer.", null, floatType);
  // Csv formaat.
  //
  setParameterWhenProvided(exporter, parameters, "P_FIELD_DELIMITER", JRCsvExporterParameter.FIELD_DELIMITER, "Een tekenreeks in de vorm van een karakter of volgorde van karakers die wordt gebruikt om twee velden af te bakenen op dezelfde lijn.", null, stringType);
setParameterWhenProvided(exporter, parameters, "P_RECORD_DELIMITER", JRCsvExporterParameter.RECORD_DELIMITER, "Een tekenreeks in de vorm van een karakter of volgorde van karakers die wordt gebruikt om twee lijnen af te bakenen.", null, stringType);
  // Pdf formaat.
  //
  setParameterWhenProvided(exporter, parameters, "P_FORCE_LINEBREAK_POLICY", JRPdfExporterParameter.FORCE_LINEBREAK_POLICY, "Indicator die aangeeft of de PDF-exportmodule maakt van een SplitCharacter implementatie die ervoor zorgt dat rapportteksten door iText op dezelfde wijze in lijnen worden opgesplitst als door het vulling proces.", null, booleanType);
setParameterWhenProvided(exporter, parameters, "P_FORCE_SVG_SHAPES", JRPdfExporterParameter.FORCE_SVG_SHAPES, "Indicator die aangeeft dat bij het creeren van SVG-beelden in de PDF Graphics2D omgeving, vormen gebruikt dienen te worden.", null, booleanType);
setParameterWhenProvided(exporter, parameters, "P_IS_128_BIT_KEY", JRPdfExporterParameter.IS_128_BIT_KEY, "Een boolean die aangeeft of de coderingssleutel 128 bits is.", null, booleanType);
setParameterWhenProvided(exporter, parameters, "P_IS_COMPRESSED", JRPdfExporterParameter.IS_COMPRESSED, "Een boolean die aangeeft of het PDF-document moet worden gecomprimeerd.", null, booleanType);
setParameterWhenProvided(exporter, parameters, "P_IS_CREATING_BATCH_MODE_BOOKMARKS", JRPdfExporterParameter.IS_CREATING_BATCH_MODE_BOOKMARKS, "Een boolean die aangeeft of het PDF-document een inhoudsopgave bevat.", null, booleanType);
setParameterWhenProvided(exporter, parameters, "P_IS_ENCRYPTED", JRPdfExporterParameter.IS_ENCRYPTED, "Een boolean die aangeeft of het uiteindelijke document versleuteld moet worden.", null, booleanType);
setParameterWhenProvided(exporter, parameters, "P_IS_TAGGED", JRPdfExporterParameter.IS_TAGGED, "Geeft aan of het exportmodule structuur tags dient op te nemen in het gegenereerde PDF-document.", null, booleanType);
setParameterWhenProvided(exporter, parameters, "P_METADATA_AUTHOR", JRPdfExporterParameter.METADATA_AUTHOR, "De Auteur van het PDF-document.", null, stringType);
setParameterWhenProvided(exporter, parameters, "P_METADATA_CREATOR", JRPdfExporterParameter.METADATA_CREATOR, "De Ontwerper of de Bronapplicatie van het PDF-document.", null, stringType);
setParameterWhenProvided(exporter, parameters, "P_METADATA_KEYWORDS", JRPdfExporterParameter.METADATA_KEYWORDS, "De trefwoorden van het PDF-document weergegeven als door komma's gescheiden tekst.", null, stringType);
setParameterWhenProvided(exporter, parameters, "P_METADATA_SUBJECT", JRPdfExporterParameter.METADATA_SUBJECT, "Het onderwerp van het PDF-document.", null, stringType);
setParameterWhenProvided(exporter, parameters, "P_METADATA_TITLE", JRPdfExporterParameter.METADATA_TITLE, "Het titel van het PDF-document.", null, stringType);
setParameterWhenProvided(exporter, parameters, "P_OWNER_PASSWORD", JRPdfExporterParameter.OWNER_PASSWORD, "Het wachtwoord behorende tot het eigenaar van het document als het document gecodeerd is.", null, stringType);
setParameterWhenProvided(exporter, parameters, "P_PDF_JAVASCRIPT", JRPdfExporterParameter.PDF_JAVASCRIPT, "Het door de gebruiker gedefinieerde stukje JavaScript code dat wordt ingevoegd in het gegenereerde PDF-document.", null, stringType);
setParameterWhenProvided(exporter, parameters, "P_PERMISSIONS", JRPdfExporterParameter.PERMISSIONS, "Een integer die de rechten voor het gegenereerde PDF-document aangeeft.", null, integerType);
setParameterWhenProvided(exporter, parameters, "P_PRINT_SCALING", JRPdfExporterParameter.PRINT_SCALING, "Parameter die de schaalvoorkeur in het dialoogvenster PDF-afdrukken definieert.", null, stringType);
setParameterWhenProvided(exporter, parameters, "P_TAG_LANGUAGE", JRPdfExporterParameter.TAG_LANGUAGE, "Specificeert de taal die de exportmodule meegeeft aan de taal-tag van de gegenereerde PDF.", null, stringType);
setParameterWhenProvided(exporter, parameters, "P_USER_PASSWORD", JRPdfExporterParameter.USER_PASSWORD, "De benodigde gebruikerswachtwoord om het document te openen als het wordt document gecodeerd is.", null, stringType);
// setParameterWhenProvided(exporter, parameters, "P_", JRPdfExporterParameter., "", null);

1.2.18.9 Multiple Reporting Periods in one Report

You can report within a report about multiple reporting dates. With this, for example, you can
use project versions. The following example prints a statistic for a number of reporting dates.

```sql
declare
  l pls_integer;
begin
  -- Logon.
  -- For all project versions matching the filter plus the current time, we
  -- will print an overview of a statistic.
  --
  for r in
    ( select pjt_code,
         pve_code,
         pve_datum_rapportage
    from   bubs_project_versies_v
    where  1=1
    and    pve_datum_rapportage <= sysdate
    and    regexp_instr(pve_code, coalesce(cig_patroon_project_versies, '^') ) > 0
    union all
    select distinct pjt_code,
         bubs#vertalingen.translate_keys('{res:bubs_now}')
    ,      null
    from   bubs_project_versies_v
    order
    by     pjt_code,
         pve_datum_rapportage
  ) loop
  -- Travel to the right moment in time.
  bubs_session.set_point_in_time(r.pve_datum_rapportage);
  -- Determine the statistics. Simple example.
  --
  select count(*) cnt
  into   l
  from   bubspopbrengst_soorten_v
;
  --
  -- Print results.
```

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dbms_output.put_line(r.pjt_code || ', ' || rpad(r.pve_code, 30) || ', ' || rpad(to_char(r.pve_datum_rapportage, 'yyymmdh-h24miss'), 14) || ' = ' || l);
end loop;
end;

1.2.18.10 Watermarked or Preprinted Stationary

Invantive Estate can provide PDF output with a watermark or preprinted stationery. This watermark or preprinted stationery needs to be available in PDF format in the web directory.

By modifying the name PL/SQL function of the watermark in the screen Settings, you can use your own function to determine the watermark based on the name of the report, the length and width, the user, the page number etc.

1.2.18.11 Custom Formatted Text in a Report Field

In iReport you can, if the report is exported as PDF, use the option 'Is styled text' to give a format to a report field. You can set or change this option yourself.

1.2.19 Input with Layout

In settings you can upload texts that are shown in reports with a specific layout.

Place the text between <style> tags or use the following HTML tags: <b>, <u>, <i>, <font>, <li> and <br>. The <style> tag has several attributes to change color, font and other stylistic properties.

Some examples:

```xml
<!ELEMENT style (style*, b*, u*, i*, font*, li*, br*)>*
<!ATTLIST style
  fontName  CDATA   #IMPLIED
  size      NMTOKEN #IMPLIED
  pdfFontName  CDATA   #IMPLIED
  pdfEncoding CDATA   #IMPLIED
  forecolor   CDATA   #IMPLIED
  backcolor   CDATA   #IMPLIED
  isBold      (true | false) #IMPLIED
  isItalic    (true | false) #IMPLIED
  isUnderline (true | false) #IMPLIED
  isStrikeThrough (true | false) #IMPLIED
  isPdfEmbedded (true | false) #IMPLIED>
</!ATTLIST style>
```

```xml
<!ATTLIST font
  fontFace CDATA   #IMPLIED
  color    CDATA   #IMPLIED
  size     NMTOKEN #IMPLIED>
</!ATTLIST font>
```

Some examples:

```xml
<style fontName="GillSans" size="16" pdfFontName="gillsli_ttf"
isPdfEmbedded="true" forecolor="#0091ff">IT solutions for financial services providers</style>
```

Result:
IT solutions for financial services providers

Result:

Bank account 1234.09.780, IBAN NL 42 RABO0123.4097.80

Chamber of Commerce 13031406, VAT NL 8126.02.377.B01

Result:

Oosteinde 23
NL-3842 DR Harderwijk
Tel: +31 (0) 341 - 42 88 66
Fax: +31 (0) 341 - 36 18 26
info@invantive.com
http://www.invantive.com

Note that the fonts are placed in the directory WEB-INF/classes and that the web server is restarted. Otherwise they will not be found.

1.2.20 Person Involvements

In this screen you can enter and edit person involvements.

Here person involvements can be added. This is done per person. Per person you can indicate who this is and who this person is in relation to another person. You can set the involvement role. Subsequently it is optionally possible to enter other information. Here you can think of a limit, or whether the person is added implicitly or not and finally a explanation. In the end the starting moment and the end are indicated of the person involvement.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person (From)</td>
<td>The person to be added to the person involvement</td>
</tr>
<tr>
<td>Person (To)</td>
<td>The person to whom the added person is related to in terms of involvement role</td>
</tr>
<tr>
<td>Involvement Role</td>
<td>The type of role that the person has.</td>
</tr>
<tr>
<td>Limit</td>
<td>The limit of the person.</td>
</tr>
</tbody>
</table>

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1.3 Invantive Estate for Outlook

This chapter contains information about the functions which are normally included in the standard Invantive Estate Microsoft Outlook Add-In. The Invantive Estate for Outlook enables the possibility to Invantive Estate work without the user interface being open. Via the Invantive Estate for Outlook user interface you can access functions which are necessary to process daily operational events of a project. Via the web user interface you also have access to functions with which you can enhance structural settings for a project.

1.3.1 User Interface

This chapter shows you how the basic functions from Invantive Estate for Outlook work. Here you learn to use the search function, how to navigate through the menu, how to change, add or remove data, how to add or remove documents and how to export data for further processing in Microsoft Excel or Adobe Acrobat.

1.3.1.1 Start up and Login

Complete the following steps in order Invantive Estate for Outlook to start:

- Open the ‘Start’ menu left under in your screen.
- Then go the menu ‘Programs’ and open Microsoft Outlook.
- Microsoft Outlook will be opened and if Invantive Estate for Outlook is installed, the login screen below will appear.
To login you need to fill in the required input fields. Required input fields are Invantive Estate for Outlook shown in bold.

Warning! Both username and password are capital sensitive. This means you must pay attention to using the right capital letters in your username and password. Without capital letter at the right places you will not get access to the program.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Username</td>
<td>Your name as recorded in the user administration.</td>
</tr>
<tr>
<td>Password</td>
<td>Your password.</td>
</tr>
<tr>
<td>Connection</td>
<td>The connection which is used for Invantive Estate for Outlook.</td>
</tr>
<tr>
<td>Save password</td>
<td>Your password is Invantive Estate for Outlook remembered and already entered next time you login, if the box is checked.</td>
</tr>
<tr>
<td>Connect automatically</td>
<td>The next time Invantive Estate for Outlook will be started automatically, without having to login, if this box is checked.</td>
</tr>
</tbody>
</table>

• After you fill in the data press ‘OK’. Microsoft Outlook will now be opened and the tab page
Invantive Estate in the ribbon of Microsoft Outlook will indicate that the Invantive Estate for Outlook is installed.

The commands and functions of the Invantive Estate for Outlook are integrated in the Microsoft Outlook interface and are context-dependent.

In the navigation panel, which is normally on the left side of Microsoft Outlook, under the option ‘Mail’.
- In the ribbon under the tab ‘File’, under the option ‘Insert Applications’.
- In the ribbon under the tab ‘Start’, under the component Invantive Estate;
- In the ribbon under the tab Invantive Estate. It is a tab with orders and functions only from Invantive Estate for Outlook;

In the navigation panel under the option ‘Calendar’
- In the ribbon under the tab ‘Start’. At the creating of a new appointment, opening an appointment, or the answering of an e-mail.
- In the ribbon under the tab ‘Start’, under the component Invantive Estate;
- In the ribbon under the tab Invantive Estate. It’s a tab with orders and functions regarding Invantive Estate for Outlook;

- Update Contacts
- Call
- Fast Open...
- Explorer
- Settings
- About Invantive Estate Outlook Add-in
- Query program

These menu parts are described in the next chapters.

1.3.1.2 Microsoft Outlook Interface

The Invantive Estate for Outlook is integrated in Microsoft Outlook interface. We will give a short description of the components of the Microsoft Outlook interface.

The ribbon

In the ribbon, in the top of the screen, orders and functions are grouped in the tab pages: ‘File’; ‘Start’; ‘Send/Receive’ and ‘View’. If the Invantive Estate for Outlook is installed an extra tab page ‘Invantive Estate’ will appear. The screen above shows this extra tab page. The tasks and functions in the ribbon change if you have another tab selected or if you select ano-
ther application in the navigation panel.

The navigation panel

The navigation panel can be found on the left side of the screen. The Microsoft Outlook applications can be found under the navigation panel. On the screen below, this are the applications: Mail; Calendar; Contacts; Tasks and Notes. At the top in the navigation panel the maps and data are shown which are relevant on the selected application.

The task panel

The task panel can be found on the right side of the screen. In the top of the task panel a calendar is shown in which tasks and appointments are shown. Below in the task panel you can add a new task.

Navigation

To navigate in the menu you can use your mouse of keyboard. In Microsoft Outlook there are many shortcuts available. A lot of shortcuts are a combination of the ‘Ctrl’-key with a number or letter. By default there are hundreds of combinations present in Microsoft Outlook. if these combinations are unfamiliar for you, you can push the ‘Alt’ key. The tab pages in the ribbon receive labels, you can select these by pressing the label. The position in the menu where you are is highlighted in orange. In the image below this is the menu option ‘Start’.
After you press the label 'I', the functions of the tab page ‘Invantive Estate’ will appear.

The functioning of the Invantive Estate for Outlook using the keyboard works the same way as the functioning of the other functions in Microsoft Outlook. By entering the right label again, you can select whatever function you desire.

1.3.1.3 Screens

In this chapter, the parts you will run into of Invantive Estate for Outlook are described.

Title

The title of a screen in Invantive Estate for Outlook firstly shows the selected menu option and then the name of the product. As separating character a horizontal linking bar is used. The title of the screen below indicates that the chosen menu option is ‘My Preferences’ and that the product name is ‘Invantive Vision’.

Create or Change

In this paragraph the types of inputfields you can distinguish and how you can add or delete data is described. Important tools to be used in this process are Forms.

Input Types

This section describes the field types you may encounter when entering or modifying data and what kind of data you can enter in the different field types.

As example we take the screen ‘Edit Process’.
Entry Fields
An example of an entry field is the white field next to ‘Description’. In a field like this you can enter a ‘free text’. This means you can choose - within certain boundaries - what you fill in. In the example of ‘Description’ you can for example enter a short description of the subject of the process.

Required fields
The fields which are shown bold are required fields. Examples of these fields are ‘Category’, ‘Description’, ‘Project’, ‘Process Owner’, etc.

Amounts
All amounts are in Euros and will be written in the European way. This means that thousands are separated by a period and that the separation of whole and decimal numbers is shown by a comma. For instance: 123.456,78. If you use an American version of other software you have to pay attention to not change the way of writing numbers. The American way of noting numbers is the exact opposite of our way, for example 123,456.78.

If you enter a number with a decimal, you need to use the comma key (‘,’). All points are considered thousands separators and are not looked at regardless of the place of the number. An input of ‘8.5’ is therefore treated as ‘85’.
The amounts you enter are left aligned. This means these can be found on the left side of the field. If the amounts are already entered, they are automatically right aligned. If you, for example, in the screen section, where you can search, enter a number you will see that the number is left aligned.

**Percentages**

Further more there are fields where a certain percent is asked (like with ‘Progress(%)’). You do not need to enter the percentage sign here.

**Dates**

If a date is being asked (For example: ‘Date Start Realization’) you can fill this in yourself. The allowed date format is dd-mm-yyyy. The input mask prevents the input of an invalid value. An example of an invalid value is month number 22 or day number 33.

The meaning of the date format is the following:
- ‘dd’ indicates a two digit format of the day of the month from ‘01’ to ‘31’.
- ‘mm’ indicates a two digit format of the month in the year where ‘01’ stands for January, ‘02’ stands for February .. etc..
- ‘yyyy’ indicates a four digit format of the year, for example ‘2009’.

You can also click on the small square next to the input field:

A calendar appears:

Select the day by clicking on one of the numbers in the calendar. If you select ‘today’ automatically the current date will be used. The month is changeable by clicking on one of the black arrows, which can be seen on the picture below. The arrow to the right means a month forward. The arrow to the left means a month backward.

If you want more than only change the day, you have to ensure that you change the day at the end. This is because after changing the day you will come back to the menu.

After you have entered a data or selected one by using the calendar, the checkbox left in the date field is checked. This means that a data is selected. If you do not wish to use the date field, click on the checkbox left in the date field. The checkbox is then unchecked and the da-
In the field will turn light grey.

**Times**

When asked to enter a time, the following input format can be used: `uu:mm`.

In this case the abbreviation 'mm' is minutes and not months as in the date format, 'uu' stands for hours.

**Date Time Fields**

In date/time fields, first the date is entered and subsequently the time. The distinction between date and time is indicated by a space. The above given input formats show the way the date and time can be entered.

**Drop Boxes**

With drop boxes only valid choices can be made. A drop box works as follows: the field next to 'Impact' in the image below for example, is a drop box. As you can see something has already been entered: 'Low - Completely usable'.

You can change the content of this drop box by clicking on the little square. This opens the drop box and it will get the shape of the following image:

Now you can choose from four values: 'Low - Completely usable', 'N.A. - Not applicable', 'Average - Limited use' and 'Severe - No longer usable'. To choose you click on one of the possibilities. The drop box closes itself and your choice is recorded.

**Check boxes**

A final way to enter data in the screens is via check boxes. This is used when there are only two options: yes or no. If you check the box, you choose 'yes' and vice versa. An example of a check mark you can see in the image below:

The check is done by clicking on the white square or in the accompanying text or by selecting the white square with the cursor and then pressing the space bar. The field will look as follow:

**Forms**

The data in the screens of Invantive Estate is shown in forms. A form is a cohesive and structured group of data. The use of forms makes it clear and easy to enter or edit data in the database.
In some screens, the data is shown in multiple forms. At the top of the screen the master form is shown with the detail forms below. The data in the detail forms are linked to the data in the master form. The use of master- and detail forms in one screen prevents that you have to open multiple screens when you need to change related data.

**Add New Data**

Open the screen where you would like to add new data. This is possible using the option ‘Explorer’. This function can be found in the ribbon under the tab page ‘Invantive Estate’.

Suppose you want to add a new project. Select the option ‘Add Project’ in the top left of the screen. The following screen appears.
Fill the desired data in the **Form**. By using the scroll bar on the right of the screen, you can scroll to the **Form** bottom. Then select ‘OK’. The data is now saved. If you don’t want to save the data, select ‘Cancel’.

### Create or Change Data

Open the screen where you would like to create or change data. This is possible using the option ‘Explorer’. This function can be found in the ribbon under the tab page ‘Invantive Estate’.

![Form](image)

Select ‘Explorer’, the following screen is shown.
Suppose we want to change data from a person. Select the plus sign for 'Persons'. The folder with persons will open. This is shown in the screen below.

Using the mouse select the person who you want to edit the data from, in this case 'Aeilkema'. All relevant data concerning the person 'Aeilkema' is now shown in different tab pages. This is shown in the screen below.

In the menu above, there will appear an option 'Edit Person'. Select this option. The following screen appears.
Change the desired data in the form and then move the form down using the scrollbar on the right of the screen and select 'OK'. The data is now saved. If you don't want to save the data, select 'Cancel'.

If it is necessary to delete data, you can do this by searching the desired information, for example using the Explorer and subsequently selecting the option 'Edit'. Then select the field of data you want to delete and delete the data with the 'delete' key. After you have deleted the data select 'OK'. You can only delete data if they are not used anywhere else.

1.3.2 Invantive Estate

This chapter contains the function which can be found in the Microsoft Outlook ribbon under the tab page Invantive Estate.

1.3.2.1 Contacts

This chapter describes the functions that are included in the function group Contact Persons.

Update Relationships

Select the menu option Update Relationships to update your contacts in Microsoft Outlook with the data in the persons and organization administration in Invantive Estate. The updating of the contacts works optimally if the screen 'Contacts' is not open in Microsoft Outlook. The next window is opened when selecting the button 'Update Relationships'.

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The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>List of choices</th>
<th>The list of choices</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Update all: this option updates your existing contacts in Microsoft Outlook and add contact when new contacts were registered in the CRM administration of Invantive Estate.</td>
</tr>
<tr>
<td></td>
<td>• Update contacts: this option updates existing contacts in the existing contacts of Microsoft Outlook with the modified information of persons and organizations in Invantive Estate.</td>
</tr>
<tr>
<td></td>
<td>• Add Contacts: this option adds new contacts in the Microsoft Outlook from the CRM system of Invantive Estate. In the synchronization of contacts a maximum of thousand contacts are transferred based on the intensity of use.</td>
</tr>
</tbody>
</table>

Checkbox ‘Replace contacts …’

If a contact was synchronized before out of Invantive Estate, then, if the box is not checked during a new synchronization Invantive Estate, these items will not be changed. Invantive Estate will only add new contacts in that case. If the box is checked then all changes will be overwritten by the possibly new values from Vision/Estate.

After you have made the choice to update your relationships, you select start. The progress of the process are indicated with a blue statusbar. This is shown in the image below.

After the process is completed a notification will appear that indicated how many contacts were processed.
Select OK. Go back to the previous window and you can then close the process update relationships by selecting ‘Close’. This is shown in the image below.

Call
Via the menu option ‘Call’ you can easily call your contacts if Invantive Estate is connected to a PBX. After you have selected Call the following screen will open.

Using the top list box you can select the person or organization you would like to call. If the person or organization in Invantive Estate has multiple phone numbers registered, you can choose the desired phone number via the second list box without title.

The field ‘Phone’ displays the number that will be dialed when you select the button ‘Call’.

13.2.2 Snelle Acties
This chapter describes the functions which are in the function group Quick Actions.
Search

The function Search offers you the possibility to easily search for project items and quickly carry out changes in the project administration of Invantive Estate.

Select the menu option Search to find project data. The following screen is opened.

The tab ‘Recent items’ is selected. The data that the tab contains is described in Recent Items. If you want to search for other project data you need to select the tab with the desired data. To search for a project for example, select the tab ‘Projects’. This is displayed in the screen below.
Up in the screens of the function Search you will find a framed element with the title ‘Search’.

To find information you need to fill in the search filter in the upper part of the frame. The search results will comply with the content of the search filter. To search on project code ‘103’ fill in the field ‘Code’ the value ‘103’ and click on ‘Search’.

Documents or texts are searched using the SQL operator ‘contains’. The SQL operator ‘contains’ checks whether the searched string is present.

The ‘%’ and ‘_’-characters have a special meaning in the search context.

The ‘%’ sign means ‘any string of characters’ and the ‘_’-sign stands for ‘exactly one single character’. If you do not know part of the word that you want to search on, then fill in the percent sign for the part that you don’t know. Every word in which the searched word appears, preceded and followed by text, will be included in the search results. For example ‘Maas% eik’ provides both ‘Maas aan de eik’ and ‘Winkel Maaseik’.

In the same way the ‘_’-character has a special meaning when used with searching and it stands for ‘any single character’. If for instance you search for ‘_aas’, you will find ‘Maas’ as well as ‘maas’.

Note that using ‘%’ and ‘_’ is only possible in text fields. They have no special function in fields where you enter an amount or date.

Warning! The search is case sensitive. ‘MAAS’ is something else than ‘Maas’ and will provide different search results.

Grid

The lower part of the screens with tabs of Invantive Estate for Outlook will show the search results which comply with the search filter.

Sort

Above the search results are the column heads which you can use to sort the search results. By clicking on a column head, the selection is sorted on the values in the selected column. If you click on the column header once more, the sorting will happen in the reverse order (descending instead of ascending). An arrow after the column name indicates whether...
the column is sorted ascending (arrow pointing up) or descending (arrow pointing down).

<table>
<thead>
<tr>
<th>Category</th>
<th>∑</th>
<th>✓</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doc</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doc</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ER</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PR</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Summarizing and Filtering**

Behind the column name in the column header a summation sign and a filter sign are displayed. Select the summation sign. The following screen is opened.

Using this screen you can calculate a number of summarizations of the column. The grey-tinted choice boxes are not available.

**Meaning of the input fields:**

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count</td>
<td>Present a count of the number of items in the column as checked.</td>
</tr>
<tr>
<td>Maximum</td>
<td>Shows the maximum value in the column as checked.</td>
</tr>
<tr>
<td>Minimum</td>
<td>Shows the minimum value in the column as checked.</td>
</tr>
</tbody>
</table>

After you have made your desired choice, select OK. Under the column there will now appear the by you selected summaries. This is shown in the image below.
Using the filter sign you can filter on values in the columns. Select the filter sign in the column ‘Phase’. The following screen is opened:

You can now select to which value you wish to filter in the column. After you have selected a value, in this case ‘Execution’, close the screen with the possible filter values. The filter sign in the column head turns blue. This allows you to see that search results are filtered on one or more values within the column. This is shown in the following image.

Moving of columns

You can easily move the columns in the search results. To do this, click the left mouse button on the column name and drag it, while you hold the mouse button to the other location. Two black arrows appear if you have dragged the column to a valid location.
The above figure shows that the column 'Project' is moved to the location between the columns 'Holder' and 'Reported By'. If you release the left mouse button, the column is moved to the new location. This is shown on the image below.

**Grouping**

Above the column headers of the search results the text ‘Drag a column header here to group by that column’ is displayed. You can group by dragging the column on which you want to group to this area. For example, to display the search results grouped by project, drag the column header 'Project' to the dark gray area. This is shown in the image below.

**Change Column Width**

Columns can be made wider or narrower by moving the cursor in a column header over the border with another column header. The cursor changes in that moment in a horizontal double arrow. Now select the left mouse button. The boundary line between the column is now displayed in bold.

This indicates that you can make the column wider or smaller by moving the mouse. In the image below the width of the column 'Holder' is increased.

**Tabs**

The tabs give you the option to directly and quickly carry out changes in the project administration of Invantive Estate.
After you select the menu option Quick Open

First you can search and select the project item you want to change, using the tabs on the screen. After you select Quick Open, the next screen will appear.

The tab page Recent Items is selected. Behind the title the number of items the tab page contains is mentioned. The project items which you opened last, are shown down in the tab.

All tab pages in this screen contain a searching functionality in the upper framework of the tab page. To search information fill in the data in the search filter to which the results must measure up to. To search on project code ‘103’ fill in the field ‘Code’ the value ‘103’ and click on ‘Search’. In paragraph Searching the search functionality is described in detail.

The other tabs in this screen are:
- Projects
- Processes
- Documents
- Organizations
- Persons
- Units
- Budgets
- Invoices
- Invoice Lines
- Revenues
- Orders
- Budget Movements
- Contract Budgets
- Latest estimations

The tabs are described in the next paragraphs.
The tab ‘Recen items’ is selected. In this tab, the following project items are shown:

- The posting of hours on projects or processes.
- Other project activity.
- Other process activity.
- Changes in the filter.

1.3.2.3 Reports

The menu option reports allows you to retrieve all kind of information about a project.

Formats

Every report is available in the Adobe Reader or Adobe Acrobat PDF format and in the Microsoft Excel XLS format. The information in both report formats (Excel and Acrobat) is exactly the same. The only difference is the layout in Microsoft Excel, which isn't as good as the layout in a PDF file. The program ‘Adobe Reader’ is free available on the Adobe Website.
Direct link

You can quickly edit data when you are viewing reports. The detail data that can be changed (orders, returns, and adjustments of cost) will have hyperlinks. By clicking on the desired hyperlink in the report, Invantive Estate will be opened automatically. In case you’re not logged in, Invantive Estate will ask you to log in. After you log in, Invantive Estate will open the screen that contains the source data which is used to produce the report (in case you have the required rights). If you have the rights to edit data, you can customize the numbers. Then you can update the report by a rerun. The report will now show the edited numbers.

1.3.2.4 Explorer

Enter text here.

1.3.2.5 Query Tool

See

1.3.2.6 Open Invantive Website

Enter text here.

1.3.2.7 Preferences

The settings which are made in this screen, apply only to the user who is logged on. The screen ‘My Preferences’ contains a number of tabs. These are explained in the following paragraphs.

Filter

After you select ‘My preferences’ you will go to the tab ‘Filter’ of the screen ‘My Preferences’.

Every user of Invantive Estate has access to some of the projects or even to all projects. However, you usually work with only one part of the projects or just one project. The filter helps you in all reports and screens to see and edit only the project data that are relevant to you.

The section ‘Filter’ in the screen ‘My Preferences’ consists of a list of restrictions which are combined to form a list of projects that comply with these restrictions.

If you wish to erase the filter then use the button ‘Erase filter’.
The meaning of the entry fields is:

- **Reporting Date**: Here you can enter the reporting date for which the information on the reports should be shown. This date is activated by checking the selection box.
- **Project Versions**: Displays the project version of the project data which has to be shown in the reports.
- **Start Date**: The start of the reporting data range. All data before this date are not reported.
- **End Date**: The end of the reporting date range. All data after this date are not reported.
- **Project**: Limit the filter to a specific project.
- **Product group**: Limit the filter to all projects from the relevant product group.
- **Product Group Director**: Limit the filter to all projects with the product group director.
- **Project developer**: Limit the filter to all relevant projects of the relevant developer.
- **Project Phase**: Limit the filter to all projects in the relevant implementation stage.
- **Closed**: Limit the filter to all projects that have been closed or not.
- **City**: Limit the filter to all projects where the name of the city where they are executed contains this text.
- **Legal Entity**: Limit the filter to all projects where the name of the legal structure under which they are executed contains this text.
- **Reporting group**: Limit the filter to all projects where the reporting group contains this text.
- **Classification**: Limit the filter to all projects with the classification that appears in this field. A classification is a label that can be linked to a project or a person. With these labels you can find the desired information more easily.

The meaning of the other fields:
Your Name  
Your name as registered in the personal administration.
Number of Projects in Filter  
Indicates the number of projects that comply with the settings in the filter.

Preferences

Select the tab ‘Preferences’. The following screen opens.

![Preferences screen]

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deviating Work Extension</td>
<td>Alternate phone number to reach the user at work.</td>
</tr>
<tr>
<td>Language</td>
<td>The preferred language in which the user interface needs to be presented. See also Multi-linguality.</td>
</tr>
<tr>
<td>Show Tips</td>
<td>When checked, after you log on, tips for using Invantive Estate will be shown.</td>
</tr>
<tr>
<td>Receive Newsletter</td>
<td>When checked, the user will receive the newsletter of the dealer.</td>
</tr>
<tr>
<td>Show Anniversaries</td>
<td>When checked, after you log on, the near birthdays of users of Invantive Estate are shown.</td>
</tr>
<tr>
<td>Start Page (URL)</td>
<td>The URL that will be opened after you have logged on. The URL will be requested with the parameter <code>MENU_CODE = Main</code>. If the field is empty, then the URL in the field ‘Main menu (URL)’ in the screen Settings of the web user interface will be used.</td>
</tr>
</tbody>
</table>

Report

Select the tab ‘Reports’. The following screen opens.

![Report screen]

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reporting Unit</td>
<td>The numerical unit used in the presentation of figures in reports.</td>
</tr>
<tr>
<td>Reporting time unit</td>
<td>The time unit used in the presentation of figures in reports reporting time periods.</td>
</tr>
<tr>
<td>Merge Subprojects</td>
<td>If this box is checked, then projects are consolidated into master projects and independent...</td>
</tr>
</tbody>
</table>
Adobe PDF Settings

Select the tab ‘Adobe PDF Settings’. The following screen opens.

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Entry Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use Encryption</td>
<td>If this box is checked, all PDF reports will be secured with two passwords: one password for the owner, who has full rights and another password for the person who gets limited rights as will be registered with the other check boxes.</td>
</tr>
<tr>
<td>Password Owner</td>
<td>The password for all PDF reports with which one is granted full rights for the PDF.</td>
</tr>
<tr>
<td>Password User</td>
<td>The password for all PDF reports with which one is granted limited rights, as registered by the following options.</td>
</tr>
<tr>
<td>Allow Printing</td>
<td>In case this box is checked, an authorised PDF user can print the file.</td>
</tr>
<tr>
<td>Allow Copying</td>
<td>If this box is checked, then an authorized user can copy text from the PDF file into a Microsoft Word file.</td>
</tr>
<tr>
<td>Allow Modifying</td>
<td>In case this box is checked, an authorised PDF user can change the file by for instance deleting texts from it.</td>
</tr>
<tr>
<td>Allow Annotating</td>
<td>In case this box is checked, an authorised PDF user can add an annotation to the file.</td>
</tr>
<tr>
<td>Allow Fill In</td>
<td>In case this box is checked, an authorised PDF user can fill out any forms attached to the file.</td>
</tr>
<tr>
<td>Enable Screen Reader Options</td>
<td>In case this box is checked, an authorised PDF user can use a screen reader. A screen reader is a tool for the visually impaired; it is recommended to always allow this option.</td>
</tr>
</tbody>
</table>

Microsoft Excel Settings

Select the tab ‘Microsoft Excel’. The following screen opens.
The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Read-only</td>
<td>If this box is checked, then the authorized user, can only read the Excel file. How ever, no changes can be made.</td>
</tr>
<tr>
<td>Password for Editing File</td>
<td>The password of the Excel files necessary to change them.</td>
</tr>
</tbody>
</table>

**Statistics**

Select the tab ‘Statistics’. The following screen opens.

The meaning of the fields is displayed:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Login</td>
<td>Date on which you logged in for the first time using the web user interface.</td>
</tr>
<tr>
<td>Last Login</td>
<td>Date last time logged in via the web user interface.</td>
</tr>
</tbody>
</table>

**1.3.3 Calendar**

This section contains information about the functions needed to exchange data between the Microsoft Outlook calendar and the project administration of Invantive Estate.

**1.3.3.1 Calendar Update**

This chapter describes how your data in the calendar of Microsoft Outlook can be used for the administration of timesheets in Invantive Estate.

The menu item Calendar Update performs a number of functions:

- The worked hours for a project that you have registered in the Microsoft Outlook calendar, are exported to the project hour administration in Invantive Estate.
- The hours that have been registered in the project hour administration in Invantive Estate, are exported to the Microsoft Outlook calendar.
- The changes that you have made in your hour registration in your Microsoft Outlook calendar are exported to the project hour administration of Invantive Estate and vice versa.

The export and import of hours worked in the Microsoft Outlook calendar increases efficiency because the hours worked do not need to be entered twice manually. In addition, it minimizes the chance of errors.
Requirements for Editing Agenda

Requirements to synchronise the Microsoft Outlook calendar with the project hour administration in Invantive Estate:

- The Microsoft Outlook calendar needs to be opened.
- You will need to assign a category to the worked project hours that you have planned in the Microsoft Outlook calendar.
- You will need to assign an Attribute to the worked project hours that you have planned in the Microsoft Outlook calendar.

These requirements are discussed in the following paragraphs.

The tab "Timesheets" shows a list with all categories of messages and/or appointments from your Outlook. You can exclude the categories that you do not want to take part in the timesheet processing, by selecting them and move them to the right column.

Microsoft Outlook Calendar has to be open

To synchronize the Microsoft Outlook calendar with the administration of project hours in Invantive Estate you need to open the Microsoft Outlook Calendar. If the Microsoft Outlook calendar is closed, you will get the following error message when selecting the Invantive Estate for Outlook ‘menu option ‘Update Calendar’.

Close the message by selecting OK or the cross in the right upper corner of the window.

Notice! Only the data which is visible in your Microsoft Outlook calendar, will be updated.

If you select a display of only one day in your Microsoft Outlook calendar, then only the hours for this one day will be updated. If you select a calendar view of a month, then only the hours for the selected month are processed etc. In the screen below is in the Microsoft Outlook calendar the view of one day selected.
Assign Labor Type

To synchronise the worked project hours that you have planned in the Microsoft Outlook calendar with the project hour administration in Invantive Estate, you need to assign a 'category' as work type. A category can be used within Microsoft Outlook to sort Microsoft Outlook items in various categories. Categories ensure that it easy to organize, search, sort and process items.

Categories are used by Invantive Estate to correctly register the worked project hours from the Microsoft Outlook calendar to a work type which is necessary for for example the invoicing process. To properly register the worked project hours from the Microsoft Outlook calendar the categories that are assigned to these project hours in Invantive Estate need to be linked to a work type. Categories are linked in Invantive Estate to a work type in the screen Work types.

To link a category to your project hours in the Microsoft Outlook calendar, open the registered hours in the Microsoft Outlook calendar. Subsequently you select in the Microsoft Outlook ribbon the item Categories and select the category of your choice. In the screen below you can see that by looking at the hours that were assigned to 'consultation data warehouse structure' the category 'Hour Analysis'.
If you assign a Category to your registered hours in your Microsoft Outlook calendar which is not assigned to a work type in Invantive Estate and next you select the menu option Synchronize Calendar, you will get the following message:

To synchronize the project hours you registered in the Microsoft Outlook calendar with the project hour administration in Invantive Estate, you need close the message by selecting OK or the small cross in the right upper corner. Next you open the hours in your Microsoft Outlook calendar and you assign a category which is assigned to a work type in Invantive Estate. An alternative possibility is to link the category that has not been linked to a work type in Invantive Estate to a work type. If you have the proper authorizations for this, you can do this in the screen Work types.

The notification above will also appear if you have assigned an Attribute in your Microsoft Outlook calendar, but no Category and you have subsequently selected the menu option Update Calendar. To export your registered hours from your Microsoft Outlook calendar to Invantive Estate, you need to close the message by selecting OK or the cross in the right upper corner of the message window. Next you open the hours in your Microsoft Outlook calendar and you assign a category which is assigned to a work type in Invantive Estate.

Microsoft Outlook offers you the option to create new categories. To use these new categories in the synchronization process between the Microsoft Outlook calendar and Invantive Estate, you will need to link the new categories in Invantive Estate to a work type in the window Work types.

Attribute Assignment
Registration of hours worked

After you have assigned a category and attribute to the worked project hours in the Microsoft Outlook calendar, you can synchronise these hours with the project hour administration in Invantive Estate. Ensure that your opened Microsoft Outlook calendar displays the worked project hours that you want to synchronise with the project administration in Invantive Estate. Now select the menu option ‘Update Calendar’. The hours are updated and the following Hour Registration Overview appears.

<table>
<thead>
<tr>
<th>Dag</th>
<th>Datum</th>
<th>Gewerkt</th>
<th>Te Werkken</th>
<th>Resterend</th>
</tr>
</thead>
<tbody>
<tr>
<td>maandag</td>
<td>24-01-2011</td>
<td>0:00</td>
<td>8:00</td>
<td>-8:00</td>
</tr>
<tr>
<td>dinsdag</td>
<td>25-01-2011</td>
<td>0:00</td>
<td>8:00</td>
<td>-8:00</td>
</tr>
<tr>
<td>woensdag</td>
<td>26-01-2011</td>
<td>0:00</td>
<td>0:00</td>
<td>0:00</td>
</tr>
<tr>
<td>donderdag</td>
<td>27-01-2011</td>
<td>0:00</td>
<td>8:00</td>
<td>-8:00</td>
</tr>
<tr>
<td>vrijdag</td>
<td>28-01-2011</td>
<td>0:00</td>
<td>8:00</td>
<td>0:00</td>
</tr>
<tr>
<td>zaterdag</td>
<td>29-01-2011</td>
<td>0:00</td>
<td>0:00</td>
<td>0:00</td>
</tr>
<tr>
<td>zondag</td>
<td>30-01-2011</td>
<td>0:00</td>
<td>0:00</td>
<td>0:00</td>
</tr>
</tbody>
</table>

**Week 4, 2011**

<table>
<thead>
<tr>
<th></th>
<th>8:00</th>
<th>32:00</th>
<th>-24:00</th>
</tr>
</thead>
<tbody>
<tr>
<td>maandag</td>
<td>31-01-2011</td>
<td>0:00</td>
<td>8:00</td>
</tr>
<tr>
<td>dinsdag</td>
<td>01-02-2011</td>
<td>0:00</td>
<td>8:00</td>
</tr>
<tr>
<td>woensdag</td>
<td>02-02-2011</td>
<td>8:00</td>
<td>0:00</td>
</tr>
<tr>
<td>donderdag</td>
<td>03-02-2011</td>
<td>0:00</td>
<td>8:00</td>
</tr>
<tr>
<td>vrijdag</td>
<td>04-02-2011</td>
<td>0:00</td>
<td>8:00</td>
</tr>
<tr>
<td>zaterdag</td>
<td>05-02-2011</td>
<td>0:00</td>
<td>0:00</td>
</tr>
<tr>
<td>zondag</td>
<td>06-02-2011</td>
<td>0:00</td>
<td>0:00</td>
</tr>
</tbody>
</table>

**Week 5, 2011**

<table>
<thead>
<tr>
<th></th>
<th>8:00</th>
<th>32:00</th>
<th>-24:00</th>
</tr>
</thead>
<tbody>
<tr>
<td>maandag</td>
<td>07-02-2011</td>
<td>0:00</td>
<td>8:00</td>
</tr>
<tr>
<td>dinsdag</td>
<td>08-02-2011</td>
<td>2:30</td>
<td>8:00</td>
</tr>
<tr>
<td>woensdag</td>
<td>09-02-2011</td>
<td>0:00</td>
<td>0:00</td>
</tr>
<tr>
<td>donderdag</td>
<td>10-02-2011</td>
<td>0:00</td>
<td>8:00</td>
</tr>
<tr>
<td>vrijdag</td>
<td>11-02-2011</td>
<td>0:00</td>
<td>8:00</td>
</tr>
<tr>
<td>zaterdag</td>
<td>12-02-2011</td>
<td>0:00</td>
<td>0:00</td>
</tr>
</tbody>
</table>

The meaning of the columns is:

- Day: The day.
- Date: The date.
- Worked: The number of hours that the Invantive Estate user has worked on this date.
- To Work: The number of hours that the Invantive Estate user needs to work according to the work schedule as it is registered in Work Schedules and Work Schedule Exceptions.
- Remaining: The remainder between the ‘Worked’ hours and the ‘To Work’ hours.
In order to ...... select Open..

1.3.3.2 Overview last action

This menu option opens an hour registration review of the hours which are registered in Invantive Estate before the data is shown in your opened Microsoft Outlook calendar.

The meaning of the columns is described in hour registration.

1.3.3.3 User Activity (pdf)

Through this registration you can provide this information in a quick and clear manner. This screen allows you to request ‘process level’ where a person worked on.

In the second part of this report which is called ‘Timesheets’, shows the number of hours that a project employee has been working. The picture shows the screen of the model editor.
1.3.3.4 Planning

You can assign future hours of yourself or your colleagues to processes using the menu option Schedule. The method of planning a process is:
- Open the schedule module by clicking on the button ‘Start Schedule’ on the top of the ribbon;
- Select the process you want to plan in the screen ‘Schedule’;
  - This window shows the open processes. The weight of the process is determined by the impact of the process and the time in which it has been open.
  - The panel Required Skills shows the skills which are necessary to complete a process. The skill set necessary are entered in the process itself.
  - The panel Qualified Persons shows the person who you can schedule for this process. This is the meaning of the fields:
    - Matching: this indicates how many percent of the required skill matches with the person's skill set.
    - Performance: this indicates the level of the person involved, compared to the required level.
- Go to the calendar where you want to schedule the process. Then choose ‘Schedule process here’, from the context menu.
- Then a calendar item will be made with the process definition and the process code with the labor type schedule.

The image below shows the scheduling of process ‘7’ of Tuesday 22 November at 11.00 hour. The usage of the scheduling module makes sure that the scheduled hours are saved directly in Invantive Estate. The hours which were made manually in Microsoft Outlook, will be saved by the button ‘Update Agenda’ in the ribbon of Invantive Estate.

In the schedule

1.3.3.5 Change Calendar Owner

Using the menu option Change Calendar Owner, you can easily change the calendar of project employees without logging in to Microsoft Outlook again. Select the option Change Calendar Owner. The following screen will be opened.
To display the calendar of a different employee, open the list of choices by selecting the triangle left in the list of choices.

1.3.4 Settings

The first time that Microsoft Outlook is opened after the installation of Invantive Estate for Outlook, the setting screen will appear of Invantive Estate for Outlook. Using this screen you can Invantive Estate for Outlook configure. The screen ‘Settings’ contains the tab pages ‘General’, ‘Advanced’ and ‘Debug’. These tabs are described in the next paragraphs.

1.3.4.1 General

In this tab you can register and change general settings.

![Invantive Estate | Instellingen](image)

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use Add-In</td>
<td>Using this you can turn the add-in on and off. To make the changed setting active you need to restart Microsoft Outlook.</td>
</tr>
<tr>
<td>Get settings from</td>
<td>The specified location where the settings for the connection with the Add-In are saved. See Connection configuration for an explanation about the connection file.</td>
</tr>
<tr>
<td>Register outgoing e-mail</td>
<td>Outgoing e-mails are registered in Invantive Estate if they are checked. To enable registration by Invantive Estate fill in a process number in the topic field of your e-mail. A process number starts with '[', then the letter 't' and the number from the process is closed with ']'. For example: '[t307]'</td>
</tr>
<tr>
<td>Show in context menu</td>
<td>Menu options from Invantive Estate for Outlook are shown in the context menu if they are checked.</td>
</tr>
</tbody>
</table>

The meaning of the other fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of available connections</td>
<td>The maximal number of possible connections with Invantive Estate for Outlook.</td>
</tr>
</tbody>
</table>

1.3.4.2 Advanced

In this tab page you can enter locations if necessary for the functioning of Invantive Estate for Outlook. By the button zi will open
By the button "..." Select to open the next screen.

In this screen you can select the desired folder and therafter ???? Keys.

The meaning of the input fields in the tab page is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installation location</td>
<td>The location where the files of the program are installed.</td>
</tr>
<tr>
<td>Target directory</td>
<td>The location of the target directory.</td>
</tr>
</tbody>
</table>
1.3.4.3 Debug

In this tab page you can ....

The meaning of the entry fields is:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ignore 'unfamiliar' error at sync agenda</td>
<td>If the check box is checked an error while synchronizing the agenda is ignored.</td>
</tr>
<tr>
<td>AutoReply with a changed appointment</td>
<td>In case of an appointment in the agenda being changed.</td>
</tr>
<tr>
<td>Debug mode</td>
<td>If the check box is being checked.</td>
</tr>
</tbody>
</table>

1.3.5 Integration Outlook with Microsoft Exchange

The Invantive Estate Outlook Add-in can be used in combination with Microsoft Exchange. The advantages of this are:

- Administrative employees can register hours of other employees in Invantive Estate.
- Users have the same calendar and the same contacts on every PC.
- The data in Microsoft Outlook like the appointments on a local PC are easily recovered by restoring a link on a different PC using Microsoft Exchange. The internal codes of the appointments that are used for the link with Invantive Estate are preserved.

Because of these advantages the Invantive Estate Outlook Add-in is used in combination with Microsoft Exchange in most implementations.

The structure is as follows:
The user enters the hours as normal by putting an appointment in his calendar, a work type and a characteristic.

This appointment is automatically replicated under water in the Microsoft Exchange Store.

The user uses 'Update Calendar' to enter the appointments as hours in Invantive Estate. At the same time hours in Invantive Estate that were not in the calendar of the user yet, are also included in his calendar.

1.3.6 Over Outlook Add-in

This menu option will open a window in which the version of Invantive Estate for Outlook, a copyright message and a link to the website of Invantive BV are shown.

1.3.7 Integration Outlook with Gmail

The Outlook user interface also works with email which is not stored in Microsoft Exchange or local folders, but, for example, in Google GMail. This chapter describes the steps to combine the Outlook UI with Google GMail.
Perform the following steps:

- Activate the IMAP connection of Google Gmail:

- Create a new account in Microsoft Outlook:
• And link it with Gmail via IMAP and SMTP protocol:
• Make sure that sending emails is done in a secured way using SMTP:
• And set the encryption and gates as follows:

![Image of Internet E-mail Settings window]

- The email is visible in Google Gmail:

![Image of Gmail interface]

- The email in Google Gmail is also visible in Microsoft Outlook and its data from the system are shown:
Contacts and Calendar

It is also possible to link to contacts and calendar.

The synchronization of Google Calendar Sync contacts can be used, but Kigoo offers more possibilities.

After installation as Administrator it may be necessary to use the user account to import the mailbox with:

C:\Program Files (x86)\KiGoo\Configuration>importexporttool.exe -import -pst KIGooConfig2007.pst -storename KiGoo

In Google Calendar, you can also use features, for example:
In Microsoft Outlook the appointment in Google Calendar appears with the data from the system:
1.3.8 Apple Macintosh

It is possible to Invantive Estate use Microsoft Outlook add-in on an Apple Macintosh (Mac) computer with the operating system Mac OS X and an Intel® processor. Invantive Estate using the web works by certification on Safari.

1.3.8.1 Method

To Invantive Estate use Microsoft Outlook Add-In you need to install the virtualisation software Parallels Desktop or VMware Fusion. Then you need to install Microsoft Windows in the virtualisation software. It is advisable to install Windows XP, simply because this Windows version delivers the best performance when installed virtually. Microsoft Outlook with the Add-In runs smoothly and clean next to your other programs because of the virtualisation software. Several tests prove that Parallels Desktop works best on a Mac, see the comparison on Wikipedia: http://en.wikipedia.org/wiki/Comparison_of_VMware_Fusion_and_Parallels_Desktop.

The system requirements and license cost for Paralles Desktop® 6 for Mac are on the web page: http://www.parallels.com/eu/products/desktop/

The system requirements and license cost for VMware Fusion 3 are on the web page: http://www.vmware.com/products/fusion/overview.html.

The purchase of the virtualisation software, Windows and Outlook brings extra license costs.

1.3.8.2 Installation Steps

Complete the steps below to Invantive Estate install Microsoft Outlook add-in on a Mac:

- Install Parallels Desktop or VMware Fusion on a Mac.
• Enter a Windows installation disc or load an image on the Mac, preferably Windows XP Professional SP 3 or higher.
• Then install Microsoft Office 2007 or 2010 on Parallels Desktop or VMware Fusion.
• Complete the installation of Invantive Estate Microsoft Outlook add-in and make a connection.
• Vanaf nu is het mogelijk om Invantive Estate Microsoft Outlook add-in uit te voeren op een Mac, zie afbeelding hieronder.

1.3.9 Screens
Enter text here.

1.3.9.1 Edit screens
Enter text here.

Edit background job

Edit bank

Edit Person Skill

Edit budget

Edit budget movement

Edit draft invoice line
Edit contract

Edit contract budget

Edit contract process generation

Edit invoice

Invoice Lines

Edit related organization

Edit supplier

Edit warehouse

Edit organization

Organization Classifications

Persons

Edit person classification

Edit price list

Price List Lines

Edit process

Process Units

Process Skills
Product Properties

Products

Edit project allocation

Edit project involvement

Projects

Edit interest

Edit unit

Edit unit property values

Edit unit type group

Edit unit type group property

Edit hour

Edit working schedule

Edit working schedule exception
1.3.9.2 Detail windows

Enter text here.

Background process details

Banks

Enter text here.

Message details

Budgets

Enter text here.

Budget Movement per Budget details

Concept Invoice Lines

Enter text here.

Contract Budgets

Enter text here.

Contracts

Enter text here.

Contract process generation details

Details involved person

Details gerelateerd proces

Details related project

Details process classification

Details task note
Details Working Schedule exception

Document Details

Invoices
Enter text here.

Invoice Lines
Enter text here.

Edit related unit & add
Enter text here.

Cash Flow Projection details

Latest estimations
Enter text here.

Warehouses
Enter text here.

Revenue
Enter text here.

Orders
Enter text here.

Organization classification details

Organizations
Enter text here.

Persons
Enter text here.

Person Skill
Enter text here.

Person classification details

Price list details

Price List Line details
Process
Enter text here.

Process Unit
Enter text here.

Process Involvement details

Process classification details

Process Skills

Process Skill details

Product Standard Property details

Product details

Product property details

Products
Enter text here.

Product Groups
Enter text here.

Project
Enter text here.

Project allocation details

Project classification details

Project Involvements

Unit
Enter text here.

Hours
Enter text here.
Skill
Enter text here.

bubs-outlook-web-page-searchterm-details

1.3.9.3 List windows
Enter text here.

Background Processes list

Banks
Enter text here.

Messages
Enter text here.

Involved Units
Enter text here.

Involvements
Enter text here.

Budgets
Enter text here.

Budget Movements
Enter text here.

Classifications
Enter text here.

Classifications list

Concept Invoice Lines
Enter text here.

Contract Processes Generation

Contract Budgets
Enter text here.

Contracts
Enter text here.

Document Participation
Enter text here.
Documents
Enter text here.

Invoices
Enter text here.

Invoice Lines
Enter text here.

Related Organizations
Enter text here.

Related processes
Enter text here.

Related projects
Enter text here.

Related Units
Enter text here.

Qualified Persons list

Calls
Enter text here.

Job Parameter list

Cash Flow Projection Day Details list

Cash Flow Projection Details list

Cash Flow Projections
Enter text here.

Latest estimations
Enter text here.

Warehouses
Enter text here.

Revenues
Enter text here.

Orders
Enter text here.
Organization classification list

Organization participation
Enter text here.

Organizations
Enter text here.

Persons
Enter text here.

Personal Skills
Enter text here.

Planning
Enter text here.

Price Lists

Price List Lines

Process Participation
Enter text here.

Process Units
Enter text here.

Process Skills
Enter text here.

Process Classification list

Process Notes
Enter text here.

Processes
Enter text here.

Processes involved with
Enter text here.

Product Standard Properties list

Product Properties list
Products
Enter text here.

Product group
Enter text here.

Project Allocations
Enter text here.

Project Involvements
Enter text here.

Project Classification list

Project Involvements list

Projects
Enter text here.

Involved projects
Enter text here.

Project Versions
Enter text here.

Recent items
Enter text here.

Unit Property Values
Enter text here.

Unit Transactions
Enter text here.

Units
Enter text here.

Hours
Enter text here.

Expectations
Enter text here.

Stock Levels
Enter text here.

Working Schedule list
Working Schedule exceptions list

Workflow
Enter text here.

bubs-outlook-web-page-searchterm-list

1.4 Invantive Estate for Windows
Using Invantive Estate for Windows you can work with Invantive Estate out of Microsoft Windows but without Microsoft Outlook.

1.5 Links
De beschikbare koppelingen worden hier beschreven.

1.5.1 Exact Online Interface
Invantive Estate is compatible with the accounting package Exact Online. The interface works in two directions:
- Concept invoices from Invantive Estate can be imported in Exact Online and from there they may be changed and invoiced.
- Products, Organizations, Projects and Cost center from Invantive Estate can be read in Exact Online.
- Final invoices and other general ledger mutations from Exact Online can be imported into Invantive Estate.
You can fill several Exact Online administrations with the same list of products, organizations, projects and cost centers.

1.5.1.1 Installation
Execute these steps to install a link with Exact Online.

Additional Business Rules

Checking Length Short Project Code

Exact Online does not accept project codes (cost units) with more than 8 positions. The short code for a project is passed to Exact Online. Install the following additional business rule to make sure that the short code meets the requirements of Exact Online:

<table>
<thead>
<tr>
<th>View</th>
<th>bubs_projecten_v</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action</td>
<td>Mutation</td>
</tr>
<tr>
<td>Group</td>
<td>Checks for Exact Online</td>
</tr>
<tr>
<td></td>
<td>-- exactonline-check-1</td>
</tr>
<tr>
<td></td>
<td>-- if :action_moment = 'B' then</td>
</tr>
<tr>
<td></td>
<td>if :last.pjt_code_kort is null and length(:last.pjt_code) &lt;= 8</td>
</tr>
</tbody>
</table>
---

if :last.pjt_code_kort is null
then
    bubs_error_handler.handle_error
    ( '{res:bubs_eol_required_short_code?' || bubs#vertalingen.escape_parameter(:last.pjt_code) || '}'
    );
end if;

--

if length(:last.pjt_code_kort) > 8
then
    bubs_error_handler.handle_error
    ( '{res:bubs_eol_project_short_code_too_long?' || bubs#vertalingen.escape_parameter(:last.pjt_code) || '}'
    );
end if;
end if;

---

Checks Contacts

Every customer and supplier must have a contact person, that contact person must be linked to one organisation only, and a first and last name must be specified. Install the next additional business rule to check this:

```sql
begin
    if :action_moment = 'B'
        and
        ( :new.lvr_klant_vlag = 'Y' 
          or 
          :new.lvr_opdrachtnemer_vlag = 'Y'
        )
    then
        -- Check that a primary contactperson is available.
```
-- if :last.gbr_cp_naam is null then
    bubs_error_handler.handle_error
    ( '{res:bubs_eol_prim_cp_required?' || bubs#vertalingen.escape_parameter(:last.lvr_code) || '&' || bubs#vertalingen.escape_parameter(:last.lvr_naam) || '}'
    );
else
    select gbr_cp.gbr_achternaam, gbr_cp.gbr_voornaam
    into l_gbr_cp_achternaam, l_gbr_cp_voornaam
    from bubs_gebruikers_v gbr_cp
    where 1=1
    and gbr_cp.gbr_naam = :last.gbr_cp_naam;
    if ( l_gbr_cp_achternaam is null and l_gbr_cp_voornaam is null ) then
        bubs_error_handler.handle_error
        ( '{res:bubs_eol_prim_cp_required_namepart?' || bubs#vertalingen.escape_parameter(:last.lvr_code) || '&' || bubs#vertalingen.escape_parameter(:last.lvr_naam) || '&' || bubs#vertalingen.escape_parameter(:last.gbr_cp_naam) || '}'
        );
    else
        -- Check that a person is only available on at most one organisation.
        --
        select coalesce(count(*), 0) cnt
        into l_cnt_usages
        from bubs_leveranciers_v lvr
        where 1=1
        and lvr.gbr_cp_naam = :last.gbr_cp_naam
        and lvr.lvr_id <> :last.lvr_id
        ;
        if l_cnt_usages >= 1 then
            bubs_error_handler.handle_error
            ( '{res:bubs_eol_prim_cp_unique?' || bubs#vertalingen.escape_parameter(:last.lvr_code) || '&' || bubs#vertalingen.escape_parameter(:last.lvr_naam) || '}'
            );
        else
Checks Persons

Each person which writes hours can lead to invoicing in Exact Online. The cost center is based on unique initials. Therefore the unique initials must always be filled in:

<table>
<thead>
<tr>
<th>View</th>
<th>bubs_gebruikers_v</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action</td>
<td>Mutation</td>
</tr>
<tr>
<td>Group</td>
<td>Checks for Exact Online</td>
</tr>
<tr>
<td></td>
<td>if :action_moment = 'B' and :last.gbr_initialen is null and :last.gbr_tijdschrijver_vlag = 'Y' then bubs_error_handler.handle_error ( '{res:bubs_eol_initials_required?'</td>
</tr>
</tbody>
</table>

Explanation Make sure that a contact is entered for clients and contractors and it is not used more than one time.

Certificate Exact Online Web Service

For data downloading and uploading via the Exact Online web service it is required to notify Tomcat of the certificate of Exact Online. The easiest way is to use the program InstallCert. Perform the following steps:

- Start InstallCert with the name of the https host of Exact Online:

  C:\> java InstallCert start.exactonline.nl

  InstallCert.main():C:\Program Files\Java\jre6\bin\java Exact Certs...
Opening connection to start.exactonline.nl:443...
Starting SSL handshake...

No errors, certificate is already trusted

Server sent 2 certificate(s):

1 Subject CN=start.exactonline.nl, OU=Terms of use at www.verisign.com/rpa (c)05, OU=System Support, O=Exact Holding N.V., L=Delft, ST=Zuid Holland, C=NL, SERIALNUMBER="27234422 0000", OID.2.5.4.15="V1.0, Clause 5.(b)", OID.1.3.6.1.4.1.31.60.2.1.3=NL
   Issuer CN=VeriSign Class 3 Extended Validation SSL SGC CA, OU=Terms of use at https://www.verisign.com/rpa (c)06, OU=VeriSign Trust Network, O="VeriSign, Inc.", C=US
      sha1 ce 97 17 5d 25 ab 40 75 25 72 c9 dc 58 ca b5 3d 0c 98 cb
      md5 d7 5e 76 79 b0 68 0b 24 5f 00 51 2c 40 7e e0 9d

2 Subject CN=VeriSign Class 3 Extended Validation SSL SGC CA, OU=Terms of use at https://www.verisign.com/rpa (c)06, OU=VeriSign Trust Network, O="VeriSign, Inc.", C=US
   Issuer CN=VeriSign Class 3 Public Primary Certification Authority - G5, O="VeriSign, Inc.", C=US (c) 2006 VeriSign, Inc. - For authorized use only", OU=VeriSign Trust Network, O="VeriSign, Inc.", C=US
      sha1 b1 80 39 89 98 31 f1 52 61 46 67 cf 23 ff ce a2 b0 e7 3d ab
      md5 ca d5 a7 99 dd 90 93 60 b8 7c 31 9b de d5 f3 2f

Enter certificate to add to trusted keystore or 'q' to quit: [1]

[1]

Version: V3
Subject: CN=start.exactonline.nl, OU=Terms of use at www.verisign.com/rpa (c)05, OU=System Support, O=Exact Holding N.V., L=Delft, ST=Zuid Holland, C=NL, SERIALNUMBER="27234422 0000", OID.2.5.4.15="V1.0, Clause 5.(b)", OID.1.3.6.1.4.1.31.60.2.1.3=NL
Signature Algorithm: SHA1withRSA, OID = 1.2.840.113549.1.1.5
Key: Sun RSA public key, 2048 bits
modulus:
229618351194755793110732328671291907363055699759052327401976220
86148
794275585266710346167452034622903466293905072419534097369654309
3593292666107075
949363421778528039573241941416391117528980193658805463274350529
9645801785250252
9514977304585483686116304712825294103837852988404459390561822542
0399364724195266
4342157098057959282717095008829034852645294632476008959817055418
8540975803412342
735841557796620312985017487711474810938837242789207124672256718
7468748001030296
7064622068096557679259084200367007336511520352069027121274372670
6395785808073220
2402485720912804844263156374497815538965533392113776678233447403
8613

public exponent: 65537

Validity: [From: Mon Apr 27 02:00:00 CEST 2009,
To: Sun Jun 27 01:59:59 CEST 2010]

Issuer: CN=VeriSign Class 3 Extended Validation SSL SGC CA,
OU=Terms of use at https://www.verisign.com/rpa (c)06, OU=VeriSign Trust Network,
O="VeriSign, Inc .", C=US

SerialNumber: [0a35a4ef 6cbf483d 506e94f 52a9b3bf]

Certificate Extensions: 8
[1]: ObjectId: 1.3.6.1.5.5.7.1.12 Criticality=false
Extension unknown: DER encoded OCTET string =
0000: 04 62 30 60 A1 5E A0 5C   30 5A 30 58 30 56 16 09  .b0`.^.
\0Z0X0V..
0010: 69 6D 61 67 65 2F 67 69   66 0!0.0..
image/gif0!0.0..
0020: 05 2B 0E 03 02 1A 04 14   4B 6B B9 28 96 06 0C BB  .
++++.Kk.(....
0030: D0 52 38 9B 29 AC 4B 07   8B 21 05 18 30 26 16 24
.R8).K!..O&.$
0040: 68 74 74 70 3A 2F 2F 6C   6F 67 6F 2E 76 65 72 69  http://
logo.veri
0050: 73 69 67 6E 2E 63 6F 6D   2F 76 73 6C 6F 67 6F 31
sign.com/vslogol
0060: 2E 67 69 66 0000: 04 43 C8 1D 76 EF 37 53 7A 4F F2 58 6F 94 F3 38
 NC..v.7Sz0.Xo..8
0010: E2 D5 BD DF 434275585266710346167452034622903466293905072419534097369654309
3593292666107075
949363421778528039573241941416391117528980193658805463274350529
9645801785250252
9514977304585483686116304712825294103837852988404459390561822542
0399364724195266
4342157098057959282717095008829034852645294632476008959817055418
8540975803412342
735841557796620312985017487711474810938837242789207124672256718
7468748001030296
7064622068096557679259084200367007336511520352069027121274372670
6395785808073220
2402485720912804844263156374497815538965533392113776678233447403
8613
[3]: ObjectId: 2.5.29.31 Criticality=false
CRLDistributionPoints [  
DistributionPoint:  
  [URIName: http://EVIntl-crl.verisign.com/EVIntl2006.crl]
]

[4]: ObjectId: 2.5.29.37 Criticality=false
ExtendedKeyUsages [  
  serverAuth  
  clientAuth  
  2.16.840.1.113730.4.1  
  1.3.6.1.4.1.311.10.3.3]

[5]: ObjectId: 2.5.29.32 Criticality=false
CertificatePolicies [  
CertificatePolicyId: [2.16.840.1.113733.1.7.23.6]  
[PolicyQualifierInfo: [  
  qualifierID: 1.3.6.1.5.5.7.2.1  
  qualifier: 0000: 16 1C 68 74 74 70 73 :2F 2F 77 77 77 2E   www.ve  
  ri-sign.com/cps]
]

[6]: ObjectId: 2.5.29.15 Criticality=false
KeyUsage [  
  DigitalSignature  
  Key_Encipherment
]

[7]: ObjectId: 1.3.6.1.5.5.7.1.1 Criticality=false
AuthorityInfoAccess [  
  accessMethod: 1.3.6.1.5.5.7.48.1  
  accessLocation: URIName: http://ocsp.verisign.com,  
  accessMethod: 1.3.6.1.5.5.7.48.2  
  accessLocation: URIName: http://EVIntl-aia.verisign.com/EVIntl2006.cer]

[8]: ObjectId: 2.5.29.19 Criticality=false
BasicConstraints: [  
  CA: false  
  PathLen: undefined
]

  Algorithm: [SHA1withRSA]  
  Signature:  
  0000: 01 98 53 52 B1 81 D1 8A 8C A8 F9 8B 5E BA 03 1F  
  ..SR........^...

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Installation Profile options

Profile Options

Configure the profile options with in the code the word 'exactonline' as described at the concerning component:

Added certificate to keystore C:\Program Files\Java\jre6\lib\security\cacerts using alias 'start.exactonline.nl-1'
1.5.1.2 Configuration

Perform the following steps to add master data:

- Create payment conditions and use the number of days payment terms in Invantive Vision as code.

1.5.1.3 To Exact Online

The next items describe how you can export data to Exact Online. The data will be imported via the XML Import of Exact Online.

The processing by a background job detects whether the processing was successful and provides a list of errors in the log, for example as follows:

```
2010/11/21 20:54:14  -  Log Errors.0  -
2010/11/21 20:54:14  -  Log Errors.0  -  ------------> Linenr
1---------------------------
2010/11/21 20:54:14  -  Log Errors.0  -  type = 0
2010/11/21 20:54:14  -  Log Errors.0  -  topicNode = Account
2010/11/21 20:54:14  -  Log Errors.0  -  topicDataKeyAlt = 1386
2010/11/21 20:54:14  -  Log Errors.0  -  description = Component
[Account] Een Nederlands BTW-nummer bestaat uit 14 tekens
```

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After import of the data, you can find any error, via the menu 'Import XML' and then 'Log'.

Search for 'Error' and 'Warning'. By selecting the XML button, you can view the data which could not be processed:

In the log of the background job are more details about the process (note the bold and italics used for explanation):


*** Het programma is gestart om 18:32 op 21 oktober.


21-10-2010 18:32:24 ETL: Configure logger to use console.

21-10-2010 18:32:24 ETL: Init steploader.

21-10-2010 18:32:24 ETL: Load natives.


*** Het ETL bestand '../etl/bubs2exactonline organisations.kjb' wordt uitgevoerd.

21-10-2010 18:32:26 ETL: PL/SQL function to determine name hard coded location for ETL file is xxinvantive_get_report_loc.
*** De gegevens van de huidige database verbinding wordt via de omgevingsvariabelen BUBS_DB_SERVER, BUBS_DB_PORT, BUBS_DB_NAME, BUBS_DB_USER en BUBS_DB_PASSWORD doorgegeven.

21-10-2010 18:32:26 ETL: File ../etl/bubs2exactonline organisations.kjb will be loaded from /opt/prd/estate/qbubs/web/../../etl/ bubs2exactonline organisations.kjb using an unpacked war.
*** Na hulp van een database functie is de uiteindelijke be-

21-10-2010 18:32:26 ETL: File /opt/prd/estate/qbubs/web/../../etl/ bubs2exactonline organisations.kjb is a Kettle Job.
*** ETL scripts kunnen zowel Transformatie (*.ktr) als Job (*.kjb) zijn. Dit is een job.

21-10-2010 18:32:26 ETL: Set ETL variable BUBS_DB_SERVER to localhost.
*** De gegevens van de huidige database verbinding wordt via de

21-10-2010 18:32:26 ETL: Set ETL variable BUBS_DB_PORT to 1521.
21-10-2010 18:32:26 ETL: Set ETL variable BUBS_DB_USER to qbubs_web.
21-10-2010 18:32:27 ETL: Copy background job parameters to ETL job parameters.
21-10-2010 18:32:27 ETL: Defined variables:

*** Dit zijn de variabelen die binnen de ETL job bekend zijn.
21-10-2010 18:37:26 ETL: Determine number of errors.
ETL: No errors occurred.

*** Hieronder volgt de uitvoer van de ETL job.
2010/10/21 18:32:27 - bubs2exactonline organisations.kjb - Starting entry [bubs configuration load]
2010/10/21 18:32:27 - bubs configuration load - Dispatching started for transformation [bubs configuration load]
2010/10/21 18:32:27 - bubs configuration load - This transformation can be replayed with replay date: 2010/10/21 18:32:27
2010/10/21 18:32:27 - Get interface profile options.0 - Finished processing (I=53, O=0, R=0, W=53, U=0, E=0)
2010/10/21 18:32:27 - Set Variables.0 - Setting environment variables...
2010/10/21 18:32:27 - Set Variables.0 - Set variable BUBS-INTERFACE-BUBS-DIRECTORY-INPUT to value [/opt/prd/estate/qbubs/transfer/bubs/in]

*** In het begin worden profieloptiewaardes ingelezen in variabelen.

2010/10/21 18:32:27 - Set Variables.0 - Set variable BUBS-INTERFACE-BUBS-DIRECTORY-INPUT-PROCESSED to value [/opt/prd/estate/qbubs/transfer/bubs/in/processed]
2010/10/21 18:32:27 - Set Variables.0 - Set variable BUBS-INTERFACE-BUBS-DIRECTORY-INPUT-REJECTED to value [/opt/prd/estate/qbubs/transfer/bubs/in/rejected]
2010/10/21 18:32:27 - Set Variables.0 - Set variable BUBS-INTERFACE-BUBS-DIRECTORY-OUTPUT to value [/opt/prd/estate/qbubs/transfer/bubs/out]
2010/10/21 18:32:27 - Set Variables.0 - Set variable BUBS-INTERFACE-BUBS-DIRECTORY-OUTPUT-PROCESSED to value [/opt/prd/estate/qbubs/transfer/bubs/out/processed]
2010/10/21 18:32:27 - Set Variables.0 - Set variable BUBS-INTERFACE-BUBS-DIRECTORY-OUTPUT-REJECTED to value [/opt/prd/estate/qbubs/transfer/bubs/out/rejected]
2010/10/21 18:32:27 - Set Variables.0 - Set variable BUBS-RUNTIME-TRANSFORMATION-DIR-SIMPLE to value [/opt/prd/estate/qbubs/etl]
2010/10/21 18:32:27 - Set Variables.0 - Set variable BUBS-INTERFACE-EXACTONLINE-DIRECTORY-INPUT to value [/opt/prd/estate/qbubs/transfer/exactonline/in]
2010/10/21 18:32:27 - Set Variables.0 - Set variable BUBS-INTERFACE-EXACTONLINE-GEBRUIKER to value [invantive1]
2010/10/21 18:32:27 - Set Variables.0 - Set variable BUBS-INTERFACE-EXACTONLINE-WACHTWOORD to value [appelfl1p]
2010/10/21 18:32:27 - Set Variables.0 - Set variable BUBS-INTERFACE-EXACTONLINE-URL-DOWNLOAD to value [https://start.exactonline.nl/docs/XMLDownload.aspx]
2010/10/21 18:32:27 - Set Variables.0 - Set variable BUBS-INTERFACE-EXACTONLINE-URL-UPLOAD to value [https://start.exactonline.nl/docs/XMLUpload.aspx]
2010/10/21 18:32:27 - Set Variables.0 - Set variable BUBS-INTERFACE-MULTIVERS-DIRECTORY-INPUT to value []
2010/10/21 18:32:27 - Set Variables.0 - Set variable BUBS-INTERFACE-MULTIVERS-DIRECTORY-INPUT-PROCESSED to value []

...
Concept Invoices

The import of concept invoices to Exact Online is described here. A background script is available for the invoicing of hours to processes and projects and fixed price processes. This ensures that the invoice data will be stored as concept invoice lines. The daily process is as follows:

- Go to the screen 'Submit Background Job'.
- Select the background script 'Invoicing: Process all parts'.
- Enter the parameters as follows:
Wait until the process is successfully completed in the screen **Background Jobs**.

Now you can check the concept invoices in the screen **Concept Invoice Lines**.

**Upload concept invoice lines to Exact Online**

A background script is available for the invoicing of hours to processes and projects and fixed price processes. This ensures that the invoice data will be stored as concept invoice lines.

Uploading the concept invoice lines as purchase orders goes like this:

- Go to the screen **'Submit Background Job'**.
- Select the background script 'Exact Online: Extraction sales invoices' and enter the parameters, usually, 'N' (no) is specified at 0-sums take along:
- Wait until the process is successfully completed in the screen Background Jobs.
- Save the export as XML file in the folder 'out' on the server or in another location.
- You can import the XML file in Exact Online via the following menu:

![Import/Export](image)

Then:

- Import the file finally with:

![Import/Export](image)

**Products**

The import of products to Exact Online is described here. A background script is available for the transfer of products. This ensures that the products from Invantive Estate are saved as products in Exact Online.

Note: the transfer of products is not necessary for the use of concept invoices! The importing of products normally only happens if the product file is primarily stored in Invantive Estate.

Perform the following steps:
- Go to the screen 'Submit Background Job'.
- Run the background job 'Manage: Run ETL'.
• Enter with ETL Specification the next value: ../etl/bubs2exactonline articles.kjb
• Wait till the background process is finished.
• Check the log file if the data was successfully imported in Exact Online.

Organizations
The import of organizations to Exact Online is described here. For the port of organisations a background script is available. This ensures that organizations from Invantive Estate are saved as relations in Exact Online.

Perform the following steps:
• Go to the screen 'Submit Background Job'.
• Run the background job 'Manage: Run ETL'.
• Voer bij ETL Specification de volgende waarde in: ../etl/bubs2exactonline organisations.kjb
• Wait till the background process is finished.
• Check the log file if the data was successfully imported in Exact Online.

Projects
The import of project to Exact Online is described here. For the port of projects a background script is available. This ensures that projects from Invantive Estate are saved as cost centers in Exact Online.

Perform the following steps:
• Go to the screen 'Submit Background Job'.
• Run the background job 'Manage: Run ETL'.
• Enter the next value at ETL Specification: ../etl/bubs2exactonline projects.kjb
• Wait till the background process is finished.
• Check the log file if the data was successfully imported in Exact Online.

Cost Centers
The import of cost centers to Exact Online is described here. For the port of cost centers a background script is available. This ensures that the people who write time Invantive Estate are saved as cost centers in Exact Online.

Next to that, it is necessary to manually develop cost centers for fixed price processes (see profile option 'bubs-interface-exactonline-factuur-kostenplaats-proces'), process units (see profieloption 'bubs-interface-exactonline-factuur-kostenplaats-proces-unit') and conversion (see profieloption 'bubs-interface-exactonline-factuur-kostenplaats-conversie').

Perform the following steps:
• Go to the screen 'Submit Background Job'.
• Run the background job 'Manage: Run ETL'.
• Voer bij ETL Specification de volgende waarde in: ../etl/bubs2exactonline costcenters.kjb
• Wait till the background process is finished.
• Check the log file if the data was successfully imported in Exact Online.

1.5.1.4 From Exact Online
The following parts describe how you can extract data from Exact Online. The data is read via the XML export of Exact Online.

(C) Copyright 2004-2013 Invantive Software B.V., the Netherlands. All rights reserved.
Posting rules

The import of accounting rules is explained here.

The booking lines must have been completely processed in the general ledger and have a permanent character. Unprocessed posting lines are skipped in the gateway.

The import of accounting rules (transactions, receivable and payable invoices) to Exact Online is explained here. A background script for the transfer of accounting rules is available. This ensures that the accounting rules from Exact Online will be stored as invoices and invoice lines in Invantive Estate.

Perform the following steps:

- Go to the screen 'Submit Background Job'.
- Run the background job 'Manage: Run ETL'.
- Enter in the following value in ETL Specification: .. / etl/exactonline2bubs transactions.kjb
- Wait till the background process is finished.
- Check the log file to see if the data was successfully imported in Invantive Estate.

1.5.2 Exact Globe 2000 Interface

Invantive Estate is compatible with the accounting package Exact Globe 2000. The interface works in one direction:

- Persons, cost categories, invoices, invoice lines and organizations will be imported from Exact Globe 2000 into Invantive Estate.

1.5.3 Link Twinfield

Invantive Estate can collaborate with the accounting package Twinfield. This link goes in one direction:

- Organizations from Invantive Estate can be read in Twinfield as debtors or creditors.
- Projects from Invantive Estate can be read in Twinfield as projects.
- Cost center from Invantive Estate can be read in Twinfield as cost centers.

1.5.3.1 Installation

Perform the following steps:

- Copy the add-on files to the folder 'etl'.
- Set the following profile options:

<table>
<thead>
<tr>
<th>Profile option</th>
<th>Beschrijving</th>
</tr>
</thead>
<tbody>
<tr>
<td>bubs-interface-twinfield-administrator</td>
<td>Boekhouding binnen Twinfield</td>
</tr>
<tr>
<td>bubs-interface-twinfield-gebruiker</td>
<td>Naam van de gebruiker binnen Twinfield voor de koppeling.</td>
</tr>
<tr>
<td>bubs-interface-twinfield-organisatie</td>
<td>Organisatie voor de Twinfield weervices</td>
</tr>
<tr>
<td>bubs-interface-twinfield-url-logon</td>
<td>URL voor de aanmeldprocedure de Twinfield webservice, bvvoorbeeld <a href="https://login.twinfield.com/webservice/">https://login.twinfield.com/webservice/</a>...</td>
</tr>
<tr>
<td>bubs-interface-twinfield-wachtwoord</td>
<td>Wachtwoord van de gebruiker binnen Twinfield voor de koppeling.</td>
</tr>
</tbody>
</table>

1.5.3.2 Configuration

Dimension values

Within Twinfield you can restrict possible values of the dimensions by entering a format. For
a working link enter it in Invantive Estate so it can restrict values in Twinfield for a mutual se-
quence.

1.5.3.3 To Twinfield
You can port data with the following background scripts:

- Twinfield: Send Organizations to Twinfield
- Twinfield: Send Projects to Twinfield
- Twinfield: Send Cost centers to Twinfield

1.5.4 ENIAC Interface
This information is available on request.

1.5.5 Reeleezee Interface

Data
The interface with Reeleezee is used to import the following data into Reeleezee:

- Unit types as Products.
- Organizations as Relations.
- Concept Invoices as Sales Invoices.

1.5.5.1 Installation

Preparation for Relations

Notice! Ensure that all existing customers and suppliers from Reeleezee are already in the
system using the same code and ID. If this is not previously done, then existing relationships
in Reeleezee will get another name which will cause that historical transactions will not be
registered on the correct name anymore.

Preparation for Products
Reeleezee does not support your own VAT codes. Therefore, the VAT codes need to be en-
tered as follows:

- HD: High tariff, Services
- HP: High tariff, Products
- LD: Low tariff, Services
- LD: Low tariff, Products
- N: Zero tariff
- V: Exempt

Preparation for Sales Invoices
None.

1.5.5.2 To Reeleezee

Normal Use
Create File with Products

Only products will be included in the file.

- Start an ETL script:

```
Aanvragen Achtergrond Proces

Toevoegen

Script: Beheer: Draai ETL proces
Gewenste Starttijd: 23-04-2010 20:21:10

Parameters:

Opvoeren Achtergrond Proces Parameters

Bewaren

Omschrijving

Weerdc

ETL Specification File: ..\jet\bubs\reeleezee products.kb
Log Level:
```

- Upload the file as described below.

Create File with Products

Only clients and suppliers will be included in the file.

- Start an ETL script:

```
Aanvragen Achtergrond Proces

Toevoegen

Script: Beheer: Draai ETL proces
Gewenste Starttijd: 23-04-2010 20:21:10

Parameters:

Opvoeren Achtergrond Proces Parameters

Bewaren

Omschrijving

Weerdc

ETL Specification File: ..\jet\bubs\reeleezee organisations.kb
Log Level:
```

- Upload the file as described below.
Create File with Sales Invoices

Only concept invoice lines which are not yet exported will be included in the file.

Upload to Reeleezee

The files to be uploaded are placed in the folder as set for the profile option bubs-interface-reeleezee-input. No use is made of the web service of Reeleezee. Import goes via Settings -> Help -> Service -> Import:

Then select the file:
The results are returned as an XML file that you can access using Notepad, for example:

```
<?xml version="1.0" encoding="utf-8"?>
<ImportResult ProcessDate="2010-04-29T15:14:49.8512944-02:00">
<Source>System \usr\13\hex\NLS\Invantive Estate-SWRL http://subversion.invantive.com</Source>
<CreateDateTime="2010-04-29T15:14:49.8512944-02:00"/></ImportInfo>
<MessageLevel="ERROR">Productcode 2 is al in gebruik</MessageLevel>
<Product>
</Product>
</ImportResult>
```

Pay especially attention to the outcome of ‘Succeeded’. ‘Succeeded’ indicates if the scan was successful.

**1.5.6 Frotcom Interface**

**Data**
The interface with Frotcom is used to import the following data into Frotcom:

• xxx.

The following data will be imported from Frotcom into Invantive Estate:

• xxx.

1.5.7 Unit4 Multivers interface

Data

The interface with Multivers is used to import the following data:

• Concept Invoices as Sales Invoices.

1.5.7.1 Installation

Preparation

Preparation for Sales Invoices

Perform the following checks:

• The Unit4 Business Connector needs to be licensed within the Unit4 Multivers license.

• The Invantive Vision server which is running Tomcat must be the same server as where Unit4 Multivers Business Connector is available.

• Verify that the registry on this server has a class MBO.Administration.

1.5.7.2 Concept Invoices

The import of concept invoices to Exact Online is described here. A background script is available for the invoicing of hours to processes and projects and fixed price processes. This ensures that the invoice data will be stored as concept invoice lines. The daily process is as follows:

• Go to the screen 'Submit Background Job' [220].

• Select the background script 'Invoicing: Process all parts'.

• Enter the parameters as follows:
Wait until the process is successfully completed in the screen Background Jobs.

Now you can check the concept invoices in the screen Concept Invoice Lines.

**Reading Draft Invoice Lines**

A background script is available for the invoicing of hours to processes and projects and fixed price processes. This ensures that the invoice data will be stored as concept invoice lines. For proper processing, the following needs to be arranged:

- For all employees with billable hours unique initials are entered. These are used to add the cost center.

The reading of the draft invoice line as invoice orders goes as follows:

- Go to the screen 'Submit Background Job'.
- Select the background script ‘Multivers: Extraction sales invoices’.
- Wait until the process is successfully completed in the screen Background Jobs.
- Save the export as XML file in the folder ‘out’ on the server or in another location.

**Upload in Multivers**

Perform the following steps:

- Process the XML invoices with the bubs2multivers cpu to invoice orders:
• Process the invoice orders:
Hieronder kunt u de boekingsgegevens invullen voor het verwerken van de factuuropdrachten.

- Transactie
  - Boekjaar: 2010
  - Periode: S
  - Dagboek: V (Verkoopboek)
  - Transactie: 161
  - Factuurdatum: 07-06-2010

- Factuuropdrachten
- Aanvrangsoordrachten
- Uurodrachten
- Projectopdrachten
In onderstaande tabel kunt u aangeven welke opdrachten moeten worden verwerkt.

<table>
<thead>
<tr>
<th>Factuurnummer</th>
<th>Opdracht</th>
<th>Opl. datum</th>
<th>Debiteur</th>
<th>Naam</th>
<th>Zoonnaam</th>
<th>Referentie</th>
</tr>
</thead>
<tbody>
<tr>
<td>20097808</td>
<td></td>
<td>07-05-2010</td>
<td></td>
<td></td>
<td></td>
<td>Invoice for</td>
</tr>
<tr>
<td>20097809</td>
<td></td>
<td>07-05-2010</td>
<td></td>
<td></td>
<td></td>
<td>Invoice for</td>
</tr>
<tr>
<td>20097810</td>
<td></td>
<td>07-05-2010</td>
<td></td>
<td></td>
<td></td>
<td>Invoice for</td>
</tr>
<tr>
<td>20097811</td>
<td></td>
<td>07-05-2010</td>
<td></td>
<td></td>
<td></td>
<td>Invoice for</td>
</tr>
<tr>
<td>20097812</td>
<td></td>
<td>07-05-2010</td>
<td></td>
<td></td>
<td></td>
<td>Invoice for</td>
</tr>
<tr>
<td>20097813</td>
<td></td>
<td>07-05-2010</td>
<td></td>
<td></td>
<td></td>
<td>Invoice for</td>
</tr>
<tr>
<td>20097814</td>
<td></td>
<td>07-05-2010</td>
<td></td>
<td></td>
<td></td>
<td>Invoice for</td>
</tr>
<tr>
<td>20097815</td>
<td></td>
<td>07-05-2010</td>
<td></td>
<td></td>
<td></td>
<td>Invoice for</td>
</tr>
<tr>
<td>20097816</td>
<td></td>
<td>07-05-2010</td>
<td></td>
<td></td>
<td></td>
<td>Invoice for</td>
</tr>
<tr>
<td>20097817</td>
<td></td>
<td>07-05-2010</td>
<td></td>
<td></td>
<td></td>
<td>Invoice for</td>
</tr>
<tr>
<td>20097819</td>
<td></td>
<td>07-05-2010</td>
<td></td>
<td></td>
<td></td>
<td>Invoice for</td>
</tr>
<tr>
<td>20097820</td>
<td></td>
<td>07-05-2010</td>
<td></td>
<td></td>
<td></td>
<td>Invoice for</td>
</tr>
<tr>
<td>20097821</td>
<td></td>
<td>07-05-2010</td>
<td></td>
<td></td>
<td></td>
<td>Invoice for</td>
</tr>
<tr>
<td>20097822</td>
<td></td>
<td>07-05-2010</td>
<td></td>
<td></td>
<td></td>
<td>Invoice for</td>
</tr>
<tr>
<td>20097823</td>
<td></td>
<td>07-05-2010</td>
<td></td>
<td></td>
<td></td>
<td>Invoice for</td>
</tr>
<tr>
<td>20097825</td>
<td></td>
<td>07-05-2010</td>
<td></td>
<td></td>
<td></td>
<td>Invoice for</td>
</tr>
<tr>
<td>20097826</td>
<td></td>
<td>07-05-2010</td>
<td></td>
<td></td>
<td></td>
<td>Invoice for</td>
</tr>
<tr>
<td>20097830</td>
<td></td>
<td>07-05-2010</td>
<td></td>
<td></td>
<td></td>
<td>Invoice for</td>
</tr>
<tr>
<td>20097831</td>
<td></td>
<td>07-05-2010</td>
<td></td>
<td></td>
<td></td>
<td>Invoice for</td>
</tr>
<tr>
<td>20097833</td>
<td></td>
<td>07-05-2010</td>
<td></td>
<td></td>
<td></td>
<td>Invoice for</td>
</tr>
</tbody>
</table>
1.5.7.3 Errors

**ActiveX object for MBO.Administration has not been found**

While running the vbs script you get the message that the ActiveX object MBO.Administration cannot be created, make sure that the 32-bit winscript engine is used. For example:

`‘%windir%\syswow64\wscript SCRIPT.vbs’`

**Merant ODBC message ‘Optional feature not implemented’**

If the Merant ODBC gives the message ‘Optional feature not implemented’ when connecting to the administration, make sure that the administration exists in the Unit4 Multivers user interface. Verify also that the administration can be opened.

1.5.8 King interface

Invantive Estate is compatible with the accounting package KING. The interface works in two directions:

- Concept invoices from Invantive Estate can be imported in KING and from there they may be changed and invoiced.
• Final invoices and other general ledger mutations from KING can be imported into Invantive Estate.

1.5.8.1 Installation KING Interface

Execute the following steps to be able to use the KING gateway:
• Execute from addons/king interface the file 'king_install.sql' under the scheme under which the application was installed.
• Copy the xml, ktr and kjb files from the king interface map to the map 'etl'.
• Copy the king.config file to the home directory of the user under which the Apache Tomcat service runs.
• Modify the king.config file.
• All Organisations should have the debit number from KING as code.

1.5.8.2 To KING

The following sections describe how you can transfer data to KING.

Concept Invoices

The import of concept invoices to King is described here. A background script is available for the invoicing of hours to processes and projects and fixed price processes. This ensures that the invoice data will be stored as concept invoice lines. The daily process is as follows:
• Go to the screen 'Submit Background Job'.
• Select the background script 'Invoicing: Process all parts'.
• Enter the parameters as follows:
Wait until the process is successfully completed in the screen **Background Jobs**

Now you can check the concept invoices in the screen **Concept Invoice Lines**

**Import concept invoice lines in King**

A background script is available for the invoicing of hours to processes and projects and fixed price processes. This ensures that the invoice data will be stored as concept invoice lines. The daily process is as follows:

- Go to the screen **Submit Background Job**.
- Select the background script 'King: Extraction sales orders'.
- Wait until the process is successfully completed in the screen **Background Jobs**.
- The output file is an XML file, such as:
You can now retrieve the XML file as an attachment of the background job and import it into KING using the following menu:

- The XML file can be saved, for example, in the folder ‘out’ of the server.
- Change the options for import as follows:
1.5.8.3 From KING

The import of invoices and general ledger mutations from KING to Invantive Estate is described here. The processing is as follows:

- Compose for all accounting years in KING an XML file with the general ledger mutations. For closed accounting years, this needs to be done only once, for current financial years this should be done repeatedly until the year is closed. The compilation is done using the following menu option in KING:
Select the next settings:
Then export the file:
Save the files as ‘gbmut<ACCOUNTINGYEAR>.xml’ in the folder ‘in’ on the server.
Run the background job ‘Manage: Run ETL’.
Add the parameter ‘..etl/king2bubs general ledger.kjb’.
After execution the result can be found in the log file of the background job and in the screen **ERP Jobs**.

1.5.9 Asterisk VOIP Interface

**Outgoing Calls**

You can fill in the profile options that start with bubs-interface-asterisk.

On the Asterisk server you will need to specify in manager.conf in the admin section that you are allowed to connect with database server connection using permit and deny, for example for the new user ‘invantive’:

```yaml
[invantive]
secret=amplevoorbeeld
deny=0.0.0.0/0.0.0.0
permit=192.168.172.26/255.255.255.255
read=originate
write=originate
```

You can test this by making contact with telnet on port 5038 and executing the following statements:

```text
Action: Login
Username: invantive
Secret: amplevoorbeeld
<ENTER>
```

You then combine this preferably with ‘asterisk -rxxxxxxxx’ on the command prompt.

**Registration Conversations**
Invantive Estate can be integrated with Asterisk. Final result of this integration is that the call-detail-records (CDRs) after the end of a conversation are saved from Asterisk in Invantive Estate as conversations.

To do so, follow these steps:
- Create a user in Invantive Estate via Persons.
- Create an associated Oracle user and connect it to the Invantive Estate-user.
- Give the Oracle user reading- and insert-rights on bubs_asterisk_cdr_r.
- Make it possible for Asterisk to store CDRs in Oracle.
- Install Oracle Instantclient Basic and Oracle Instantclient SQL*Plus for this.
- Configure the Oracle Instantclient in such a way that it is possible to connect with SQL*Plus from the Asterisk server with the Invantive Estate-environment.
- Install and configure unixODBC for the connection between Asterisk and ODBC. The ODBC.INI will then look, for example, like this:

```
[PRD11R1]
Application Attributes = T
Attributes = W
BatchAutocommitMode = IfAllSuccessful
BindAsFLOAT = F
CloseCursor = F
DisableDPM = F
DisableMTS = T
Driver = Oracle
DSN = PRD11R1
EXECSchemaOpt =
EXECSyntax = T
Failover = T
FailoverDelay = 10
FailoverRetryCount = 10
FetchBufferSize = 64000
ForceWCHAR = F
Lobs = T
Longs = T
MetadataIdDefault = F
QueryTimeout = T
ResultSets = T
ServerName = prd11r1.invantive.local
SQLGetData extensions = F
Translation DLL =
Translation Option = 0
DisableRULEHint = T
UserID =
```

The odbcinst.ini will then look, for example, like this:

```
[Oracle]
Description     = Oracle
Driver = /usr/lib/libsqora.so.11.1
Setup         =
FileUsage     =
CPTTimeout =
CPReuse =
```
• Configure Asterisk CDRs to save the CDRs in Oracle to write the following contents in cdr_odbc.conf:

```plaintext
[global]
dsn=PRD11R1
username=ESTATE-USERNAME
password=ESTATE-PASSWORD
loguniqueid=yes
dispositionstring=yes
table=bubs_asterisk_cdr_r
;usegmtime=no             ; set to "yes" to log in GMT
```

The file res_odbc.conf should look like:

```plaintext
; ; odbc setup file
; ; ENV is a global set of environmental variables that will get set.
; ; Note that all environmental variables can be seen by all connections,
; ; so you can't have different values for different connections.
[ENV]
ORACLE_HOME=>/var/opt/oracle
TNS_ADMIN=>/var/opt/oracle/network/admin
NLS_LANG=>AMERICAN_AMERICA.AL32UTF
; Please note that UTF16 will be used by unixODBC, irrespective of what you tell above.

[PRD11R1]
enabled=>yes
dsn=>PRD11R1
username=>ESTATE-USERNAME
password=>ESTATE-PASSWORD
pre-connect=>yes
```

### 1.5.10 Customised User Interface

This chapter describes how to build your own user interface, for example, with the help of Microsoft Excel or Microsoft Access.

#### 1.5.10.1 Information Exchange

Invantive Estate enables you to combine data coming from different administrations. These administrations can be fed as desired with data from within the application itself or with data primarily stored somewhere else. The functionality within Invantive Estate itself will normally be used:

- if the organization has no administration of these data yet, and
the functionality of Invantive Estate meets the requirements.

The functionality of Invantive Estate in the area of the administrations is limited: it is, for example, not meant to enter a full purchase administration with approvals within Invantive Estate. It is recommended to purchase a specialized application in case there are more functional needs.

The remaining chapters describe how the data within Invantive Estate can be saved, changed, and viewed. This chapter describes how data can be loaded from other administrations via automated methods.

**Example**

The application structure for an own user interface is described in Structure.

In this example invoices are loaded into a staging table from SAP and then incorporated into the application.

We chose in this example to implement SQL and PL/SQL, but similar functionality can be achieved with any development environment (for example, Microsoft .Net, Informatica PowerCenter or Pentaho Data Integration) which can load data into the database.

Make a table that will contain the full collection of invoices:

```sql
create table xxsap_in_ftr
(
  ftr_nummer                 number(15)         not null,
  ftr_datum_gefactureerd     date               not null,
  lvr_nummer                 number(15)         not null,
  ftr_orig_system_reference  varchar2(240 char) not null,
  laad_status                char(1 byte),
  laad_melding               varchar2(2000 char),
  datum_geladen              date               not null,
  datum_aangemaakt           date               not null
) tablespace xxsap
/
```

```sql
create index xxsap_ifr_n1 on xxsap_in_ftr (ftr_nummer) tablespace xxsap /
```

```sql
create unique index xxsap_ifr_nk on xxsap_in_ftr (ftr_orig_system_reference) tablespace xxsap /
```

Make a stored package in Oracle PL/SQL which will try to add the data in the just created table to the existing data:

```sql
create or replace package xxsap#in_ftr
as
```
create or replace package body xxsap#in_ftr
as
procedure verwerk
is
  -- Alle facturen die nog toegevoegd moeten worden op basis van nummer.
  cursor c_ftr
  is
    select lfr.*
    ,
    lfr.urowid lfr_urowid
  from  xxsap_in_ftr lfr
  where not exists
    ( select 1
      from  bubs_facturen_v ftr
      where  1=1
      and    ftr.ftr_nummer = lfr.ftr_nummer
    )
  -- Nog niet aangeboden voor laden.
  and    laad_status is null
;
  l_cnt_ftr         number(15, 0);
  l_cnt_ftr_bad     number(15, 0);
l_cnt_ftr_upd     number(15, 0);
l_cnt_ftr_upd_bad number(15, 0);
l_laad_status     xxsap_in_ftr.laad_status%type;
l_laad_melding    xxsap_in_ftr.laad_melding%type;
l_start_tijd      date := sysdate;
l_job_seq         bubs_jobs_v.job_seq%type;

begin
  -- Meldingen voor facturen die gewijzigd zijn na verwerking.
  --
  for r_changed in
    ( select ftr.ftr_nummer                ftr_nummer_old
      , lfr.ftr datum_gefactureerd    ftr datum_gefactureerd
      , ftr.ftr datum_gefactureerd    ftr datum_gefactureerd
      , lfr.lvr_nummer                lvr nummer_old
      , ftr.lvr_nummer                lvr nummer_new
      , ftr.ftr orig_system_reference ftr orig_system referen
      , ftr.ftr datum_intrf_geladen   ftr datum Intrf geladen
      from   xxsap_in_ftr lfr
      join   bubs_facturen_v   ftr
      on     lfr.ftr_nummer = ftr.ftr_nummer
      where  1=1
      and    lfr.laad_status is null
      and    ( lfr.ftr datum_gefactureerd <> ftr.ftr datum gefac
      or
                          lvr nummer_new
      )
    )
  loop
    bubs_job_logging.create_job_melding
      ( substr
        ( 'De factuur met nummer ' || r_changed.ftr_nummer old
         || ' is gewijzigd in de primaire administratie na ver-
         werking. Zie de volgende meldingen voor meer informatie.'
        , 1
        , 250
        )
      , 'Y'
    );
    bubs_job_logging.create_job_melding
      ( substr
        ( 'Datum gefactureerd was ' || to_char(r_changed.ftr datum_gefactureerd old, 'dd-mm-
        yyyy')
        || ', nu '
        || to_char(r_changed.ftr datum_gefactureerd new, 'dd-mm-
        yyyy')
        || ', leverancier was ' || r_changed.lvr nummer old
      , 'Y'
    );
  end loop;
end;
|| | ' nu ' 
|| | r_changed.lvr_nummer_new 
|| | ' Oorspronkelijke referentie' 
|| | r_changed.ftr_orig_system_reference_old 
|| | ' uitgewisseld' 
|| | to_char(r_changed.ftr_datum_intrf_geladen_old, 'dd-

mm-yyy hh24:mi:ss') 
, 1
, 250
, 'N'
);
end loop;
--
-- Daadwerkelijke toevoeging.
--
<<ftr>>
l_cnt_ftr := 0;
l_cnt_ftr_bad := 0;
l_cnt_ftr_upd := 0;
l_cnt_ftr_upd_bad := 0;
l_job_seq := bubs_job_logging.get_current_job_seq;
for r_ftr in c_ftr
loop
bubs_job_logging.create_job_melding('Laden factuur met num-
mer ' || r_ftr.ftr_nummer, 'N');
begin
insert into bubs_facturen_v
(ftr_nummer
, ftr_datum_gefactureerd
, lvr_nummer
, ftr_orig_system_reference
, ftr_datum_intrf_geladen
, ftr_job_seq_geladen
)
values
(r_ftr.ftr_nummer
, r_ftr.ftr_datum_gefactureerd
, r_ftr.lvr_nummer
, r_ftr.ftr_orig_system_reference
, l_start_tijd
, l_job_seq
);
1_laad_status := 'V';
1_laad_melding := ''; 
exception
when others
then
bubs_job_logging.create_job_melding(substr('Laden mis-
lukt voor factuur met nummer: ' || r_ftr.ftr_nummer || '. Fout-
melding is ' || sqlerrm, 1, 250), 'Y');
l_cnt_ftr_bad := l_cnt_ftr_bad + 1;
l_laad_status := 'F';
The following steps need to be taken in order to add new invoices:

- Load the data to the staging table `xxsap_in_ftr` from SAP, using an ETL tool like, for example, Kettle (open source), Microsoft Integration Services or Informatica PowerCenter.
- Start a query tool, such as SQL * Plus, Quest TOAD or Microsoft Access.
- Sign in with a stored procedure call, such as user ‘system’ that has access to all data. It is also possible to choose a different user, but then only data can be loaded from projects to which the respective user has write rights to:

```
begin

  bubs_session.set_session_info
  ( 'xxsap#in_ftr' /* Module. Invullen indien bekend. */
  end;
  
  -- Bijwerken laadstatus met uitkomsten van het toevoegen.
  --
  update xxsap_in_ftr
  set    laad_status   = l_laad_status,
         laad_melding  = l_laad_melding,
         datum_geladen = l_start_tijd
  where  urowid = r_ftr.lfr_urowid
  ;
  l_cnt_ftr := l_cnt_ftr + 1;
  end loop ftr;
  
  -- Alle niet relevante data verwijderen, evenals succesvol verwerkte data.
  -- Foutief verwerkte records worden na 1 maand verwijderd.
  --
  delete xxsap_in_ftr where laad_status is null;
  delete xxsap_in_ftr where laad_status = 'V';
  delete bubs_exact_laad_lvr where datum_geladen < add_months(sysdate, -1);
  commit;

  bubs_job_logging.create_job_melding('Succesvol verwerkte gegevens, evenals niet gewijzigde gegevens zijn verwijderd.', 'N');
  --

  bubs_job_logging.create_job_melding('Facturen toegevoegd: ' ||
      to_char(l_cnt_ftr, '999G999G990'), 'N');
  bubs_job_logging.create_job_melding('- met foutmeldingen: ' ||
      to_char(l_cnt_ftr_bad, '999G999G990'), 'N');
  bubs_job_logging.create_job_melding('Facturen gewijzigd: ' ||
      to_char(l_cnt_ftr_upd, '999G999G990'), 'N');
  bubs_job_logging.create_job_melding('- met foutmeldingen: ' ||
      to_char(l_cnt_ftr_upd_bad, '999G999G990'), 'N');
  commit;

end;
/```
begin
bubs_job_logging.job_logging
('xxsap.exe'
/* Executable bestandsnaam. Invullen indien bekend. */
,'Interface die gegevens vanuit SAP overbrengt naar Invantive Estate.' /* Omschrijving. Invullen indien bekend. */
,'xxsap_code'
/* Code. Invullen indien bekend. */
);
end;
/

• Create a job by loading bubs_job_logging.create_job.

begin
bubs_job_logging.create_job
begin
bubs_job_logging.job_logging
( 'xxsap.exe'
/* Executable bestandsnaam. Invullen indien bekend. */

,'Interface die gegevens vanuit SAP overbrengt naar Invantive Estate.' /* Omschrijving. Invullen indien bekend. */

,'xxsap_code'
/* Code. Invullen indien bekend. */

);
end;
/

• Process the invoices by loading xxsap#in_ftr.verwerk.

begin
xxsap#in_ftr.verwerk;
end;
/

• Check the results of the process:

select *
from xxsap_in_ftr
where laad_status = 'F'
/

1.5.10.2 Let Users Exchange Data Independently

The application Invantive Estate is standardly provided with a large amount of reports. Possibly you will have the need to compose your own reports, for instance with products such as Crystal Reports or Microsoft Access. Moreover, it may be necessary to apply your own mutations in the data. This can be easily done by following the next procedure in order to build a SQL connection.

Preparation Database Once Only

Onetime Action:
• Choose a unique prefix per Invantive Estate environment in the database. Often 'P_' is used for production and 'A_' for acceptance.
• Enter this prefix in the RDBMS User Prefix field in the screen **Settings**.
• Log on as user ‘system’ on the Oracle database.
• Execute the following statement (this usually happens during the installation):
  
  ```sql
  grant execute on <APPLICATIE_SCHEMA>.bubs_session to system /
  grant execute on <APPLICATIE_SCHEMA>.itgen_maintain_my_synonyms to system /
  
  create or replace trigger set_bubs_user after logon on database begin
  -- Log on to development environment if available and applicable.
  -- obubs.bubs_session.log_on_through_oracle;
  -- Log on to test environment if available and applicable.
  -- tbubs.bubs_session.log_on_through_oracle;
  -- Log on to acceptance environment if available and applicable.
  -- abubs.bubs_session.log_on_through_oracle;
  -- Log on to production environment if available and applicable.
  -- Caution: you will be logged on to multiple environments at one time. Increased risk of data loss in production due to human error!
  -- pbubs.bubs_session.log_on_through_oracle;
  -- Option to automatically correct synonyms.
  -- Currently not possible due to DDL. Might become autonomous in the future.
  -- pbubs.itgen_maintain_my_synonyms('PBUBS');
  exception
    when others
    then
      null;
  -- To debug uncomment and: raise_application_error(-20163, dbms_utility.format_error_stack || dbms_utility.format_error_backtrace);
  ```
-- you might be having al32utf8 problems when using java such as using ojdbc14 instead of ojdbc6.
--
end;
/

• As an alternative to a real development environment, you can also use the following example:

create or replace trigger set_bubs_user after logon on database
begin
  if user = 'USR_HGO_BUBS'
  then
    execute immediate
    'begin
    || 'usr_hgo_bubs.bubs_session.set_session_info'
    || '('
    || '''toad.sql'''
    || ', ''install'''
    || ', ''system'''
    || ', ''various''
    || ', coalesce(sys_context(''userenv'', ''ip_address''),
    || ''?''
    || ', sys_context(''userenv'', ''host'')
    || ', ''n/a''
    || ''YYYYMMDDHH24MISS''
    || ')
    || 'end,'
    ;
  end if;
end;
/

• In real development environments it is also easy to turn off project security via the screen Settings or with:
update bubs_instellingen_v set isg_alle_pjt_zien_vlag='Y';
commit;

Preparation Database pro User
Per user:
• Fill out the field RDBMS User in the screen Persons.
• Create a scheme for personal use. All reports executed under this scheme have access to the same amount of information under the filter that is set. The Oracle schema name must be identical to the RDBMS User Prefix plus the value of the field RDBMS User (option ‘E’ when calling log_on_through_oracle) or the schema name has to be equal to the value of the field RDBMS User minus the RDBMS User Prefix (option ‘O’ when calling log_on_through_oracle). For example this can be done with (assuming the user RDBMS prefix ‘P’ option and ‘E’):
  create user p_scotty
  identified by p_scotty
  default tablespace pbubs
  temporary tablespace temp
It is not recommended to use a shared central Oracle schema for all users unless it is not a problem when all reports can contain data of all projects and users do not affect each other with the changes in the filter.

Assign to this scheme the application specific role for read and write access. This is standard 'BUBS_USER'. This can be done by:

```sql
grant pbubs_user to p_scotty
```

Alternatively you can make use of the application specific role for read access only. This is standard 'BUBS_READER'.

The connection can be based on JDBC, ODBC, OLEDB, native Oracle SQL * Net or other connection methods.

The connection can be tested by signing in as the new Oracle user and then check the contents of the column gbr_naam of the view bubs_mijn_rechten_r.

**Preparation on PC**

As an example the connection via ODBC is described:

- Determine whether the ODBC client is based on 32 or 64.
- Install the Oracle SQL * Net client appropriate for 32- or 64-bit and configure the network connection to be able to connect with SQL*Plus.
- Alternatively you can use the Oracle InstantClient appropriate to 32- or 64-bit.
- If an error occurs concerning the use of AL32UTF8: make sure that the NLS_LANG in the Windows register (HKLM\SOFTWARE\Oracle\KEY\NLS_LANG) or the UNIX environment variable NLS_LANG is properly filled with the value 'DUTCH_THE_NETHERLANDS.AL32UTF8'. If you use Oracle Instant Client, then there is no NLS_LANG in the Windows registry; that's why you need to define the NLS_LANG environment variable in Windows.
- Make an ODBC connection using the configuration screen:
• For example, with the following settings:

![Oracle ODBC Driver Configuration](image)

• Test the connection using a personal account that is created as described above.

**Example Connection Microsoft Access**
• Start the ODBC client (for example Microsoft Access):

![Microsoft Access ODBC connection](image)

• Preferred connection is the kind where data is not copied:
• Select the ODBC DSN:

A Machine Data Source is specific to this machine, and cannot be shared. "User" data sources are specific to a user on this machine. "System" data sources can be used by all users on this machine, or by a system-wide service.

• Choose a business view:
• Choose the unique key (always ID):

• The final result will look, for example, like this:
Next the information can be requested and/or mutated in accordance with the established rights.

**Example Connection with Microsoft Excel**

After the ODBC connection is created, also a connection with Microsoft Excel and the associated Microsoft Query can be made.

This example will show the budgeted and actual costs for cost category 3200 for all projects:

- Start Microsoft Excel.
- Select the ribbon 'Data' and create a connection:

Select ODBC DSN:
Select a business view based on the technical reference manual:

Select the preferred columns (budget, forecast, project, cost category):
Note: If the same tables are displayed at the same time, make sure that only 'Views' is selected using the button 'Options':

Select the preferred filter on cost category '3200':
Choose the desired collation on project code:

Select the location in Microsoft Excel where the data should be placed:

The data becomes visible in Excel:

Modify the layout of the data to get the final result:
If needed, the data can be managed using parameters. Select 'Properties' in the tab 'Data'.

- Select the property button to the right of the question mark.
- Select 'Edit Query'.
- Expand the query with parameters in the format '[DESCRIPTION]', for example:

```
Microsoft Query
```

Via the menu option ‘View’ and then ‘Parameters’ you open the screen:
Once a parameter is published via Microsoft Query, the button ‘Parameters’ will be available in the query properties:
You can use this button to specify that the question should be based on the contents of a cell:

Example Start Up Your Own Background Job

It's possible to request the running of a background process to Invantive Vision from your own program. Use a PL/SQL code like:

```
begin
  --
```

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-- Start a job with parameters.
--
-- Log on to Invantive.
--
bubs_session.set_session_info
  ('my_program_name'
  , 'start etl process'
  , 'system'
  , 'no query'
  , coalesce(sys_context('userenv', 'ip_address'), '?')
  , sys_context('userenv', 'host')
  , 'my_url'
  manual/Topics/voorbeeld-eigen-achtergrondproces.xml 19891 2012-
  10-09 13:23:03Z gle3 $' || to_char(sysdate, 'YYYYMMDDHH24MISS'))
);
--
-- Submit background job.
--
bubs#background_jobs.submit('BUBS_RUN_ETL', sysdate);
--
-- Fill parameters (optional).
--
bubs#background_jobs.set_parameter('p_etl_file', '../etl/
example.kjb');
bubs#background_jobs.set_parameter('p_log_level', 'BASIC');
bubs#background_jobs.finish_parameter_entry;
--
-- Save to allow job to be picked up by schedulers.
--
commit;
--
-- Wait till job ends (optional).
--
-- Starting release b41, you can substitute this code by:
--
-- bubs#background_jobs.wait_for_finish_job
--
declare
  l_dummy pls_integer;
begin
  while true
  loop
    select 1
    into l_dummy
    from bubs_background_jobs_v bjb
    where l=1
    and bjb.bjb_seq = bubs#background_jobs.get_bj-
b_seq_last_submitted
    and bjb.bjb_datum_einde is null
  ;
  end loop;
exception
  when no_data_found
  then
null; -- Job ended.
end;
end;

You can also use one job to start other jobs. In that case you only need to use the code from 'Submit background job'. Waiting for the completion of all initiated jobs can be done with:

bubs#background_jobs.wait_for_finish_all_child_jobs;

1.5.10.3 Invantive Server Pages

Within Additional Business rules and Your Own User Interface you can make use of Invantive Server Pages. Invantive Server Pages, also known as 'ISP', are comparable with Active Server Pages ('ASP') and Java Server Pages ('JSP').

Using user profile options for example, you can build reports in HTML or XML format which can be used for instance in e-mails. It is better to use ISP than the customized reports in the web user interface in the following situations:

- There is a continuous layout and not a layout for each page.
- The output needs to be HTML or XML.
- Possible changes are needed while compiling the report.
- The layout is more complex than what was possible with iReport.

ISP pages supply PL/SQL programming in the end, just like additional business rules. ISP pages are a better choice compared to additional business rules such as:

- The end product contains many layout elements.
- The person who builds the layout has little knowledge of additional business rules and PL/SQL.

The system recognizes ISP scripts by the next text directly at the beginning of a text:

<%@ page language="ISP" %>

Subsequently, layout elements and code elements can be interchanged. The code segments must be placed between '<?' and '%>' and must be written in Oracle PL/SQL.

The layout elements are identically reproduced in the output of the ISP script and the code segments are executed. All output to dbms_output is included in the output of the ISP script.

The following ISP script writes a welcome message to the Oracle user:

```html
<%@ page language="ISP" %>
<html>
<body>
  Welkom <% dbms_output.put_line(user); %>
</body>
</html>
```

All code sections may fill variables. It is recommended to define them in the beginning. Code sections located later in the script, can then read the variables. The following script provides for instance the day which is used later:

```html
<%@ page language="ISP" %>
<% declare
  l_dag varchar2(100);
beginc%
```
<html>
<body>
<% l_dag := to_char(sysdate, 'DDD'); %>
Welkom <% dbms_output.put_line(user); %>,
het is vandaag <% dbms_output.put_line(l_dag); %>.
</body>
</html>

For the execution of an ISP script you can use itgen_isp.run. You can pass variables in the
format of a URL parameter text as second parameter, for example ‘GBR_ID=1&TAK_ID=2’.
In the ISP code this can be used to read the contents of the l_parameters_map(NAME). You
can only retrieve the values of get parameters of a form.

The content type can be changed by assigning a value to the variable l_content_response_type.

If the ISP is started using an ISP that is stored in the database as a code, then you can find
that code in the variable l_spe_code.

If a user has rights on the screen 'Display Invantive Server Pages', then he can basically
open all pages. Per Invantive Server Page this can be further refined by setting the variable
l_access_granted_flag to 'Y' or 'N', for example by creating a function for the Invantive Server
Page in the following manner:

l_access_granted_flag := itgen_utilities.bool2char(bubs#mijn_menu_functies_r.has_access('xxive_db_sessions'));

Newsletter Example

In this example using ISP a newsletter will be composed in the next steps:

- Create a profile option containing the layout of the newsletter.
- Create a profile option containing the ISP.
- Send newsletter, select the users and create the emails used for the newsletter.

Note that you can merge both profile options to one profile option.

The final result is a newsletter in the following format:

![Image of newsletter]

Profile Option Layout Newsletter

This local profile option contains the layout of the newsletter. The texts ‘: Payload’ and ‘: FOOTER’ are replaced by the message:
Profile Option ISP

This local profile option contains the ISP to compose the message:

```jsp
<%@ page language="ISP" %>
<%
    declare
    l_gbr_aanhef      varchar2(500);
    l_template        clob;
    l_payload         clob;
    l_tak_found       boolean;
    begin
        l_template := bubs#profiel_opties.get_value('xxinet-html-nieuwsbrief-template');
        l_payload  := '';  
        -- Determine greeting.
```
```sql
--
select 'Geachte ' || case when gbr.gbr_geslacht_ind = 'M' then 'heer ' when gbr.gbr_geslacht_ind = 'V' then 'mevrouw ' else '' end || gbr_naam into l_gbr_aanhef from bubs_gebruikers_v gbr where gbr.gbr_id = l_parameters_map('GBR_ID');

l_payload := l_payload || l_gbr_aanhef || ',

l_payload := l_payload || '<br/>'; l_payload := l_payload || 'De processen die door u gemeld zijn:';

l_payload := l_payload || '<ul>'; l_tak_found := false;
--
for r_tak in ( select tak.code tak_code, tak.omschrijving tak_omschrijving from bubs_processen tak where tak.gbr_id_melder = l_parameters_map('GBR_ID') order by tak.id desc ) loop
l_payload := l_payload || '<li>Proces ' || r_tak.tak_code || ': ' || r_tak.tak_omschrijving || '</li>'; end loop;
--
if not l_tak_found then l_payload := l_payload || '<li>Geen meldingen.</li>'; end if;
--

l_payload := l_payload || '</ul>'; l_template := l_template || l_payload;
-- Merge both.
--
l_template := replace(l_template, ':PAYLOAD', l_payload);
l_template := replace(l_template, ':FOOTER', 'Deze e-mail is verzonden op ' || to_char(sysdate, 'DD-MM-YYYY HH24:MI:SS') || ' aan ' || l_parameters_map('GBR_EMAIL_ADRES') || '. Klik <a href="http://site/afmelden?GBR_ID=' || to_char(l_parameters_map('GBR_ID')) || '">hier</a> om af te melden.')
```

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Send Newsletter

After this one time activities it is easy to send the newsletter with for example:

```sql
-- -- Log on to Invantive Estate
--
bubs_session.set_session_info
( 'toad.sql'
, 'install'
, 'system'
, 'Newsletter'
, coalesce(sys_context('userenv', 'ip_address'), '?')
, sys_context('userenv', 'host')
, 'n/a'
, 'TOAD' || to_char(sysdate, 'YYYYMMDDHH24MISS')
);
end;
/
insert into bubs_berichten_v
( brt_afgehandeld_vlag
, brt_afzender
, brt_afzender_naam
, brt_boodschap_l
, brt_mime_type
, brt_onderwerp
, brt_ontvanger
, brt_ontvanger_naam
, brt_ref tabel
, brt_ref_sleutel
, brt_vertalen_vlag
) select 'N'
,      'info@acme.com'
,      'ACME'
,      itgen_isp.run
( bubs#profiel_opties.get_value('xxacme-html-nieuwsbrief-isp')
, 'GBR_ID=' || itgen_url.escape_cached(to_char(gbr.gbr_id), 'Y')
  || '&' || 'GBR_NAAM=' || itgen_url.escape_cached(gbr.gbr_naam, 'Y')
  || '&' || 'GBR_EMAIL_ADRES=' || itgen_url.escape_cached(gbr.gbr_email_adres, 'Y')
, 'text/html'
, 'ACME nieuwsbrief november 2009'
, gbr.gbr_email_adres
, gbr.gbr_naam
```
1.6 Processes
This chapter describes the functioning of processes that take place via multiple screens, processes and manual operations.

1.6.1 Invoicing
See the Visio flowchart bubs processes (CAPTERE IN HERE).

**Step 15 / 16 / 17: Invoicing**

It is possible in one effort to:
- approve all hours;
- completed processes to be invoiced;
- all hours to be invoiced of invoiceable processes;
- invoice all hours of projects;
- all concept invoices to be approved.

To do so please follow the next steps:
- Select the background script ‘Invoicing: process all parts’:

```sql
from bubs_gebruikers_v gbr
where 1=1
and gbr.gbr_email_adres is not null
commit
```

- Enter the parameters as follows:
• Process the background process.

• End result is:

In the screen Draft Invoice Lines you can view the results.

**Step 18: Export**

Subsequently the approved concept invoice lines can then be exported into an interface file for the ERP package used, such as for example, KING. To do so, follow these steps:

• Run the background program ‘King: Extraction sales orders’.

After the process has been executed (see picture), you can retrieve the output.

The output is in XML format which can be imported into KING:

```
-- </--

\* Extracted on 01-09-2003 17:25:45 by Oracle user ADOM, database oracle2, database server vbanos, client_info ADOMS, server_type SPARC

-- </--

<KING_ORDERS>
  <ORDERS>
    <ORDER>
      <ORDERKOP>
        <ORH_ORDERNUMMER/>
        <ORH_EXTERNORDERNUMMER/>
      </ORDERKOP>
      <ORH_REFERENTIE/>
      <ORH_ORDERDATUM/>
      <ORH_LEVERDATUM/>
      <ORH_FACTUURADRESSEXCORT/>
    </ORDER>
    <ORDER>
      <ORDERKOP>
        <ORH_ORDERNUMMER/>
        <ORH_EXTERNORDERNUMMER/>
      </ORDERKOP>
      <ORH_REFERENTIE/>
      <ORH_ORDERDATUM/>
      <ORH_LEVERDATUM/>
      <ORH_FACTUURADRESSEXCORT/>
    </ORDER>
  </ORDERS>
</KING_ORDERS>
```

1.6.2 New Employee

Follow these steps to enter a new employee, so he or she can log in Invantive Estate:

• Create a person in the screen **Persons**. Before you create a user, there must always be a person;

• Create a user from the person in **Users**. Enter a username and password;

• Select the roles of the person in **Person Roles**. Here you can indicate whether the person is a time writer, process owner or process reporter and the unit, working schedule and
internal tariff.

- Give the user the role for authorization User Roles and indicate here which role the users have in terms of authorization Invantive Estate.

Follow the next steps if the new contributor will also write hours that are going to be billed:

- If you use a separate unit for each employee, enter the new unit in Units.
- Enter the sales price for the new unit in Price List Lines.
- Enter in the screen Persons roles the desired unit.

1.7 Server

1.7.1 Background Scripts for Administration

The following background scripts are available for administration.

1.7.1.1 Compile Invalid Database Objects

This function is specifically for system administrators.

Compiles all database objects of which the validity is not certain, and because of which they are marked as invalid. After executing this script, it might be necessary to restart the application, since the foundation might have been changed. Also see Database Objects.

1.7.1.2 Check Contract Positions Cache

This function is specifically for system administrators.

The prognosis from the prognosis model are recalculated with each change of relevant input data. This background script checks if the advanced calculated and established prognosis are identical to the current results from the prognosis model.

1.7.1.3 Run ETL Process

This function is specifically for system administrators.

With 'Administration: Run ETL Process' you can execute programs for the moving of data in the background. This can be used for:

- Retrieving actual figures from the general ledger system and reading them again in the ERP interface.
- Geocoding of locations with the help of Google Geocode API.
- Offering of instructions to an application such as Basware for payments are refactored.

The programs can be developed with the Kettle of Pentaho Data Integration.

An ETL program gets the following parameters:

- BUBS_DB_SERVER: name of the server in the JDBC connection with the name 'bubs_tomcat'.
- BUBS_DB_PORT: port in the JDBC connection with the name 'bubs_tomcat'.
- BUBS_DB_NAME: name of the database in the JDBC connection with the name 'bubs_tomcat'.
- BUBS_DB_USER: name of the database user in the JDBC connection with the name 'bubs_tomcat'.
- BUBS_DB_PASSWORD: password of the database user in the JDBC connection with the name 'bubs_tomcat'.

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- **BUBS_JOB_GBR_AANMELD_CODE**: login code of the application user that requested the background process.
- **BUBS_JOB_BJB_SEQ**: number of the background process.
- **BUBS_JOB_SCT_CODE**: code of the background script that is running.
- **BUBS_JOB_SDR_CODE**: code of the background planner that executes the background process.
- Plus all parameters that the background script has.

## Login

Per Kettle program (transformation of job) you can create connections. If you want to connect with the application, give this connection the name 'bubs' with the following specification:

```
<connection>
  <name>bubs</name>
  <server>${BUBS_DB_SERVER}</server>
  <type>ORACLE</type>
  <access>Native</access>
  <database>${BUBS_DB_NAME}</database>
  <port>${BUBS_DB_PORT}</port>
  <username>${BUBS_DB_USER}</username>
  <password>${BUBS_DB_PASSWORD}</password>
  <servername/>
  <data_tablespace/>
  <index_tablespace/>
  <attributes>
    <attribute><code>FORCE_IDENTIFIERS_TO_LOWERCASE</code><attribute>
    <attribute><code>FORCE_IDENTIFIERS_TO_UPPERCASE</code><attribute>
    <attribute><code>IS_CLUSTERED</code><attribute>
    <attribute><code>PORT_NUMBER</code><attribute>1521</attribute>
    <attribute><code>QUOTE_ALL_FIELDS</code><attribute>
    <attribute><code>SUPPORTS_BOOLEAN_DATA_TYPE</code><attribute>
    <attribute><code>USE_POOLING</code><attribute>
    <attribute><code>SQL_CONNECT</code><attribute>/* Log on to middle tier. */
    insert into bubs_pre_laden_r
    (action_requested, action_parameter1, action_parameter2, action_parameter3, action_parameter4, action_parameter5, action_parameter6, action_parameter7, action_parameter8, action_parameter9)
    values
    ( 'LOGON FULL'
```
1.7.1.4 Dump Projects like XML

This function is specifically for system administrators.

With this background script you can register projects with all data in the file outside the documents as XML. This XML file can be used to feed other systems or for long term archiving.

1.7.1.5 Generate XML File for Web Services

This function is specifically for developers and system administrators.

The Invantive Producer repository is converted to an XML file that can be used to generate the web services.

1.7.1.6 Optimize Storage of Text Index

This function is specifically for system administrators.

Optimizes the storage of the text index for documents in order to occupy less storage space and to speed up document search. Execution does not have to occur frequently, normally a couple of times per year will do. See also [Documents](#).

1.7.1.7 Parse heavy SQL Statements in advance of the actual Call

This function is specifically for system administrators.

It is recommended to schedule the execution of these scripts every morning before 08:00 hours. This will speed startup when the first user logs on because a lot of data already has been loaded from the hard disks into the memory.

The SQL statements that are being prepared, have to be collected regularly with the help of the script [Collect SQL Statements which Are relatively heavy to Parse](#).

1.7.1.8 Send messages for Exceedance Deadline Processes

This function is specifically for system administrators.

Sends a message by e-mail to the process owner for all processes that are still open and with deadlines in the past.

1.7.1.9 Send E-mail to Administrator and Supplier with Errors

This function is specifically for system administrators.
Via this background job you can send errors and warnings from the messages of `<% PRODUCT%>` and from database-wide alerts to Invantive. Invantive regularly analyzes those messages to improve the quality of the software on those parts that are most important for users.

### 1.7.1.10 Synchronize Additional Business Rules if Necessary

This function is specifically for system administrators.

Normally, this function is automatically executed if an additional business rule changes. This function updates all the generated software for additional business rules based on the specifications of all views from which is indicated that they need to be synchronized.

### 1.7.1.11 Synchronize Additional Business Rules for 1 Specific View

This function is specifically for system administrators.

Normally, this function is automatically executed if an additional business rule changes. The function updates the generated software for additional business rules based on the specifications for exactly one specific view, independent of whether the additional business rule was changed or not. This can sometimes be necessary if the generated software is manually adjusted outside the control of Invantive Estate.

### 1.7.1.12 Synchronize Text Index of Documents with actual Content

This function is specifically for system administrators.

Update the text index for documents with newly added documents. Without this background process it is no possible to find documents using the index. The script is automatically started for each new document that is added.

### 1.7.1.13 Validate Soll Numbers with Data

This function is specifically for system administrators.

Compare the actual present data with the supplied Soll values. The outcomes are stored as tests. Also see Value Formulas.

### 1.7.1.14 Process Messages

This function is specifically for system administrators.

Try to deliver all messages using the SMTP Server in the screen Settings, which have not been delivered and for which you can try to deliver the message again.

Everyone tries to deliver the maximum number of e-mails as noted in the profile option 'bubs-brt-maximum-number-emails-each-time'.

If the profile option 'bubs-sct-send-mail-smtp-authenticate' is on Y, authentication will be accomplished with help from the user as noted in 'bubs-sct-send-mail-smtp-user' and the password in the profile option 'bubs-sct-send-mail-smtp-password'.

Mail which couldn't be delivered, will be automatically delivered later. The delay is set in the screen Settings. The delay is multiplied by 2 till the power of the number of tries executed to deliver the message. The maximum delay is 4 hours.

### 1.7.1.15 Delete all Data from the ERP Interface Tables

This function is specifically for system administrators.

All data from the ERP interface tables will be removed.
1.7.1.16 Delete all old Background Jobs

This function is specifically for system administrators.

Delete all background process which ended longer ago then the number of specified
days.

1.7.1.17 Remove old Tables from Recycle Bin

This function is specifically for system administrators.

Permanently removes tables which have earlier been put in the recycle bin. The functioning
is comparable with the database statement 'purge recyclebin'.

1.7.1.18 Collect SQL Statements which Are relatively heavy to Parse.

This function is specifically for system administrators.

With help from the script Parse heavy SQL statements before the actual call you can im-
prove the performance of the system with the first user. This script gathers necessary SQL
statements.

1.7.1.19 Update Calendar

This function is specifically for system administrators.

A calendar is included in the application which among other is used to convert dates into
week numbers. From the moment of installation the calendar is filled for 10 years into the
past and 30 years into the future. In case the application is going to be used for a longer ti-
me, it might be necessary to update the calendar for the future. Usually it is sufficient to per-
form this script once a year.

1.7.1.20 Update Statistics

This function is specifically for system administrators.

For optimal performance the application uses statistics of the stored data. These statistics
are not updated automatically. After every major change in the stored date (for example, a
conversion) the statistics need to be updated by this script. Moreover, it is recommendable
to update the statistics every month.

1.7.2 Background Script for Development

The following background scripts are available for application development.

1.7.2.1 Update Business Layer

This function is specifically for system developers.

The business layer is constructed again, based on the data stored in Invantive Producer. Aft-
er executing this script, it might be necessary to restart the application, since the foundation
might have been changed. See also Invantive Producer.

1.7.3 Background Scripts for Testing

The following background scripts are available to test the correct functioning of the applica-
tion.

1.7.3.1 Runs 10 Seconds

This function is specifically for system developers.

The processing of this script takes 10 seconds and it is made for testing the functioning of the
background schedulers.
1.7.3.2 Java (with Error)

This function is specifically for system developers.

The processing of this script results in an error message and it is made for testing the functioning of the background schedulers.

1.7.3.3 Java (without Error)

This function is specifically for system developers.

The processing of this script does not result in an error message and it serves for testing the functioning of the background schedulers.

1.7.3.4 Multiple dependent Processes

This function is specifically for system developers.

Processing the script results in a series of processes which are interdependent. The script is made to test the functioning of the background schedulers.

1.7.3.5 Oracle PL/SQL (with Error)

This function is specifically for system developers.

The processing of this script results in an error message and it is made for testing the functioning of the background schedulers.

1.7.3.6 Oracle PL/SQL (without Error)

This function is specifically for system developers.

The processing of this script does not result in an error message and it serves for testing the functioning of the background schedulers.

1.7.4 Background Scripts Invoicing

The following background scripts are available for invoicing.

1.7.4.1 Approve All Concept Invoice Lines

This script is part of the invoicing process.

The script approves all Concept invoice lines that are not yet approved.

1.7.4.2 Remove All Forwarded Concept Invoice Lines

Remove all Concept invoice lines that at least the specified number of days ago have been transmitted to the accounting package.

1.7.4.3 Book all hours as cost

Most small accounting packages cannot easily book costs. This script books costs directly in <% PRODUCT%> as invoices.

Condition is that Invantive Estate also is checked by the auditor and both costs and revenues fall in the same accounting entity.

The size of costs posting is based on number of hours times the internal rate of the person/machine times the weight of the labor type.

The effect can also be configured as follows:

- The code of the cost invoice is based on the contents of the profile option 'bubs-cfl-costaccounting-ftr-code-kosten-patroon'.
• The description of the cost invoice is based on the contents of the profile option 'bubs-cfl-costaccounting-frt-omschrijving-patroon'.
• The description of the cost invoice line is based on the contents of the profile option 'bubs-cfl-costaccounting-frl-omschrijving-patroon'.
• The contract for the costs and revenues is based on the pattern of the contract of the labor type.
• The code of the revenue invoice is based on the contents of the profile option 'bubs-cfl-costaccounting-ftr-code-opbrengsten-patroon'.
• The description of the revenue invoice is based on the contents of the profile option 'bubs-cfl-costaccounting-pjt-code-opbrengsten'.
• The description of the revenue invoice line is based on the contents of the profile option 'bubs-cfl-costaccounting-kbg-code-opbrengsten'.

1.7.4.4 Invoice Hours
Invoice the hours that are ready for invoicing as described in Timesheet Statuses.

1.7.4.5 Overview non-invoiced hours
This overview shows the non-invoiced hours, regardless of the filter set.
First the hours are shown that have not been booked yet in the past and that are put ready for invoicing. Then follows a list of the hours that are ready for invoicing.

1.7.4.6 Prepare Projects for Invoicing of Hours
Hours that are directly booked on projects get the specified timesheet status. This should preferably be a timesheet status that is billable.

1.7.4.7 Fixed-Price-Billing Processes, other Processes for Preparing Billing Hours
Executes the following activities:
• Invoice fixed price processes like draft invoice lines.
• Ready the hours of all other processes for timesheet invoicing.
• Process used process units to draft invoice lines.
The invoicing of hours happens with Invoice Hours.

1.7.4.8 Process all Parts
This script executes the standard invoicing, by the following steps:
• Invoicing: Prepare projects for invoicing of hours.
• Invoicing: Fixed-Price-Billing Processes, prepare other processes for hours invoicing.
• Invoicing: invoice hours.
• Invoicing: Overview non-invoiced hours.
• Invoicing: Approve all concept Invoice Lines.
If your organization has another invoicing process, you need to make your own background script. This can be placed in the screen Background Scripts.

1.7.5 Background Scripts Cash Flows
The following background scripts are available for cash flows.
1.7.5.1 Calculate massively Cash Flows

This script creates a cash flow projection for all projects within the specified criteria. The massively creation of such cash flows is often used to determine a multiyear forecast based on prognosed sales.

1.7.6 Background script Exact Online

The following background scripts are available for Exact Online.

1.7.6.1 Extraction Sales Invoices

Make a file with sales invoicing which can be uploaded using Exact Online. See also Concept Invoices.

The format of the sales invoices can be send through a number of profile options:

- bubs-interface-exactonline-factuur-product-uren: the product for the hours.
- bubs-interface-exactonline-invoice-journal-sales: the journal for the sales.
- bubs-interface-exactonline-invoice-unit: the unit.
- bubs-interface-exactonline-invoice-cost center-process-unit: the cost center for process units.
Sometimes, conversion invoices are used to fill Exact Online with an administration system. For this, the column Reference Detail Table is filled with ‘---’. The relevant profile options are:

- Bubs-interface-exactonline-factuur-product-conversie: unit which should be used for the conversion of invoices.
- Bubs-interface-exactonline-factuur-kostenplaats-conversie: cost center for the conversion of invoices.

### 1.7.7 Achtergrondscript KING

The following background scripts are available for KING.

#### 1.7.7.1 Extraction Sales Orders

Create a file with sales invoices which can be read using KING. See also Concep Invoices.

The format of the sales invoices can be send through a number of profile options:

- Bubs-interface-king-order-tarief-uren: the rate inside KING that is used for hours, possibly using the field :gbr_initialen.
- Bubs-interface-king-order-tarief-vaste-prijs: the rate inside KING that is used for fixed price processes.
- Bubs-interface-king-order-kop-regel-1: an optional head line on the invoice.
- Bubs-interface-king-order-kop-regel-2: an optional head line on the invoice.
- Bubs-interface-king-order-kop-regel-3: an optional head line on the invoice.
Bubs-interface-king-order-voet-regel-1: an optional footnote on the invoice.

Bubs-interface-king-order-voet-regel-2: an optional footnote on the invoice.

Bubs-interface-king-order-voet-regel-3: an optional footnote on the invoice.


Bubs-interface-king-order-tekst-geen-commentaar: text to use if no comment was specified in the hour registration.

Bubs-interface-king-order-tekst-geen-locatie: text to use if no location was specified in hour registration.

Bubs-interface-king-order-tekst-geen-proces-code: text to use as process code if there are direct hours registered on a project.

Bubs-interface-king-order-tekst-geen-proces-omschrijving: text to use as process description if there are direct hours registered on a project.

Bubs-interface-king-formaat-datum: the (fixed) format for dates.

Bubs-interface-king-formaat-getal: the (fixed) format for numbers.

1.7.8 Workflow

In the following cases, default messages are sent automatically:

- The process keeper receives a status overview of a task in the event of a task being modified and the profile option 'bubs-tak-email-houder-bij-wijziging' is set to 'Y'.
- The process keeper receives a status overview of a task in the event of a task being modified and the profile option 'bubs-tne-email-houder-bij-wijziging' is set to 'Y'.

For example, such a message looks like this:
Additionally, it is possible to set a custom message in the event the layout is not satisfactory. This can be done with **Additional Business Rules**.

### 1.7.9 Monitoring

Statistics are made available through the webserver. You need to request `bubs_stats.do` with the parameter `COMMUNITY`. The parameter need to have the same value as the profile option `bubs-statistics-community`. You can look up the standard statistics and the statistics for reading into Pandora FMS. You control this by using the `FORMAT` parameter that can be `'DEFAULT'` or `'PANDORAFMS'` respectively.

Finally, you have to specify which IP address ranges are permitted to retrieve the statistics. You can set this up with the profile option `bubs-statistics-ipfilter`.

By default, the statistics look as follows:
<?xml version="1.0" encoding="UTF-8"?>
<Statistics>
  <Time>27-03-2011 00-07-33</Time>
  <Statistic><Code>bubs-ice-max-usr</Code><Value>73</Value></Statistic>
  <Statistic><Code>bubs-ice-max-pjt</Code><Value>121</Value></Statistic>
  <Statistic><Code>bubs-ice-max-po</Code><Value>10</Value></Statistic>
  <Statistic><Code>bubs-ice-max-wip</Code><Value>270</Value></Statistic>
  <Statistic><Code>bubs-use-cnt-ftr</Code><Value>83</Value></Statistic>
  <Statistic><Code>bubs-use-cnt-gbr</Code><Value>76</Value></Statistic>
  <Statistic><Code>bubs-use-cnt-lvr</Code><Value>98</Value></Statistic>
  <Statistic><Code>bubs-use-cnt-brt</Code><Value>5</Value></Statistic>
  <Statistic><Code>bubs-use-cnt-mgn</Code><Value>7</Value></Statistic>
  <Statistic><Code>bubs-use-cnt-vrd</Code><Value>1</Value></Statistic>
  <Statistic><Code>bubs-use-cnt-ctt</Code><Value>26557</Value></Statistic>
  <Statistic><Code>bubs-use-cnt-frl</Code><Value>292</Value></Statistic>
  <Statistic><Code>bubs-use-cnt-obt</Code><Value>18404</Value></Statistic>
  <Statistic><Code>bubs-use-cnt-kps</Code><Value>7949</Value></Statistic>
  <Statistic><Code>bubs-use-cnt-ust</Code><Value>13</Value></Statistic>
  <Statistic><Code>bubs-use-cnt-uur</Code><Value>77</Value></Statistic>
  <Statistic><Code>bubs-use-cnt-dfe</Code><Value>15</Value></Statistic>
  <Statistic><Code>bubs-use-cnt-pjt</Code><Value>122</Value></Statistic>
  <Statistic><Code>bubs-use-cnt-odt</Code><Value>7576</Value></Statistic>
  <Statistic><Code>bubs-use-cnt-tsg</Code><Value>16</Value></Statistic>
  <Statistic><Code>bubs-use-cnt-bvg</Code><Value>405</Value></Statistic>
  <Statistic><Code>bubs-use-cnt-kse</Code><Value>5</Value></Statistic>
  <Statistic><Code>bubs-use-cnt-gsk</Code><Value>11</Value></Statistic>
  <Statistic><Code>bubs-use-cnt-unt</Code><Value>155</Value></Statistic>
  <Statistic><Code>bubs-use-cnt-bvd</Code><Value>4</Value></Statistic>
  <Statistic><Code>bubs-use-cnt-cfl</Code><Value>9</Value></Statistic>
</Statistics>
1.8 Performance
This chapter describes the possibilities for improving performance.

1.8.1 Scalability
Invantive Estate is default tested on 1 CPU server hardware with:
- 100,000 documents and URL-s.
- 1,000 projects

If you will be using larger numbers, please first run a performance test on the hardware.

1.8.2 Improve Performance
Perform the following actions to improve performance:
- Set the logging level of the web server to ‘error’ in site....properties.
- Update the statistics monthly with a background process.
1.8.3 PL/SQL Profiling

With PL/SQL profiling measurements can be executed on the runtime of PL/SQL-code. In the screen Settings, you can turn on PL/SQL profiling for all PL/SQL calls from screens and background jobs.

Steps:
- Enable profiling via ‘Setting’.
- Profiling takes a lot of I/O bandwidth. Thus, if possible you must first turn off the background schedulers.
- In site.properties use the user ‘bubs’ instead of ‘bubs_tomcat’ because of rights:
  
  bubs_tomcat.user=bubs
  bubs_tomcat.password=bubs
- Be careful: this allows the application complete access to Invantive Estate, not just through allowed
- !
- Restart Tomcat (’/etc/init.d/bubs3 restart’ or ‘net stop “Apache Tomcat”, net start “Apache Tomcat”’).

You can request the results via:

```sql
select r.runid,
       u.unit_type,
       u.unit_name,
       d.line#
       d.total_occur,
       d.total_time/1e9 total_time_ms,
       s.text
  from plsql_profiler_runs r
  join plsql_profiler_units u
  on r.runid = u.runid
  join plsql_profiler_data d
  on u.unit_number = d.unit_number
  and u.runid = d.runid
  /* Optioneel */
  join user_source s
  on s.line = d.line#
  and s.name = u.unit_name
  and s.type = u.unit_type
  where r.runid = :runid
  and d.total_time/1e9 > 1/100 /* Meer dan 1/100 seconde. */
  order by d.total_time desc
```

The output looks as follows:
It is also possible to profile PL/SQL procedures manually, with:

```plsql
DECLARE
    l VARCHAR2(2000);
BEGIN
    DBMS_PROFILER.START_PROFILER();
    DBMS_OUTPUT.PUT_LINE('s=' || TO_CHAR(SYSDATE, 'HH24MISS'));
    FOR i IN 1..1000 LOOP
        SELECT cig_omschrijving INTO l
        FROM bubs_mijn_rechten_r
    END LOOP;
    DBMS_OUTPUT.PUT_LINE(TO_CHAR(SYSDATE, 'HH24MISS'));
    DBMS_PROFILER.STOP_PROFILER();
END;
```

1.8.4 SQL Trace of Outlook Add-in

To save the SQL statements in a file the following code needs to be part of app.config or web.config:

```xml
<system.diagnostics>
    <sources>
        <source name="System.ServiceModel" switchValue="Error">
            <listeners>
                <add name="xmlTrace" />
            </listeners>
        </source>
    </sources>
</system.diagnostics>
```

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In the specified file (in this example ‘C:\temp\client_verbose.svclog’), the SQL statements will be logged. This file can be read with SvcTraceViewer (can be found in the Windows SDK, but also in the Invantive tools).

1.9 Frequently asked questions

The use of Invantive Estate results in frequently asked questions. These questions and their respective answers are added to the chapter as an aid for self-assistance.

1.9.1 How can I partially release a provision?

In projects often an amount is registered on a cost category to serve as a provision, for example, for vacancy or setbacks. However, never a direct posting will be made on this cost category. During review moments it is determined which part of these provisions can be released in favor of the result.

Follow these steps to partially release a provision:

- Select a ‘Release Deviation’ from the list as described in Comment Deviation.
- Add a latest estimate using the screen Latest Estimates for this cost category which shows the amount that cannot be released.

Example: the provisions is Eur 300k. Eur 100k will be released. Displaying is turned on and the latest estimate is added as 300k - 100k = Eur 200k. The 100k which is released is added to the project results.

1.9.2 Handling Sub- and Master Projects

In the screen Projects you can register and change projects. There are three possible project types:

- An individual project: this may include financial data and reporting.
- A subproject: this may include financial data and reporting. Moreover, they can be consolidated and reported within a master project.
- A master project: it is not possible to include independent financial data and reporting. Ho-
However, the numbers of the underlying subprojects can be consolidated and reported.

**Changing an Individual Project into a Master Project**

Perform the following steps to turn an individual project into a master project:

- Make sure your filter is empty.
- Give the existing project a temporary name: Go to **Projects** and select the project. Change the code of the project and select ‘Save’.
- Create a new project as a master project. This can be done by creating a new project, but also through **Copy Projects** and just copy the project and subsequently change the project type from ‘Individual Project’ to ‘Master Project’.
- Change the project type of the old project to ‘Subproject’.
- Select in the data of the old project the new master project as master project.
- Enter the cost type prefix. This prefix must be unique for all subprojects within the master project. The prefix is used to make the cost category of each subproject unique in the case of consolidated reporting.
- Press ‘Save’.

**Usage**

You can have multiple subprojects under one master project.

Uncheck ‘Merge Subprojects’ in **My Preferences** if you do not want consolidated reporting or place a check mark for consolidated reporting.

**1.9.3 Why the revenue budget always should be substantiated?**

**Question:**

Create a project with, for example, the following budget, but do not enter any revenues:

<table>
<thead>
<tr>
<th>Kostensoort</th>
<th>Budget</th>
<th>1000</th>
<th>Koopsm grond</th>
<th>1000</th>
<th>FMO</th>
<th>FZQ</th>
<th>Tonen</th>
<th>Afwijking Budget</th>
<th>Realisatie</th>
<th>Verwachting</th>
<th>Totaal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

You will get a negative forecast:

<table>
<thead>
<tr>
<th>Kosten</th>
<th>Budget</th>
<th>Afwijking</th>
<th>Prognose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opbrengsten</td>
<td>800.000</td>
<td>0</td>
<td>800.000</td>
</tr>
<tr>
<td>Projectresultaat</td>
<td>200.000</td>
<td>-1.000.000</td>
<td>-800.000</td>
</tr>
</tbody>
</table>

In other words:

- For the costs the calculation model assumes that the entire budget will be used (no release).
For the income the calculation model assumes that there will be no revenues (full release).

Why is the forecast not just equal to the budget with a profit of EUR 200.000 (EUR 1,000.000 revenue - cost EUR 800.000)?

**Answer:**

For the example shown this is a legitimate question. There are no revenues at all, so probably (and hopefully), the budget revenues need to be further broken down into different revenue types.

Suppose that one revenue was known for cost category 9310 for an amount of EUR 900,000. What should be the prognosis in this situation? There are two possible approaches:

- The breakdown of the remaining EUR 650,000 must be made soon and the forecast result of the project is EUR 200,000 (EUR 1,000,000 revenue - cost EUR 800,000).
- The project does not meet its expectations and the originally budgeted EUR 1,000,000 is certainly not realized. The project developer has devised an alternative, but unfortunately the expected revenue is only EUR 900,000. The forecast of the project result is EUR 100,000 (EUR 900,000 revenue - cost EUR 800,000).

The forecast is always based on the most adverse scenario (worst case). In this case, the second choice is the most certain. The project developer can quickly add an extra return if indeed he's expecting a result of EUR 200,000 under the first approach.

To keep a predictable model it has been chosen in case that no revenues are entered yet, to assume that there will be no revenues.

### 1.10 Installation

The installation of the application requires several changes to the configuration files. This chapter describes the possible changes and the way they must be made.

#### 1.10.1 System Requirements

**Client (PC, tablet, smartphone)**

To use Invantive Estate on your PC or terminal server you will need the following software including licenses:

- Internet Explorer 9.0, Firefox 10, Chrome 20, KHTML 4 or Safari 5 or newer.
- Microsoft Office 2010 or Microsoft Office 2013 (only on Microsoft Windows).
- Microsoft .NET 4.5.
- Invantive Webservice or local drivers.
- Minimum 2 GB of internal memory.
- Screen resolution of 1280 x 1024 or higher.
- Adobe Acrobat Reader 8, 9, 10 or 11.
- Oracle user license.
- Link to Microsoft Exchange recommended for time registration.

To use Invantive Estate on your Mac, tablet or smartphone you will need the following software including licenses:

- Internet Explorer 9.0, Firefox 10, Chrome 20, KHTML 4 or Safari 5 or newer.
- Adobe Acrobat Reader 8, 9, 10 or 11.
On-Premises
For the use of Invantive Estate as server within the private network you will need (so-called "on-premises" use):
- Database management system: Oracle 11g Release 2 Standard Edition One 11.2.0.3.
- Application server: Tomcat 7.0.33 or newer with Oracle Java SDK 1.7 update 9 or newer, Microsoft .NET 4.5., Microsoft IIS 7.0 or Microsoft IIS 7.5.
- Minimum of 4 Gb internal memory.
- Screen resolution of 1280 x 1024 or higher.

Antivirus and Firewall Software
Finally, combined use of anti-virus and firewall products together with Invantive Estate is only allowed on the server for the large scale business editions. It is necessary to purchase extra time for configuration. Editions targeted at consumers and small businesses are not supported because they are not designed for use in server environments.

The anti-virus software should at least disable access control on files for:
- oracle.exe
- ctxhx.exe
- tnslnsr.exe
- nmesrvc.exe
- java.exe
- tomcat6.exe

Moreover, it is recommended to turn off the database scan and the writing and reading of files with the extensions: *.xml, *.txt, *.log and *.tmp.

To install Invantive Estate you need to contact Invantive.

1.10.2 Installation and Upgrade
This chapter contains the steps necessary to install Invantive Estate on a server.

1.10.2.1 Installation Database Server
Perform the following steps for an installation or an upgrade:
- Check if Oracle RDBMS 11.2.0.3 Standard Edition One, Standard Edition or Enterprise Edition is installed and configured (see next chapter for the steps). The functioning of Invantive Estate with other Oracle RDBMS versions is not guaranteed.
- The database character set must be AL32UTF8.
- [UNIX/Linux] The NLS_LANG environment variable needs to be set to "DUTCH_THE NETHERLANDS.AL32UTF8" for all users, on the web server and on the database server.
- [Windows] The HKLM\Software\Oracle\Key_Ora*\NLS_LANG register variable needs to be set to "DUTCH_THE NETHERLANDS.AL32UTF8" for all users, on the web server and on the database server.
Depending on the prevailing security policy you might want to turn off the automatic blocking of accounts by several false attempts to log on. It is common that a password is changed and the auto-retry functionality of Invantive Estate makes that an account will be blocked. Log on as ‘sys’ (for example with SQL*Plus) and execute:

```sql
alter profile default
  limit
    failed_login_attempts unlimited
    password_life_time unlimited
    password_reuse_time unlimited
    password_reuse_max unlimited
    password_lock_time 1
    password_grace_time 30;
```

Possibly change the global name of the service:

```sql
alter database rename global_name to "orcl11r1.NAAMBEDRIJF.nl"
  scope=spfile; -- 11g R1
alter database rename global_name to "orcl11r2.NAAMBEDRIJF.nl";
  -- 11g R2
```

If necessary, change the name under which the database register with the listener:

```sql
alter system set service_names='orcl11r1.NAAMBEDRIJF.nl' scope=spfile;
alter system set db_domain='NAAMBEDRIJF.nl' scope=spfile;
```

Change the NLS settings of the database server:

```sql
alter system set nls_language='DUTCH' scope=spfile;
alter system set nls_territory='THE NETHERLANDS' scope=spfile;
```

Change the parameter memory_target in at least 40 MB times the number of simultaneous users with a minimum of 768 MB, for example, with:

```sql
alter system set memory_target=512m scope=spfile;
```

Put memory_max_target at at least the same value as memory_target and possibly higher.

Remember to put sga_target and pga_aggregate_target to 0, for example, with:

```sql
alter system set sga_target=0 scope=spfile;
```
alter system set pga_aggregate_target=0 scope=spfile;
alter system set shared_pool_reserved_size=0 scope=spfile;

• Make sure that dumps do not take up the entire server:

alter system set max_dump_file_size="8M";

• Check that automatic memory management is used optimally:

select name,
    value
from   v$parameter
where  1=1
and    name like '%size'
and    value <> '0'
and    name not like 'sga%'
and    name not like 'db_block%'
and    name not like 'max_dump%'
and    name not like '%percent%'
and    name not like '%message%'
and    name not like 'object_cache%'
and    name not like 'db_recovery_file_dest_size%'

• To prevent the flooding of the disks in the case of malfunctions you might want to ease the automatic registration of incidents.

$ adrci
#
# Reduce minimum duration for trace files to 2 hours.
# And 8 hours for incidents.
#
set control (shortp_policy = 2)
set control (longp_policy = 8)
#
# Or regularly execute:
#
set base /opt/prd/oracle
show homes

set homepath diag/rdbms/prd11r2/prd11r2
show incident
purge -age 1440
set control (shortp_policy = 2)
set control (longp_policy = 8)

set homepath diag/tnslsnr/ws86/listener
show incident
purge -age 1440

• You should change the settings for the database optimizer if the web frontend does not respond fast for example in the processes screen and in case you make use of the <OMGEVING>_web schedule for the web frontend:

alter system set "_optimizer_cost_based_transformation" = off
scope=both
• You can check if the data ends up in the right place in a production environment by changing the log file several times using the underlying statement. If necessary, change the log_archive_dest_1 parameter.

    alter system switch logfile

• Within demo installations you can avoid the possibly massive startup of database jobs and the corresponding inertia by turning them off:

    begin
        for r_job
        in
            ( select sjb.owner,
                 sjb.job_name,
                 sjb.enabled
             from   dba_scheduler_jobs sjb
             where  sjb.enabled = 'TRUE'
             order
                    by sjb.owner,
                    sjb.job_name)
        loop
            begin
                dbms_scheduler.stop_job(r_job.owner || '.' || r_job.job_name, true);
                exception
                    when others
                    then
                        null;
            end;
            dbms_scheduler.disable(r_job.owner || '.' || r_job.job_name);
        end loop;
    end;

Installation Oracle 11.2.0.3 on Windows

Perform the next steps to install Oracle:

• Unzip the files ‘win64_11gR2_database_1of2.zip’ and ‘win64_11gR2_database_2of2.zip’ in the same folder, for example, ‘win64_11gR2_database’. If you use ‘Extract All’ in the Microsoft Windows explorer you need to change the proposed folder name. Accept the warning that the files will be merged.

• Make sure that all extracted files from both zip files end up in the same map. You can verify this by checking that in ‘database/stage/Components’ there will be a folder ‘oracle.ctx’. If this is not going well, then the installation will complain about the missing parts of the installation files. The result is for example:
- Start 'setup.exe'.
- In the first screen it is usually recommended given the network configuration and security rules to turn off the automatically log on to Metalink::
Select 'Next' and choose 'Yes' when the warning appears.

The following screen appears:

- The following screen appears:
• Select ‘Next’.

• The following screen appears:
• Select ‘Server Class’ and then select ‘Next’.
• The following screen appears:
• Select ‘Next’.
• The following screen appears:
- Select ‘Advanced install’ and then select ‘Next’.
- The following screen appears:
• Select at least the languages in which the system will be ever used, but preferably choose all languages.
• Select ‘Next’.
• The following screen appears:
- Select ‘Standard Edition One’ when this is licensed. This is also the minimum level necessary for proper operation.
- Select ‘Next’.

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• Fill in at ‘Oracle Base’ the preferred location, most common is ‘<DRIVE>:\oracle’.
• Select ‘Next’.
• The following screen appears:
• Select ‘Next’.
• The following screen appears:
• Enter the Global database name ‘orcl11r2.<MACHINENAAM>.<DOMEBEDRIJF>’, for example, ‘orcl11r2.ws48.invantive.com’.
• Select ‘Next’.
• The following screen appears:
• Set the maximum memory use after consultation with the system administrator and the requirements based on the number of users.

• Select the tab ‘Character sets’ and select ‘AL32UTF8’ as standard character set:
• Select ‘Next’.
• The following screen appears:
• Select ‘Next’.
• The following screen appears:
- Select ‘Next’.
- The following screen appears:
• Select ‘Next’.
• The following screen appears:
• Enter the preferred password.
• Select ‘Next’.
• The following screen appears:
Check the results and select ‘Next’ if there are no problems.

The following screen appears:
- Check the settings and press ‘Finish’.
- The following screen appears while the installation is being performed:
- This takes depending on the circumstances up to 30 minutes.
- On some platforms, a warning from Windows Firewall will appear when parts of Oracle will be started. Accept these in consultation with the system administrator.
The following screen appears when the database is being created:
At the end the following screen appears:

- Copying database files
  - Creating and starting Oracle instance
  - Completing Database Creation

Clone database creation in progress

Log files for the current operation are located at:
C:\oracle\cfgtoollogs\dbs\orang1\11r2
Database creation complete. For details check the logfiles at:
c:\oracle\log\ora11r2\.

Database Information:
  Global Database Name:  orcl1r2.ws48.invantine.com
  System Identifier(SSID):  orcl1r2
  Server Parameter File name:  c:\oracle\product\11.2.0\dbhome_1\database\spfile\orcl1r2.ora

The Database Control URL is: https://ws48.invantine.local:1158/em

Management Repository has been placed in secure mode wherein Enterprise Manager data will be encrypted. The encryption key has been placed in the file: c:\oracle\product\11.2.0\dbhome_1\ws48.invantine.local\orcl11r2\sysman\config\key.ora. Please ensure this file is backed up as the encrypted data will become unusable if this file is lost.

Note: All database accounts except SYS, SYSTEM, DBSNMP, and SYSMAN are locked. Select the Password Management button to view a complete list of locked accounts or to manage the database accounts (except DBSNMP and SYSMAN). From the Password Management window, unlock only the accounts you will use. Oracle Corporation strongly recommends changing the default passwords immediately after unlocking the account.

And finally the screen:
The installation is completed after choosing 'Close'.

Delete the line 'SQLNET.AUTHENTICATION_SERVICES= (NTS)' uit ORACLE_HOME \network\admin\sqlnet.ora.

Afterwards install the Oracle patch 14095819 (32-bit Windows) or Oracle patch 14095820 (64-bit Windows). This is patch 7 on 11.2.0.3. Inside is a patch for Oracle bug 12794090 which ensures that you can also read a dump with impdp which is made with expdp during an Unicode Installation of an Oracle database (AL32UTF8 draw collection).

1.10.2.2 Installation Tomcat Web Server

Perform the next steps in case of installation or upgrade of the application server:

**Required Parts**

- [All] Ensure that JDK 6.0 Update 6 or later installed, preferably in the same number of bits (32 or 64) what the platform can support a maximum of.
- [All] Ensure that the environment variable JAVA_HOME points to JDK, for example, '\Program Files\Java\jdk1.6.0_21'. See SVN://tools/Java.
- [All] Ensure that Tomcat 7.0.19 or later is installed within the 7.0 version of Tomcat. See SVN://tools/Apache Tomcat.
- [All] Ensure that the environment variable CATALINA_HOME points to the installation directory of Tomcat, for example, '\Program Files\Apache Software Foundation\Tomcat 7.0'.
- [All] Install Psi Probe in the map webapps of CATALINA_HOME from http://psi-probe.googlecode.com/files/probe-2.2.3.zip or try a newer version. See SVN://tools/PsiProbe.
- [UNIX/Linux] Edit catalina.sh and add the next lines to the beginning:
umask 007
NLS_LANG="DUTCH_THE NETHERLANDS.AL32UTF8"
export NLS_LANG

• [UNIX/Linux] Edit /etc/init.d/oracle or equivalent and add the next lines to the beginning:

  umask 007
  NLS_LANG="DUTCH_THE NETHERLANDS.AL32UTF8"
  export NLS_LANG

• [Windows] Makes sure that AL32UTF8 is used by putting NLS_LANG on "DUTCH_THE NETHERLANDS.AL32UTF8" in the register.

• [All] Add for memory measurement with Psi Probe ‘-Dcom.sun.management.jmxremote’ to the Java options of Tomcat (Configure in the context menu in the process bar, tab Java, field Java Options).

• [All] Assign at least 25 MB of memory per concurrent user, with a minimum of 512 MB and make sure that the PermGen will be released again at restart of an application by adding the next yellow shaded items:

  -Dcom.sun.management.jmxremote
  -Xmx512m
  -Djava.awt.headless=true
  -XX:MaxPermSize=256m
  -XX:+UseConcMarkSweepGC
  -XX:+CMSClassUnloadingEnabled

• [UNIX/Linux] Only if you will run Tomcat in the root: change the port in the configuration file server.xml of Tomcat from 8080 to 80

• Put the parameter 'reloadable' on 'false' in production environments to turn of automatic
controls on changing programs. You can restart the application with Psi Probe.

**Installation Certificate**

Perform the following steps to install a pfx certificate:

- If the certificate is not in pfx format:
- Follow the steps for installing a certificate in a Microsoft IIS server as described in [Installati-
on Microsoft IIS Tunneling Webservice](#).
- Export the certificate in pfx format.
- Open server.xml in %TOMCAT_HOME%\conf.
- Remove comments start '<!--' and comments end '-->' around the SSL connector.
- Add the keystore with as end result:

```xml
<Connector port="443" protocol="HTTP/1.1" SSLEnabled="true"
    maxThreads="150" scheme="https" secure="true"
    keystoreFile="i:\program files\apache software
    foundation\tomcat 6.0\conf\KLANT.pfx"
    keystorePass="password"
    keystoreType="PKCS12"
    clientAuth="false" sslProtocol="TLS" />
```

- Restart Tomcat.
- Modify the URL-s in the site.CUSTOMER.ENVIRONMENT.properties to the https: site:
- Adjust the screen settings in the field 'Prefix Server (URL)' to the example 'https://...'.
- Adjust the screen settings in the field 'Main Menu (URL)' to an example 'https://.../bubs_main_pjt.do'.

**Folder Structure**

[All] Create for the environment an environment map ENVIRONMENTDIR (for example ‘d:\in-
vantive\ENVIRONMENT’ or ‘/opt/invantive/ENVIRONMENT’). **Installation Frontend**

- ‘backup’ (for backups).
- ‘distribute’ (for Outlook Add-in distribution).
- ‘documents’ (for documents).
- ‘etl’ (for ETL-programs).
- ‘local’ (for local images and style sheets).
- ‘log’ (for logging).
- ‘recycle bin’ (for deleted documents).
- ‘swap’ (for temporary files for large reports).
- ‘tmp’ (for temporary files during uploads).
- ‘transfer’ (for data exchange).
- ‘transfer/bubs/in’ (for input files for example for connections).
- ‘transfer/bubs/in/processed’.
- ‘transfer/bubs/in/rejected’.
- ‘transfer/bubs/out’ (or output files for example for connections).
- ‘transfer/bubs/out/processed’.
- ‘transfer/bubs/out/rejected’.
• for folders that are approached by other applications: make ‘transfer/ CODE/in’ and ‘transfer/ CODE/out’.
• ‘web’ (for the Apache Tomcat web application).
• ‘webservice’ (for Microsoft IIS web service application).
• ‘work’ (for work files of shell scripts).

**Installation Frontend**

• [UNIX/Linux] Execute the next statement to set the permissions correctly:

```bash
find ENVIRONMENTDIR -type d -print | xargs chmod -R g+s # Force sticky bit on group.
chmod -R ug+rw ENVIRONMENTDIR
chown -R tomcat:dba ENVIRONMENTDIR # TOMCATRUNNER:ORACLE GROUP
chmod -R o-rwx ENVIRONMENTDIR
```

• [All] Add a Context for Invantive Estate in the file CATALINA_HOME/conf/server.xml from Apache Tomcat, like:

```xml
<Context path="/abubs/local" docBase="ENVIRONMENTDIR\local" reloadable="true" />
<!-- Optional! Allow access to the documents when coming from the server itself. This is necessary to allow JasperReports to get access to the documents, without first logging on to the application middle-tier. -->
<Context path="/tbubs/documents" docBase="ENVIRONMENTDIR\tbubs\doc" reloadable="true" >
    <Valve className="org.apache.catalina.valves.AccessLogValve" prefix="ENVIRONMENTDIR/log/tbubs-documents-access." suffix=".log" />
    <Logger className="org.apache.catalina.logger.FileLogger" prefix="ENVIRONMENTDIR/log/tbubs-documents." suffix=".log" timestamp="true" />
    <Valve className="org.apache.catalina.valves.RemoteHostValve" allow="192.168.1.72.xxx|192.1681.72.yyy|127.0.0.1" />
</Context>
<!-- Core of the application. -->
<Context path="/tbubs" docBase="ENVIRONMENTDIR\web" reloadable="true" />
```

• [All] The data volume exchanged via the network can be strongly reduced by enabling compression at the expense of the processor capacity. It is strongly recommended when users outside the local network also use the application. Expand the Connector Settings in server.xml as follows:

```xml
<Connector port="PORT" ... and then the 4 four lines with compression.
    compression="on"
```
[All] Copy the content of frontend\runtime to the map ENVIRONMENTDIR.

[All] Create a site.KLANT.OMGEVING.properties file in ENVIRONMENTDIR/web/WEB-INF/.

[Alle] Adjust the 'logfile' option in the file 'site.KLANT.OMGEVING.properties' in WEB-INF so it points to the ENVIRONMENTDIR/log.

[Alle] Adjust the parameter configuration file in ENVIRONMENTDIR/web/WEB-INF/web.xml so it points to the site.KLANT.OMGEVING.properties bestand.

**Give Rights for Windows Service**

To enable a user with limited rights to restart the Tomcat7 service, you need to add his data to the command 'sc'.

First ask for the current rights in the command with:

```
sc sdshow tomcat7
```

For example:

```
D:(A;;CCLCSWRPWPDTLOCRRC;;;SY)
(A;;CCDCLCSWRPWPDTLOCRSDRCWDWO;;;BA) (A;;CCLCSWLOCRRC;;;AU)
(A;;CCLCSWRPWPDTLOCRRC;;;PU)
```

Then search the registry with HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\ProfileList\%... for the SID-s of the users. Then grant the RP, WP and DT rights by expanding the outcome of the sd show with SID-s, for example:

```
sc sdset tomcat7 D:(A;;CCLCSWRPWPDTLOCRRC;;;SY)
(A;;CCDCLCSWRPWPDTLOCRSDRCWDWO;;;BA) (A;;CCLCSWLOCRRC;;;AU)
(A;;CCLCSWRPWPDTLOCRRC;;;PU) (A;;RPWPDT;;;S-1-5-21-1417001333-507921405-2147233035-1004)
```

To then use the windows icon of the Tomcat GUI in the process bar, you need to change adjust the rights on the following three keys in the registry editor:

- HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Tomcat7
- 32-bit: HKEY_LOCAL_MACHINE\SOFTWARE\Apache Software Foundation\Procrun 2.0
- 64-bit: HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Apache Software Foundation\Procrun 2.0
- HKEY_LOCAL_MACHINE\SOFTWARE\Apache Software Foundation\Tomcat

Execute the following steps three times, each time for a different key:

- Right click on a key like that and choose 'Permissions...'.
- Give the group Full Control.
- Click on 'Advanced'.
- Check "Replace permission entries on all child objects with entries shown here that apply to child objects".

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- Select 'OK'.
- Select 'OK'.

**Start/stop Script**

- [UNIX/Linux] Create a script `invantive` in `/etc/init.d` with the next content:

```bash
#!/bin/bash
#
# Invantive Estate
#
# (C) Copyright 2004-2012 Invantive Software BV, the Netherlands. All rights reserved.
#
### BEGIN INIT INFO
# Provides:       invantive
# Required-Start: oracle
# Required-Stop:  oracle
# Default-Start:  3 5
# Default-Stop:  0 1 2 6
# Description:   Start up Invantive Estate.
### END INIT INFO

usage()
{
  echo "Usage: $0 [start|stop|status]"
}
if [ "$#" -ne "1" ]; then
  usage
  exit 1
fi

MODE="$1"

#
# Read configuration.
#
. /etc/invantive.conf

echo Invantive Estate settings:
echo Home directory = $INVANTIVE_HOME

if [ "$MODE" = "start" ]; then
  echo "Starting Invantive Estate."
  echo "Service Tomcat"
  su -c $INVANTIVE_USER -c "$TOMCAT_HOME/bin/startup.sh"
elif [ "$MODE" = "stop" ]; then
  echo "Stopping Invantive Estate."
  echo "Service Tomcat"
  su -c $INVANTIVE_USER -c "$TOMCAT_HOME/bin/shutdown.sh"
  sleep 1
elif [ "$MODE" = "restart" ]; then
  echo "Restarting Invantive Estate."
  su -c $INVANTIVE_USER -c "$TOMCAT_HOME/bin/shutdown.sh"
```
sleep 1
su -c $INVANTIVE_USER -c ""$TOMCAT_HOME/bin/startup.sh"

elif [ "$MODE" = "status" ]; then
    echo "Status Invantive Estate."
    echo "Service Tomcat"
    ps -f -u $INVANTIVE_USER
else
    usage
    exit 1
fi

- [UNIX/Linux] Create a script 'invantive.conf' with configuration data with the following content:

```
# # Invantive Estate configuration file.
# # This file is different in each environment.
# # (C) Copyright 2004-2012 Invantive Software BV, the Netherlands. All rights reserved.
#
INVANTIVE_ESTATE_ENVIRONMENT=estate
export INVANTIVE_ESTATE_ENVIRONMENT

INVANTIVE_ESTATE_USER=estate
export INVANTIVE_ESTATE_USER

INVANTIVE_ESTATE_HOME=/opt/home/$INVANTIVE_ESTATE_USER
export INVANTIVE_ESTATE_HOME

TOMCAT_HOME=/opt/tomcat
export TOMCAT_HOME

JAVA_HOME=/usr/java/j2sdk1.6_XXX
export JAVA_HOME

# # Include jmx access and sufficient memory.
# # Reserve at least 25 Mb per concurrent user.
# JAVA_OPTS="-Xmx512m -Djava.awt.headless=true -Dcom.sun.management.jmxremote -XX:MaxPermSize=256m -XX:+UseConcMarkSweepGC -XX:+CMSClassUnloadingEnabled"
export JAVA_OPTS

umask 002

NLS_LANG="DUTCH_THE_NETHERLANDS.AL32UTF8"
export NLS_LANG

PATH=$PATH:$HOME/bin
```
export PATH

echo "***********************************************************************
*****
echo Invantive Estate
echo "***********************************************************************
*****
echo "Environment: $INVANTIVE_ESTATE_ENVIRONMENT"
echo "To start Invantive Estate: invantive start"
echo "To stop Invantive Estate: invantive stop"
echo "To get the status: invantive status"
echo "***********************************************************************
*****
echo "(C) Copyright 2004-2012 Invantive Software BV, the Netherlands. All rights reserved."" 
echo "***********************************************************************
*****"

1.10.2.3 Installation Database
Perform the following steps to install the database:

- [All] Stop Tomcat, for example with `'/etc/init.d/invantive stop'` (UNIX) or `'net stop "Apache Tomcat"'` (Microsoft Windows).
- [All] Create/check configuration files p104/cfg/XXX.bat and p104/cfg/XXX.sql.
- [All, Installation] The tablespace will be created automatically if all data files are located in 1 folder. Else: Create a tablespace `<OMGEVING>` that will contain the data of Invantive Estate. This can be done, for example, with:

  create tablespace invantive datafile 'LOCATION' size 25m autoextend on maxsize 2000m

- [All, Installation] In case the application is installed for the first time, use bubs_create.bat in the bin-directory to prepare the installation of Invantive Estate. This takes about 1 minute.
- [All, Installation] If the application is installed for the first time, use bubs_smoke.bat in the bin directory to install the application. This takes approximately 60 minutes. Break off when asked if the demo data can be loaded.
- [All, Installation] Create the license with the special installation steps from doc/*.sql.
- [All, Upgrade] Run the upgrade_main.sql script from the map ddl/upgrades/build<DOEL-1>to<DOEL>. It takes approximately 10 minutes to the steps that may only be performed after the upgrade. Confine yourself to the builds between the start and target build. Execute bubs_smoke.bat located in the bin-directory if this is mentioned in the upgrade_main.sql script. It will take 60 minutes. Abort when asked if the demo data should be loaded.
- [All, Upgrade] Install the possible customizations from xx<COMPANYNAME>.sql.
- [All] Start Tomcat, for example with `'/etc/init.d/invantive start'` (UNIX) or `'net start "Apache Tomcat"'` (Microsoft Windows).

1.10.2.4 Installation ETL jobs
Depending on the configuration ETL jobs are needed for such links to the books. These
scripts are available in the addons folder.

- Always copy scripts from the 'generic' to the etl folder.
- Also, copy the scripts from the folder for the desired link to the etl folder.

### 1.10.2.5 Installation Invantive Webservice for Invantive Estate

Execute the installation steps mentioned under Installation Invantive Webservice to ensure that the software can establish a connection with the database.

### 1.10.2.6 Installation Outlook Add-In User Interface

Execute the following steps to install the Outlook Add-in:

- Create a network drive, for example, v: to which the distribution folder is linked.

Run setup.exe in the network drive as the Windows user that is going to use the Outlook Add-in.

In case the installation fails with a message about a non-trusted certificate when selecting ‘Details’, check if the file location is in the list of trusted websites of Internet Explorer. If needed add it as for example ‘file:\SERVERNAME’ or ‘file://v:\’.

The Outlook Add-in will automatically create a number of additions as administrator where necessary, namely Microsoft .Net 4 and Microsoft Visual Studio 2010 Tools for Office Runtime (VSTOR 2010) Redistributable. It may be useful to distribute these already. You can find the software at:


When errors arise during installation, you can sometimes find them back with eventviewer using the following filter:
Changes in Outlook

The information in Microsoft Outlook and Microsoft Exchange may be extended by the Outlook Add-in with additional fields (‘user defined properties’) like visionUurlId, visionForGUID, visionUurTransactieBijgewerkt and visionOutlookChangedDueToSync. If migrations take place you should test that these fields do not disappear and that the Outlook GUIDs do not change.

Use ExMerge therefore preferably not. When it is necessary to be used, involve timely an Invantive consultant.

Assign Rights to Calendars

Rights to Calendars

To schedule work and/or book hours for another employee, you need to have rights on its calendar.

The employee needs at least to assign the role of ‘Editor’ for the one who books hours and needs at least to assign the role of ‘Commentator’ to the one who schedules hours.

The first time the role need to be even ‘Owner’, unless the one who books hours has synchronized the hours already one time in the past.

If you do not see categories, you have worked the first time without the rights as ‘Owner’. In that case you need to assign again ‘Owner’ rights to one who books the hours.

Labor Types as Categories

Moreover, a person whose calendar is not available in the public folders has to login into the
application at least once so that the labor types become available as categories in Microsoft Outlook. If someone has his calendar available in the public folders, this will not be necessary; in that case the categories are used of the person who registers the hours in the calendar.

Profiles

To set up rights properly on behalf of others, you can create a profile for that user. Go to the configuration screen and select ‘E-mail’. Then choose ‘Profiles’ and enter a profile for your colleague which you will use to assign in his name rights to others.

Rights on Calendar for Hours in Microsoft Exchange 2003

Microsoft Exchange 2003

Under Microsoft Exchange 2003 this optionally can be done more centrally as follows:

- Create a role ‘ExAdmin’ in Microsoft Active Directory.
- Assign ‘ExAdmin’ send as/receive as rights to this role on the mail store:

  - Assign the role ‘ExAdmin’ to the person who’s function will be assigning rights to others.
Next:

- Create a profile for Microsoft Outlook and link this profile with the user which will issue rights.
- Start Microsoft Outlook and select the correct profile.
- Log on to Invantive Estate.
- The categories are automatically created based on labor types.
- Assign rights:
Ultimately, if necessary:

- Remove the user as member of the role ‘Exadmin’ in the Microsoft Active Directory.

**Microsoft Exchange 2003 Public Folder Calendars**

Occasionally it happens that calendars are added as public folders for example for machines. The person who synchronizes calendars always needs to have the role of Owner for those calendars. The labor types (categories in Microsoft Outlook) are copied from the calendar of the person who opens the public calendar.

Example:
Rights on Calendar for Hours in Microsoft Exchange 2007

Microsoft Exchange 2007

With Microsoft Exchange 2007 this can be done more centrally as follows:

- Create a script similar to this code:
  
  ```
  #$rooms = @(
  #  ("fails","for some reason")
  #  , ("room development", "Guido Leenders")
  #  , ("room finance & sales", "Guido Leenders")
  #  , ("ws09", "Guido Leenders")
  #  , ("ws25", "Guido Leenders")
  #  , ("ws69", "Guido Leenders")
  #   )
  
  foreach ($room in $rooms)
  {
  #
  # The next two are only for resources.
  ```
# Add-ADPermission -Identity $room[0] -User $room[1] -ExtendedRights Send-As

echo "Check http://extranet.XXX.com/owa/ROOM@XXX.com"

- Execute it.

Rights on Calendar for Hours in Microsoft Exchange Online

1.10.3 Installation Test
Perform the following steps to check the functioning of the installation:

- [All] Log on as user 'system' on the application with the URL: http://SERVER/invantive/.
- [All] Install a license via the screen License.
- [All] Also set the correct product in (Invantive Estate of Invantive Vision).
- [All] Adjust the profile options 'bubs%irectory' in the screen Profile Option Values so it points to the ENVIRONMENTDIR map.
- [All] Enter in settings ENVIRONMENTDIR/documents for the document folder on the server.
- [All] Vul in de instellingen ENVIRONMENTDIR/recyclebin in voor de documentenprullenbakmap op server.
- [All] Fill in the SETTINGS ENVIRONMENTDIR/tmp for the documents load folder on the server.
- [All] Enter in settings the Logo on Reports (URL) for the correct product (vision_rapporten_logo.png or estate_rapporten_logo.png).
- [All] Enter in settings the Logo on Screens (URL) for the correct product (vision_schermen_logo.png or estate_schermen_logo.png).
- [All] Enter in settings the splash screen (URL) for the correct product (vision_splashscreen.png or estate_splashscreen.png).
- [All] If you would like you could subsequently load the demo data.

Then you can test the environment with the following steps:
- [All] Test the web application with the URL: http://SERVER/invantive/.
- [All] Open the project screen in the web frontend.
- [All] Enter a person in the web frontend.
- [All] Open a random PDF rapport, for example 'Functions per Role (PDF)' in the web frontend.
- [All] Run a background process, for example 'Test: multiple dependent processes'.
- [All] Open a document, for example the execution of the background process.
- [All] Test the Outlook Add-in by logging in as Aeilkema/demo.
- [All] Create a process.
• [Alle] Add an email with an attachment to the process.
• [All] Open the attachment with the process.
• [All] Start an Excel rapport over that process.
• [All] Write an hour down to the process in the calendar and synchronise the calendar.
• [All] Get the hours in PDF format from the calendar.
• [All] Test Invantive Control by signing in as Aeilkema/demo.
• [All] Install the demo calculation model.
• [All] Synchronise the calculation model.
• [Alle] Test Invantive Composition by signing in as Aeilkema/demo.
• [All] Open a document from the document management system.

1.10.4 Duplicate Environment

There are three ways to duplicate an environment:
• Based on instructions from the application.
• Based on a database export of the application schema.
• Based upon a full database export.

The methods are listed in order of preference. However, there are restrictions that make that sometimes a less convenient method should be used:
• Based on instructions from the application: request that the database and the application of the home environment are available, including background processing.
• Based on a database export of the application schema: requires that the database of the home environment is available.
• Based on a full database export: no requirements for the home environment.

1.10.4.1 Duplicate Environment using Instructions

Duplicating an environment using instructions allows you to change the names of the involved schemas. Moreover, this duplicating method is the most simple to implement for employees who are not thoroughly familiar with the used database technology.

Perform the following steps:
• Start the background job ‘Administration: print a script for copying the environment’.
• Give the old prefix as parameters of the environment (for example ‘PBUBS’) and the desired prefix (for example ‘TBUBS’).
• Execute the instructions from the output of the background process.

1.10.4.2 Duplicate Environment using an Export Schema

To duplicate an environment using a schema export makes it possible to change the names of the schemas involved.

Perform the following steps to copy an environment, for example, by copying production back to test:
• Create a configuration file.
• Create the users and tablespaces with bubs_create.bat.
• Install the database of Invantive Estate till the instantiate objects if the target environment is used for the first time.
• Export the data to a file with the statements:
set NLS_LANG=AMERICAN_AMERICA.AL32UTF8
exp userid=pbubs/pbubs@orcl buffer=1000000 file=pbubs.dmp
grants=no log=pbubs_exp.log consistent=yes

• In the first ten lines of the log file check that there has been no conversion of characters between character sets.
• Stop Microsoft IIS and Apache Tomcat for the target environment.
• Clear the target environment: delete all old tables, sequences, views, functions, procedures, triggers and packages.
• Upload the file in the new environment based upon an export made by the owner of the application:
  set NLS_LANG=AMERICAN_AMERICA.AL32UTF8
  imp userid=tbubs/tbubs@orcl buffer=1000000 file=pbubs.dmp
  log=imp_bubs.log full=y ignore=y

• Check that all objects are valid and check that the counts concerning numbers of objects between the environments are correct, for instance with the following query:

  select owner,
    count(*)
    , object_type
    , status
  from dba_objects
  where owner like '%BUBS'
  group by owner
    , object_type
    , status
/

• Copy the rights by executing the following script as being the Invantive Estate application owner (in this example pbubs). Do replace OLD and NEW by the right schema names:

  set pages 0
  set feedback off
  set lines 500
  set trimspool on
  spool grt.sql
  select replace
    ( replace
      ( 'grant ' || privilege || ' on ' || table_name || ' to ' || grantee || ';
        , 'OLD'
        , 'NIEUW'
      )
    , 'OUDITGEN'
  )
Then, log on as the new Invantive Estate application owner NEW under Oracle SQL*Plus and execute the script:

```sql
connect NIEUW@orcldb01
@grt
```

Add the needed synonyms under Oracle SQL*Plus:

```sql
connect NIEUW_tomcat@DATABASEID
begin
    <BUBS OWNER>.bubs_maintain_my_synonyms('<BUBS OWNER>');
end;
```

Finally, copy the software from the Tomcat webapps tree to the target server:

```bash
cd /opt/tomcat/webapps
mv bubstarget /tmp/bubstarget
cp -pr bubssource bubstarget
```

Do not forget to enter the correct passwords into site.properties and to adjust the URL’s. See Site.properties.

Restart Invantive Estate:

```bash
/etc/init.d/bubs3 restart
```

- Open the application as user ‘system’.
- Change in settings the description of the environment.
- Adapt the profile options.
- Change in the screen financial Administrations, the administration from where data is uploaded.
- If necessary, change the passwords of all users with an SQL update:

```sql
connect NIEUW_tomcat@DATABASEID
begin
    bubs_session.set_session_info(null, null, 'system', null, null, null, null);
end;
/
update bubs_gebruikers_v
set gbr_wachtwoord='test'
```
where gbr_wachtwoord is not null
/
commit
/

- Delete all documents from the document folder of the target environment.
- Copy the documents in the document folder of the source environment to the target environment.
- Link the documents to the new directory:

```
update bubs_documenten_v
set dct_bestandsinhoud=bfilename('<NIEUW_DCT>', bubs_get_bfile_filename(dct_bestandsinhoud))
where bubs_get_bfile_directory(dct_bestandsinhoud) <> '<NIEUW_DCT>'
and dct_bestand_url is null
/
commit
/
```

- Update the license as user ‘system’.

### 1.10.4.3 Duplicate Environment including complete Database Export

According to this procedure, a complete database export can only be used to duplicate an environment without changing the names of the schemas involved.

Follow these steps to copy a home environment based on a full database export:
- Export the data to a file with the statements:

```
set NLS_LANG=AMERICAN_AMERICA.AL32UTF8
exp userid=system/...@orcl buffer=1000000 file=pbubs.dmp
grants=no log=pbubs_exp.log consistent=yes full=yes
```

- Check in the first ten lines of the log file that no conversion of characters between character sets has occurred.
- Stop Microsoft IIS and Apache Tomcat for the target environment.
- Clear the target environment: delete all old tables, sequences, views, functions, procedures, triggers and packages under the application schema.
- Upload the file in the target environment based upon a complete database export (fill in the relevant schedules in both ‘fromuser’ as in ‘touser’):

```
set NLS_LANG=AMERICAN_AMERICA.AL32UTF8
imp userid=system/...@orcl buffer=1000000 file=pbubs.dmp log=imp_bubs.log full=y ignore=y fromuser=(abubs,abubs_web,abubs_web_res) touser=(abubs,abubs_web,abubs_web_res)
```

- Further follow the instructions in Duplicate Environment using an Export Schema beginning with ‘Copy the software...’.

### 1.10.5 Site.properties

By using the file site.properties in the WEB-INF folder of the web application folder, the appli-
cation can be configured:
- The connection with Oracle RDBMS and the ERP system.
- The multilinguality.
- The connection with the user date (usernames and passwords)
- Other minor adjustments.

Since they directly influence the core of the application, these changes can only be made by qualified consultants of Invantive Software BV.

The procedure for applying changes consists of:
- Stop web server.
- Edit site.properties.
- Start web server.
- The changes will be effective immediately after a user logs on.

For more information regarding its use, you can use the below copy.

Example

```java
#logger properties @0-029F305D
logfile=c:\temp\bubs3.log
logpriority=debug
# Logsize in Kb. File is truncated and written after this size.
logsize=1024000
#End logger properties

#url properties @0-E8A730F5
serverUrl=http://localhost/bubs3
securedUrl=/bubs3
#End url properties

#localization properties @0-0D67F023
encoding=utf-8
language=Netherlands
defaultDateFormat=dd-MM-yyyy
defaultBooleanFormat=Y;N
requestEncoding=utf-8
#End localization properties

#messages bundle @0-77F70051
messagesBundle=MessagesBundle
#End messages bundle

#file upload @0-215C2A9B
com.codecharge.util.upload.storage=memory
#End file upload

#body post processor class name @0-C5219FBD
bodyPostProcessor.className=com.codecharge.util.CcsBodyPostProcessor
#End body post processor class name

#template class name @0-8EA332EE
```
template.class.name=com.codecharge.template.CCSTemplate
#End template class name

$templateSource class name @0-840DD0B6
templateSource.class.name=com.codecharge.template.FileTemplateSource
#End templateSource class name

$templateParser class name @0-7F4F85C9
templateParser.class.name=com.codecharge.template.TemplateParser
#End templateParser class name

$templateFolder @0-52356875
templateFolder=
#End templateFolder

#styles settings @0-27E71411
useDynamicStyles=True
defaultStyle=Apricot
SSEnableQueryString=True
SSQueryStringName=style
SSEnableSession=True
SSSessionName=style
SSEnableCookie=False
SSCookieName=style
SSCookieExpired=365
#End styles settings

#defaultLocale @0-45E529E7
defaultLocale=nl
#End defaultLocale

#localeSwitching @0-02E16A18
useI18nFeatures=True
enableQueryString=true
queryStringName=locale
enableSession=true
sessionName=locale
languageSessionName=lang
enableCookie=false
cookieName=locale
cookieExpired=365
enableHTTPHeader=false
httpHeaderName=
#End localeSwitching

#authentication properties @0-045E17BF
authenticator.securityType=CCS
authenticator.factoryClassName=com.codecharge.util.CCSAuthenticatorFactory
authenticator.securityStorage=session
authenticator.inheritanceRights=False
authenticator.userIdFieldName=GBR_ID
authenticator.userIdVarName=UserID
authenticator.loginFieldName=GBR_AANMELD_CODE
authenticator.loginVarName=UserLogin
authenticator.passwordFieldName=GBR_WACHTWOORD
authenticator.connectionName=bubs_tomcat
authenticator.tableName=BUBS_GEBRUIKERS_V
#End authentication properties

tags.toLowerCase=false
#End tags to lower case

#Connection 'bubs_tomcat' properties
bubs_tomcat.name=bubs_tomcat
bubs_tomcat.driver=oracle.jdbc.driver.OracleDriver
bubs_tomcat.dbType=Oracle
bubs_tomcat.url=jdbc:oracle:thin:@localhost:1521:ORCL
bubs_tomcat.maxconn=250
bubs_tomcat.user=bubs_tomcat
bubs_tomcat.password=bubs_tomcat
bubs_tomcat.timeout=3600
bubs_tomcat.fieldLeftDelim="
bubs_tomcat.fieldRightDelim="
bubs_tomcat.dateLeftDelim='
bubs_tomcat.dateRightDelim='
bubs_tomcat.dbNameUppercase=True
bubs_tomcat.dateFormat=dd-MM-yyyy HH:mm
bubs_tomcat.booleanFormat=Y;N
bubs_tomcat.optimizeSQL=True
bubs_tomcat.sessionCommand0=ALTER SESSION SET NLS_DATE_FORMAT = 'DD-MM-YYYY HH24:MI'

#Connection 'bubs_exact' properties
bubs_exact.name=bubs_exact
bubs_exact.driver=com.microsoft.jdbc.sqlserver.SQLServerDriver
bubs_exact.dbType=MSSQLServer
bubs_exact.url=jdbc:microsoft:sqlserver://localhost:21433
bubs_exact.maxconn=10
bubs_exact.user=bubs
bubs_exact.password=expbubs
bubs_exact.timeout=300
bubs_exact.fieldLeftDelim=[
bubs_exact.fieldRightDelim=

Meaning

The meaning of the relevant settings is:

- logfile: via logfile you can set at what place the log file must be made. The user of the ope-
rating system under who the web server is executed, must have writing access to this.

- logpriority: via logpriority you can set how detailed the web application must store its activities in the log file. Possible values are 'error', 'warn', 'info' and 'debug'. 'Error' stores only error messages, while the other settings add more information.

- logsize: the maximum size of the log. If this size in Kb is exceeded, then the file is deleted and recreated for writing.

- serverUrl: the URL serving as a base for normal use of the web application via http. A screen URL is constructed using the value of the 'serverURL' adding for example 'bubs_s_odt_all.do' for the orders screen.

- securedUrl: the URL serving as a base for logging into the web application via https.

- encoding: the character set used to show the data in the browser. 'Utf-8' is the most flexible character set, in which for all common languages all characters are simultaneously present.

- requestEncoding: the character set used to process data which were received from the browser.

- language: the language used in case no user specific language has been selected. This language is thus normally used for the login screen, for example.

- defaultLocale: the geographical region setting used in case no user specific region has been selected. This region setting is thus normally used for the login screen, for example.

The 'authenticator' is the module that validates whether users are actually the person they pretend to be. By default, usernames and passwords are used in the way they are registered in the application itself (see Persons). One can also choose for a deviating authentication mechanism, for example by using LDAP or Microsoft Active Directory.

The meaning of the settings starting with 'authenticator.' is:

- authenticator.securityType: always has to be turned to 'CCS'.

- authenticator.factoryClassName: the Java component used to execute the authentication. For the built-in authentication based on the usernames in the screen Persons, the value 'com.codecharge.util.CCSSecurityFactory' has to be entered. For LDAP the value 'com.codecharge.util.LDAPAuthenticatorFactory' must be entered.

- authenticator.userIdVarName: the name of the session variable holding the unique ID of the user, as determined in 'authenticator.userIdFieldName'. Always 'UserID'.

- authenticator.loginVarName: the name of the session variable holding the username of the user, as determined in 'authenticator.loginFieldName'. Always 'UserLogin'.

- authenticator.securityStorage: the location where the security credentials are stored. Always 'session'.

- authenticator.inheritanceRights: a reference whether or not the rights must be inherited from the lower authorisation levels. This setting must always have the value 'False'.

- authenticator.ldap.external.suffix: only for LDAP. The branch under which the organization registers and searches for its authentication data, for example, 'OU=MyBusiness,DC=invantive,DC=local'.

- authenticator.ldap.external.server: only for LDAP. The address of the LDAP server, for instance '192.168.172.11'.

- authenticator.ldap.external.protocol: only for LDAP. The used LDAP protocol, for instance 'ldap' or 'ldaps'.

- authenticator.ldap.external.useruniqueattribute: only for LDAP. The attribute uniquely showing across the organization which user it is. The value of this must also be registered in the user registration of Invantive Estate in the field 'Logon Code'. An example is
‘userPrincipalName’.

- authenticator.ldap.external.port: only for LDAP. The port number on the LDAP server, for instance 389 for LDAP or 636 for LDAPS.

- authenticator.ldap.external.fillinpatternlogin: only for LDAP. The LDAP query pattern in which the username is entered in order to log a user on to LDAP, as long as there are no characters in ‘fullrecognition’ present in the username. The text ‘:account’ is replaced by the entered username. An example is ‘cn=:account,OU=SBSUsers,OU=Users,OU=MyBusiness,DN=invantive,DN=local’.

- authenticator.ldap.external.fullrecognition: only for LDAP. The value in ‘authenticator.ldap.fillinpatternlogin’ is used in combination with the value registered in the LDAP attribute such as entered in ‘authenticator.ldap.useruniqueattribute’. However, in case the value in the LDAP attribute such as entered in ‘authenticator.ldap.useruniqueattribute’ contains one of the signs which have been filled out in this series of signs, solely the value of the LDAP attribute is sent to the server and the value in ‘authenticator.ldap.fillinpatternlogin’ is not used. An example is the character ‘@’.

- authenticator.ldap.external.fillinpatternuniqueattribute: only for LDAP. The pattern in which the username is entered in order to search for data of the user such as the email address, as long as there are no characters in fullrecognition present in the username. The text ‘:account’ is replaced by the entered username. An example is ‘:account@invantive.local’.

- .authenticator.ldap.external.systemaccount: only for LDAP. The account with which the user ‘system’ has to be authenticated with. An example is ‘Administrator’. Note: This account is only used for LDAP authentication within the gateway. You always need to logon as the user ‘system’.

- authenticator.ldap.local.try: indicator or - if the LDAP authentication is not successful - an attempt should be made to authenticate the user with the entered password against the local user data (identical to ‘com.codecharge.util.CCSAuthenticatorFactory.’). This is occasionally used to quickly test scenarios for complex work flows.

- authenticator.ldap.local.validationSql: SQL statement to check the local authentication. The query should return one row if found and in all other cases nothing. The password is completed for all occurrences of: the user name and password for all occurrences of: account.

- authenticator.ldap.local.regexFilter: regular expression to determine for which user login codes local authentication is allowed, for example, ‘.*’ to allow this for all users.

- authenticator.tableName: only for built in user authentication. The name of the table or views which contains the user data used for authentication. Always ‘BUBS_GEBRUIKERS_V’.

- authenticator.connectionName: only for built-in users authentication. The name of the connection used to read the table. Always ‘bubs_tomcat’.

- authenticator.userIdFieldName: only for built-in users authentication. The name of the column storing the unique user's ID. Always ‘GBR_ID’.

- authenticator.loginFieldName: only for built in users authentication. The name of the column in which the username of the user is stated. Always ‘GBR_AANMELD_CODE’.

- authenticator.passwordFieldName: only for built-in users authentication. The name of the column in which the user's passwords is stated. Always ‘GBR_WACHTWOORD’.

To solve LDAP authentication problems, it is recommended to use LDAP tools such as ldapsearch (Unix / Linux), dsquery (Microsoft Windows Server 2003) or Novell’s Ldapssearch (http://www.novell.com/coolsolutions/tools / 17350.html):

ldapsearch -x \n-h 192.168.172.11 \n-w secret \n
The series of settings starting with ‘bubs_tomcat’ stores with which connection the application data can be approached. The meaning of the settings is:

- **bubs_tomcat.name**: the name of the connection. Always ‘bubs_tomcat’.
- **bubs_tomcat.driver**: the name of the Java Class used to set the connection in accordance with JDBC. Always ‘oracle.jdbc.driver.OracleDriver’.
- **bubs_tomcat.dbType**: the type of the underlying database. Always ‘Oracle’.
- **bubs_tomcat.url**: the JDBC URL used to build the connection with. This has the format ‘jdbc:oracle:thin:@’, followed by the server's name or address, the sign ‘:’, the port to which the database listener listens to (often 1521), again the sign ‘:’ and finally the name of the instance. An example is ‘jdbc:oracle:thin:@localhost:1521:ORCL’.
- **bubs_tomcat.maxconn**: the maximum number simultaneous connections with the Oracle database. This usually is around 20% of the maximum number of simultaneous users. A higher value cannot do any harm, next to needing 10 MB extra internal memory per connection really being used on peak moments. For development environments, it is sometimes helpful to set the number to ‘0’. This means that the connection is closed immediately after use. This costs performance, but makes it easier to avoid problems by holding ‘state’ (for example, ORA-04061 messages) when a developer changes code while the system is running. In most cases, removing an Oracle session will be automatically repaired by the web interface.
- **bubs_tomcat.user**: The Oracle user with whom the connection is made. For example, ‘bubs_tomcat’.
- **bubs_tomcat.password**: the password of the Oracle user as stored in ‘bubs_tomcat.user’.
- **bubs_tomcat.timeout**: the web application considers a user non-active after a while and logs him off. The value of ‘bubs_tomcat.timeout’ determines after how many seconds the user is automatically logged off.
- **bubs_tomcat.fieldLeftDelim**: the sign used to quote field names in database requests on the left. Always ‘‘’. 
- **bubs_tomcat.fieldRightDelim**: bubs_tomcat.fieldLeftDelim: the sign used to quote field names in database requests on the right. Always ‘‘’. 
- **bubs_tomcat.dateLeftDelim**: the sign used to quote date constants in database requests on the left. Always ‘‘’. 
- **bubs_tomcat.dateRightDelim**: the sign used to quote date constants in database requests on the right. Always ‘‘’. 
- **bubs_tomcat.dbNameUppercase**: always ‘True’.
- **bubs_tomcat.dateFormat**: the used database format for dates, always ‘dd-MM-yyyy HH:mm’.
- **bubs_tomcat.booleanFormat**: the used database format for fields containing a boolean flag (‘true’ or ‘false’). Always ‘Y;N’.
- **bubs_tomcat.optimizeSql**: always ‘True’.
- **bubs_tomcat.sessionCommand0**: the statement always being executed after building up a new session. Always ‘alter session set nls_date_format = ‘DD-MM-YYYY HH24:MI0145’’.

In the series of settings beginning with ‘bubs_exact.’ it is stored via which connection the data for the ERP interface are obtained. The meaning of the settings is:
• \texttt{bubs\_exact.name}: the name of the connection Always ‘bubs\_exact’.

• \texttt{bubs\_exact.driver}: the name of the Java class used to build the connection in accordance with JDBC. For example, ‘oracle.jdbc.driver.OracleDriver’ for an Oracle RDBMS and ‘com.microsoft.jdbc.sqlserver.SQLServerDriver’ for Microsoft SQL Server.

• \texttt{bubs\_exact.dbType}: the type of the underlying database. For example, ‘Oracle’ for an Oracle RDBMS and ‘MSSQLServer’ for Microsoft SQL Server.

• \texttt{bubs\_exact.url}: the JDBC URL used to build the connection with. For Oracle RDBMS it has the format ‘jdbc:oracle:thin:@’, followed by the name or address of the server, the sign ‘:’, the port to which the database listener listens to (often 1521), again the sign ‘:’ and finally the name of the instance. An example is ‘jdbc:oracle:thin:@localhost:1521:ORCL’. For Microsoft SQL Server this has the format ‘jdbc:microsoft:sqlserver://’, followed by the name or address of the server, the sign ‘:’ and the gate to which the database listener listens to (often 1433). An example is ‘jdbc:microsoft:sqlserver://localhost:1433’.

• \texttt{bubs\_exact.maxconn}: the maximum number of simultaneous connections with the ERP database. This usually is around 20\% of the maximum number of simultaneous users. More than 1 usually has no point, since the ERP interface can be processed no more than one time.

• \texttt{bubs\_exact.user}: the user with which a connection is made. For instance ‘exact’.

• \texttt{bubs\_exact.password}: the password of the user, as stored in ‘bubs\_exact.user’.

• \texttt{bubs\_exact.timeout}: the web application considers a user non-active after a while and logs him off. The value of ‘bubs\_exact.timeout’ determines after how many seconds the user is automatically logged off.

• \texttt{bubs\_exact.fieldLeftDelim}: the sign used to quote field names in database requests on the left. Always ‘‘’’ for Oracle and ‘[’’ for Microsoft SQL Server.

• \texttt{bubs\_exact.fieldRightDelim}: the sign used to quote field names in database requests on the right. Always ‘‘’’ for Oracle and ‘]’’ for Microsoft SQL Server.

• \texttt{bubs\_exact.dateLeftDelim}: the sign used to quote date constants in database requests on the left. Always ‘‘’’.

• \texttt{bubs\_exact.dateRightDelim}: the sign used to quote date constants in database requests on the right. Always ‘‘’’.

• \texttt{bubs\_exact.dbNameUppercase}: always ‘True’.

• \texttt{bubs\_exact.dateFormat}: the used database format for dates, always ‘dd-MM-yyyy HH:mm’ for Oracle and ‘yyyy-MM-dd HH:mm:ss’ for Microsoft SQL Server.

• \texttt{bubs\_tomcat.booleanFormat}: the used database format for fields containing a boolean flag (‘true’ or ‘false’). Always ‘Y;N’.

• \texttt{bubs\_exact.optimizeSql}: always ‘True’.

1.11 Terminology
This chapter contains definitions for terms used within the application.

1.11.1 Invantive Estate
The program that monitors your budget per real estate development project and also creates a complete project file with the sale of real estate (houses, parking places, commercial real estate) and the costs where everyone in the organization benefits from.

1.11.2 Budget
The approved setup from expected costs and revenues with the objective to realize the project within these costs and revenues.
1.11.3 Budget Control
The locating and grouping of costs and revenues within the budget.

1.11.4 Contract
A planned or approved agreement between two parties. Every contract has a code or number. The number '0' can not be used as a number for a contract.

1.11.5 Exposé
The approved budget.

1.11.6 Invoice based on Purchase Order
Amount of an invoice, belonging to an order.

1.11.7 Invoice without Purchase Order
Amount of an invoice, that does not belong to an order.

1.11.8 User
Anyone who uses Invantive Estate.

1.11.9 User Interface
The way users can control the application.

1.11.10 Master Roll Up
Layout of roll ups with cost categories in a few main categories.

1.11.11 Cost Type
Detailed description which indicates the type of costs or revenues. Example: ‘Value Ground’.

1.11.12 Supplier
A supplier delivers goods or services in exchange for money. The name of the contractor is indicated here with a supplier.

1.11.13 Order
Amount of written or oral commitments.

1.11.14 Product group
Breakdown of the projects in themes. Often, the running of a project in a product group requires certain skills. That is why personnel is often active in the same product group.

1.11.15 Project Phase

1.11.16 Show
Activation of a positive budget deviation in favor of project results.

1.11.17 Example Reading Method
Indicates in what way the value of a characteristic of a product or service can be read. Examples of a reading method are:

Mileage Map
Technician on site
Digitally received through the internet
Application manager system configuration
Not applicable

Reading methods can be edited in the screen Reading methods.

1.11.18 Example Payment Terms

A payment term is the agreed time period within which a bill should be paid. Examples of payment terms are:

<table>
<thead>
<tr>
<th>Payment term code</th>
<th>Number of days</th>
</tr>
</thead>
<tbody>
<tr>
<td>General purchasing</td>
<td>30</td>
</tr>
<tr>
<td>General sales</td>
<td>30</td>
</tr>
<tr>
<td>General empty</td>
<td>30</td>
</tr>
</tbody>
</table>

Payment terms can be edited in the screen Payment terms.

1.11.19 Example Payment Schedules

Pre-determined schedule with data concerning when payments will occur. Examples of a payment schedules are:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WB10</td>
<td>Housing construction 10 terms</td>
</tr>
<tr>
<td>WB07</td>
<td>Housing construction 7 terms</td>
</tr>
<tr>
<td>WBMW02</td>
<td>Overwork Housing construction 2 terms</td>
</tr>
<tr>
<td>GRND</td>
<td>Ground term</td>
</tr>
<tr>
<td>WB09</td>
<td>Housing construction 9 terms (no garage)</td>
</tr>
<tr>
<td>WB08</td>
<td>Housing construction 8 terms</td>
</tr>
<tr>
<td>WB06</td>
<td>Housing construction 6 terms</td>
</tr>
</tbody>
</table>

Payment schedules can be edited in the screen Payment schedules.

1.11.20 Example VAT

The taxes over the added value is indicated by the VAT. This is also called turnover tax. Examples of VAT percentages are:

<table>
<thead>
<tr>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0% VAT</td>
</tr>
<tr>
<td>6% VAT</td>
</tr>
<tr>
<td>19% VAT</td>
</tr>
<tr>
<td>0% VAT Abroad</td>
</tr>
<tr>
<td>Normal (19%)</td>
</tr>
</tbody>
</table>

VAT codes and descriptions can be edited in the screen VAT codes.

1.11.21 Example Classifications

A classification is a label that is linked to a project, a process, an organization, a person, or a document. The label provides additional information about the file to which it is attached and makes in this way a keyword based classification and indexing possible. With labels you can find your desired information more efficient. Examples of classifications are:

<table>
<thead>
<tr>
<th>code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profession</td>
<td>Professions</td>
</tr>
</tbody>
</table>
Profession.Auditor
Profession.Account manager
Profession.Administrative assistant
Profession.Advisor/consultant
Profession.Civil servant
Profession.Pharmacy assistant
Profession.Application developer
Profession.Architectural designer
Profession.Insurance advisor
Profession.Company manager
Profession.Visual writer
Profession.Sculptor
Profession.Investment advisor
Profession.Policy advisor
Profession.Public administrator
Profession.Security guard
Profession.Driver
Profession.Commercial employee
Profession.Communication manager
Profession.Communication employee
Profession.Controller
Profession.Copywriter
Profession.Dance teacher
Profession.Dancer
Profession.Defense
Profession.Detective
Profession.Veterinary assistant
Profession.Dietician
Profession.Executive secretary
Profession.Technical writer
Profession.Physician assistant
Profession.Drugstore
Profession.Goldsmith
Profession.Facility manager
Profession.Film and television producer
Profession.Photographer
Profession.Photographer/Reportage photographer
Profession.Physiotherapist
Profession.Goldsmith/Silversmith
Profession.Graphic designer
Profession.Helping welfare
Profession.Illustrator
Profession.Industrial designer (higher professional)
Profession.Industrial designer (university education)
Profession.Information manager
Profession.Information specialist
Profession.Buyer
Profession.Intermediary
Profession.Journalist
Profession.Hairstylist
Profession.Ceramic designer: Ceramic designer
Profession.Cabaret: Cabaret
Profession.RMA officer: RMA officer
Profession.Maternity nurse: Maternity nurse
Profession.Art historian: Art historian
Profession.Painter: Painter
Profession.Teacher: Teacher
Profession.Warehouse employee: Warehouse employee
Profession.Broker: Broker
Profession.Management assistant: Management assistant
Profession.Marketing manager: Marketing manager
Profession.Market researcher: Market researcher
Profession.Mime artist: Mime artist
Profession.Fashion consultant: Fashion consultant
Profession.Museologist: Museologist
Profession.Musician: Musician
Profession.Office manager: Office manager
Profession.Royal Army Officer: Royal Army Officer
Profession.Royal Navy Officer: Royal Navy Officer
Profession.Teaching assistant: Teaching assistant
Profession.Government manager: Government manager
Profession.Pedicure: Pedicure
Profession.Police officer: Police officer
Profession.Popmusician: Popmusician
Profession.PR employee: PR employee
Process
Profession.Producer: Product deliverable
Profession.Product: Product
Profession.Construction drawing: Construction drawing
Profession.Production leader Theater: Production leader Theater
Profession.Project leader: Project leader
Profession.Receptionist/telephonist: Receptionist/telephonist
Profession.Advertising designer: Advertising designer
Profession.Editor: Editor
Profession.Director: Director
Profession.Tour leader: Tour leader
Profession.Sales manager: Sales manager
Profession.Beautician: Beautician
Profession.Secretary: Secretary
Profession.Social cultural work (SCW): Social cultural work (SCW)
Profession.Social service employee: Social service employee
Profession.Stewardess: Stewardess
Profession.Dentist: Dentist
Profession.Dental assistant: Dental assistant
Profession.Copywriter: Copywriter
Profession.Textile designer: Textile designer
Profession.Theater technician: Theater technician
Profession.Tourism employee: Tourism employee
Profession.Stage director: Stage director
Profession.Actor: Actor
Profession.Corporate trainer  Corporate trainer
Profession.Publisher  Publisher
Profession.Salesman  Salesman
Profession.Midwife  Midwife
Profession.Nurse  Nurse
Profession.Translator/Interpreter  Translator/Interpreter
Profession.Caretaker  Caretaker
Profession.Food industry technologist  Food industry technologist
Profession.Designer  Designer
Coverage  Coverage ratio
Coverage.Activate  Activate on balance
Coverage.P&L  Direct debiting
Coverage.Insurance  Covered by insurance
ERBO  ERBO
ERBO.01  Agriculture and fishing
ERBO.02  Mineral extraction
ERBO.03  Food industry
ERBO.04  Textile and leather
ERBO.05  Wood industry
ERBO.06  Building materials and glass industries
ERBO.07  Paper and cardboard industry
ERBO.08  Publishing and printing
ERBO.09  Chemical industry
ERBO.10  Base metal
ERBO.11  Metal products industry
ERBO.12  Machinery industry
ERBO.13  Electric devices
ERBO.14  Transport industry
ERBO.15  Other industry
ERBO.16  Construction industry
ERBO.17  Wholesale
ERBO.18  Retail food
ERBO.19  Retail non-food
ERBO.20  Retail car and motorcycle
ERBO.21  Catering
ERBO.22  Transport and communication
ERBO.23  Transport services
ERBO.24  Business consultants
ERBO.25  Automation Services
ERBO.26  Facility services
ERBO.27  Brokerage, o.g.
ERBO.28  Culture, recreation
ERBO.29  Personal services
Doc  Document
Doc.Legal  Legal classifications
Doc.Legal.Signed  Signed
Doc.Legal.Not Signed  Not signed
Doc.Type  Type
Doc.Type.Offer  Offer
Doc.Confidentiality  Confidentiality
Doc.Confidentiality.Public  Public
1.11.22 Example Participation Roles

Persons participating in a project could have multiple roles assigned. The same role can be assigned to several people. Examples of participation roles are:

<table>
<thead>
<tr>
<th>Participation Role Code</th>
<th>Participation Role Limit</th>
<th>Participation Role Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task Owner</td>
<td>0</td>
<td>Task Owner</td>
</tr>
<tr>
<td>Task Reporter</td>
<td>0</td>
<td>Task Reporter</td>
</tr>
<tr>
<td>Task Increaser</td>
<td>0</td>
<td>Task Increaser</td>
</tr>
<tr>
<td>Task Modifier</td>
<td>0</td>
<td>Task Modifier</td>
</tr>
<tr>
<td>Task Hour Writer</td>
<td>0</td>
<td>Task Hour Writer</td>
</tr>
<tr>
<td>Project Increaser</td>
<td>0</td>
<td>Project Increaser</td>
</tr>
<tr>
<td>Project Modifier</td>
<td>0</td>
<td>Project Modifier</td>
</tr>
<tr>
<td>Project Hour Writer</td>
<td>0</td>
<td>Project Hour Writer</td>
</tr>
<tr>
<td>Project Filler</td>
<td>0</td>
<td>Project Filler</td>
</tr>
<tr>
<td>Project developer</td>
<td>0</td>
<td>Project developer</td>
</tr>
<tr>
<td>Project Product Group Director</td>
<td>0</td>
<td>Project Product Group Director</td>
</tr>
<tr>
<td>Project Controller</td>
<td>0</td>
<td>Project Controller</td>
</tr>
<tr>
<td>Project Administrator</td>
<td>0</td>
<td>Project Administrator</td>
</tr>
<tr>
<td>Project Approver Hours</td>
<td>0</td>
<td>Project Approver Hours</td>
</tr>
<tr>
<td>Project Plan Developer</td>
<td>0</td>
<td>Project Plan Developer</td>
</tr>
<tr>
<td>Task E-mail Receiver</td>
<td>0</td>
<td>Task E-mail Receiver</td>
</tr>
<tr>
<td>Project E-mail Receiver</td>
<td>0</td>
<td>Project E-mail Receiver</td>
</tr>
<tr>
<td>Project E-mail Sender</td>
<td>0</td>
<td>Project E-mail Sender</td>
</tr>
<tr>
<td>Project E-mail Copy</td>
<td>0</td>
<td>Project E-mail Copy</td>
</tr>
</tbody>
</table>

Classifications can be edited in the screen [Classifications].
Participation roles can be edited in the screen Participation roles

1.11.23 Example Document Types

Indicates the document type. Examples of document types are:

<table>
<thead>
<tr>
<th>Document Types</th>
<th>Document type description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acc</td>
<td>Acceptation document</td>
</tr>
<tr>
<td>CP</td>
<td>Control plan</td>
</tr>
<tr>
<td>Invoice received</td>
<td>Incoming invoice</td>
</tr>
<tr>
<td>Outgoing invoice</td>
<td>Outgoing invoice</td>
</tr>
<tr>
<td>Offer</td>
<td>Offer of a commercial nature</td>
</tr>
<tr>
<td>Confirmation of Order</td>
<td>Confirmation of Order</td>
</tr>
<tr>
<td>PP</td>
<td>Project plan</td>
</tr>
<tr>
<td>Report</td>
<td>Report</td>
</tr>
<tr>
<td>Standard</td>
<td>Standard</td>
</tr>
<tr>
<td>Drawing</td>
<td>Drawing</td>
</tr>
<tr>
<td>Progress report</td>
<td>Progress report</td>
</tr>
</tbody>
</table>

Document types can be edited in the screen Document types

1.11.24 Example Document Statuses

Examples of document statuses are:

<table>
<thead>
<tr>
<th>Document Status</th>
<th>Document status description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comments</td>
<td>Collecting of comments</td>
</tr>
<tr>
<td>Concept</td>
<td>Concept</td>
</tr>
<tr>
<td>Outdated</td>
<td>Outdated version, no longer applicable</td>
</tr>
<tr>
<td>Definitive</td>
<td>Definitive version</td>
</tr>
</tbody>
</table>

Document statuses can be edited in the screen Document statuses
1.11.25 Example Economic Indexes

Economic indexes measure the state of the economy (the general economic situation) or of a part of the economy. Examples of economic indexes are:

<table>
<thead>
<tr>
<th>Index name</th>
<th>Index abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amsterdam Stock Exchange</td>
<td>AEX</td>
</tr>
<tr>
<td>ING Group</td>
<td>NL00000303600</td>
</tr>
</tbody>
</table>

Economic indexes can be edited in the screen Economic Indexes.

1.11.26 Example Property

A property or characteristic is a phenomenon typical to a certain person, object or company. Examples of properties are:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>#CPUs</td>
<td>Number of processors</td>
</tr>
<tr>
<td>#A4 BW</td>
<td>Number of A4 prints black/white</td>
</tr>
<tr>
<td>#A4 Color</td>
<td>Number of A4 prints color</td>
</tr>
<tr>
<td>#A3 BW</td>
<td>Number of A3 prints black/white</td>
</tr>
<tr>
<td>#A3 Color</td>
<td>Number of A3 prints color</td>
</tr>
<tr>
<td>#Memory</td>
<td>Size of physical memory (Mb)</td>
</tr>
<tr>
<td>#Storage</td>
<td>Volume storage memory on disk (Gb)</td>
</tr>
<tr>
<td>#Floors</td>
<td>Number of floors</td>
</tr>
<tr>
<td>#Rooms</td>
<td>Number of rooms</td>
</tr>
<tr>
<td>#Toilets</td>
<td>Number of toilets</td>
</tr>
<tr>
<td>GFA</td>
<td>Gross floor area according to NEN 2580 (m²)</td>
</tr>
<tr>
<td>RFA</td>
<td>Rentable floor area according to NEN 2580 (m²)</td>
</tr>
<tr>
<td>Gross capacity</td>
<td>Gross capacity according to NEN 2580 (m³)</td>
</tr>
<tr>
<td>Color</td>
<td>Color in free text format (standard free)</td>
</tr>
<tr>
<td>Cadastral known as</td>
<td>Cadastral code</td>
</tr>
<tr>
<td>Wage fittings</td>
<td>Are wage fittings applicable?</td>
</tr>
<tr>
<td>Version</td>
<td>Version code of the software</td>
</tr>
<tr>
<td>RAL</td>
<td>RAL Color</td>
</tr>
<tr>
<td>Material</td>
<td>Material (wood, fit, iron)</td>
</tr>
<tr>
<td>Energy label</td>
<td>Label that needs to be supplied along with the sale of inter alia cars, electric devices, lamps and buildings according to various European guidelines (92/75/CEE, 94/2/CE, 95/12/CE, 96/89/CE, 2003/66/CE).</td>
</tr>
<tr>
<td>RUBRIC</td>
<td>Rubric</td>
</tr>
<tr>
<td>SPACE</td>
<td>Space</td>
</tr>
</tbody>
</table>

Properties can be edited in the screen Properties.

1.11.27 Example Linked Financial Administrations

Examples of linked financial administrations are:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>900</td>
<td>Administration Janssen BV</td>
</tr>
<tr>
<td>901</td>
<td>Administration Hoogmans BV</td>
</tr>
</tbody>
</table>
Linked financial administrations can be edited in the screen Linked Financial Administrations

1.11.28 Example Ground Statuses

A ground status describes the state of the land required for the realization of the project such as "Private land" or "Ready to be developed". Examples of ground statuses are:

<table>
<thead>
<tr>
<th>Ground status code</th>
<th>Ground status description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unknown</td>
<td>Situation unknown.</td>
</tr>
<tr>
<td>None</td>
<td>Not incorporated in structure vision; farming ground.</td>
</tr>
<tr>
<td>Structure vision</td>
<td>Incorporated in structure vision.</td>
</tr>
<tr>
<td>Zoning plan</td>
<td>Incorporated in approved zoning plan.</td>
</tr>
<tr>
<td>Provisional construction permit</td>
<td>Construction permit granted provisionally.</td>
</tr>
<tr>
<td>Construction permit</td>
<td>Irrevocable construction permit granted.</td>
</tr>
<tr>
<td>Private land</td>
<td>Private land</td>
</tr>
<tr>
<td>Ready for construction</td>
<td>Ready for construction</td>
</tr>
</tbody>
</table>

Ground statuses can be edited in the screen Ground statuses.

1.11.29 Example General Ledger Account Code

A general ledger account is a collection of equal expenditure or revenue items. The general ledger is the collection of all general ledger accounts. All general ledger accounts together are called the general ledger or general ledger chart of accounts. Every general ledger account is of the type balance sheet account or of the type results account.

Examples of general ledger account codes are:

<table>
<thead>
<tr>
<th>General ledger account code</th>
<th>General ledger account code description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0600</td>
<td>Reorganization facility</td>
</tr>
<tr>
<td>0700</td>
<td>Equity / Share Capital</td>
</tr>
<tr>
<td>0770</td>
<td>Undivided result</td>
</tr>
<tr>
<td>0799</td>
<td>General reserve</td>
</tr>
<tr>
<td>0800</td>
<td>Revaluation</td>
</tr>
<tr>
<td>0930</td>
<td>Mortgage loans</td>
</tr>
<tr>
<td>0940</td>
<td>Long-term credits</td>
</tr>
<tr>
<td>0950</td>
<td>Medium credits</td>
</tr>
<tr>
<td>0990</td>
<td>Other debts</td>
</tr>
<tr>
<td>1290</td>
<td>Cross posting liquid assets</td>
</tr>
<tr>
<td>1504</td>
<td>Required to pay VAT high</td>
</tr>
<tr>
<td>1510</td>
<td>Required to pay VAT low</td>
</tr>
<tr>
<td>1511</td>
<td>Required to pay VAT delivery outside EU (import)</td>
</tr>
<tr>
<td>1512</td>
<td>Required to pay VAT acquisition of goods within EU</td>
</tr>
<tr>
<td>1513</td>
<td>VAT private use</td>
</tr>
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<td>1514</td>
<td>Pre-print Turnover Tax</td>
</tr>
<tr>
<td>1700</td>
<td>Required to pay income tax</td>
</tr>
<tr>
<td>1710</td>
<td>Required to pay Net wage</td>
</tr>
<tr>
<td>1732</td>
<td>Accrued payroll taxes</td>
</tr>
<tr>
<td>1740</td>
<td>Required to pay social security contributions employee</td>
</tr>
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</table>

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<table>
<thead>
<tr>
<th>Account</th>
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<tbody>
<tr>
<td>1741</td>
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<td>Required to pay social security contributions employer</td>
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<td>1746</td>
<td>Required to pay other employer contributions</td>
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<td>1770</td>
<td>Required to pay reservation 13th month</td>
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<td>Reservation employers’ costs 13th month</td>
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<td>Costs still to pay</td>
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<td>1955</td>
<td>Turnover to be invoiced</td>
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<td>2100</td>
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<tr>
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<td>Other immaterial fixed assets</td>
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<td>Turnover domestic low rate</td>
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<tr>
<td>8011</td>
<td>Turnover Projects T &amp; M 0 %</td>
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<td>Description</td>
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<td>Turnover abroad zero rate</td>
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<td>8100</td>
<td>Turnover abroad within the community</td>
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<td>8110</td>
<td>Turnover abroad supplied outside the EU</td>
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<td>Interest incomes</td>
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<td>Interest expenses</td>
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<td>Redundancy pay employer</td>
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<td>4061</td>
<td>WIA (WAO/WGA) premium WG</td>
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<tr>
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<td>WW/AWF premium WG</td>
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<td>4070</td>
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<tr>
<td>4080</td>
<td>Courses</td>
</tr>
<tr>
<td>4081</td>
<td>Travel &amp; accommodation costs Trainings/courses</td>
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<tr>
<td>4090</td>
<td>Other personnel costs</td>
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<td>4150</td>
<td>Other car costs</td>
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<td>Energy</td>
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<td>4210</td>
<td>Rental</td>
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<td>4250</td>
<td>Other housing costs</td>
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<tr>
<td>4251</td>
<td>Maintenance building</td>
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<td>Other management costs</td>
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<td>4300</td>
<td>Advertising and promotional costs</td>
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<td>Promotion articles</td>
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<td>Representation costs</td>
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<td>Stock exchange costs</td>
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<td>Subscriptions and membership fees</td>
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<td>Telecom costs</td>
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<td>4500</td>
<td>Accountancy Costs</td>
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<td>4501</td>
<td>Depreciation Company Inventory</td>
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<td>Depreciation rebuilding costs</td>
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<td>4505</td>
<td>Attorney fees</td>
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<td>4520</td>
<td>Provision to pay commissions and the like</td>
</tr>
<tr>
<td>4540</td>
<td>Company insurances</td>
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<tr>
<td>4610</td>
<td>Other general costs</td>
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<td>4610</td>
<td>Interest RC DGA</td>
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<tr>
<td>4630</td>
<td>Interest and costs bank</td>
</tr>
<tr>
<td>4650</td>
<td>Interest and costs taxes</td>
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<tr>
<td>4900</td>
<td>VPB</td>
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<td>7000</td>
<td>Management fee costs</td>
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</table>
General ledger account codes can be edited in the screen General ledger account code.

1.11.30 Example Master Roll Ups Cost Type

Examples of common master roll ups of cost types for projects in property development are:

<table>
<thead>
<tr>
<th>Main compaction code</th>
<th>Main compaction description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000-1999</td>
<td>Purchase Costs</td>
</tr>
<tr>
<td>2000-2999</td>
<td>Contractor Sum</td>
</tr>
<tr>
<td>3000-3999</td>
<td>Services third party</td>
</tr>
<tr>
<td>4000-4999</td>
<td>Fixed and development costs</td>
</tr>
<tr>
<td>9300</td>
<td>Revenues</td>
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<tr>
<td>9900</td>
<td>Taken result</td>
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</tbody>
</table>

Master Roll Ups for cost types can be edited in the screen Master Roll Ups.

1.11.31 Example Cost Center

A cost center is for the need of the accountancy and the controlling defined unit within a company, to which costs and presentation can be attributed. A cost center usually turns into a department of a company. Examples of a cost center are:

<table>
<thead>
<tr>
<th>Cost center code</th>
<th>Cost center description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAL</td>
<td>Sales</td>
</tr>
<tr>
<td>MAN</td>
<td>Management</td>
</tr>
<tr>
<td>Tech</td>
<td>Technical service</td>
</tr>
<tr>
<td>Prod</td>
<td>Production</td>
</tr>
</tbody>
</table>

Cost centers can be edited in the screen Cost centers.

1.11.32 Example Cost Categories

Examples of common cost types for projects in property development are:

<table>
<thead>
<tr>
<th>Cost type code</th>
<th>Cost Type Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000</td>
<td>Purchase Sum ground</td>
</tr>
<tr>
<td>1005</td>
<td>Land Costs; other</td>
</tr>
<tr>
<td>1010</td>
<td>Purchase Sum buildings</td>
</tr>
<tr>
<td>1011</td>
<td>Option Money purchase</td>
</tr>
<tr>
<td>1020</td>
<td>Purchase Sum other</td>
</tr>
<tr>
<td>1051</td>
<td>Costs financing</td>
</tr>
<tr>
<td>1052</td>
<td>Business burden</td>
</tr>
<tr>
<td>1053</td>
<td>Transfer Tax</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
</tr>
<tr>
<td>------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>1055</td>
<td>Benefit/moving contribution</td>
</tr>
<tr>
<td>1060</td>
<td>Notary Costs (purchase)</td>
</tr>
<tr>
<td>1065</td>
<td>Splitting and consolidation</td>
</tr>
<tr>
<td>1070</td>
<td>Make construction mature</td>
</tr>
<tr>
<td>1071</td>
<td>Measurement Costs</td>
</tr>
<tr>
<td>1072</td>
<td>Environmental research purchase</td>
</tr>
<tr>
<td>1073</td>
<td>Demolition Costs</td>
</tr>
<tr>
<td>1074</td>
<td>Landfill and disposal costs</td>
</tr>
<tr>
<td>1075</td>
<td>Archaeological research</td>
</tr>
<tr>
<td>1076</td>
<td>Move monuments</td>
</tr>
<tr>
<td>1077</td>
<td>Move cables and pipes</td>
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<tr>
<td>1080</td>
<td>Agency Costs (purchase)</td>
</tr>
<tr>
<td>1085</td>
<td>VAT</td>
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<tr>
<td>1090</td>
<td>Unexpected</td>
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<tr>
<td>1100</td>
<td>Historical costs</td>
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<td>1970</td>
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<td>1990</td>
<td>Internal Interest Costs</td>
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<tr>
<td>2100</td>
<td>Head of contractor</td>
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<tr>
<td>2101</td>
<td>Wage and material risk</td>
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<tr>
<td>2109</td>
<td>Unexpected contractor</td>
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<tr>
<td>2110</td>
<td>Contractor Sum E-installations</td>
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<tr>
<td>2111</td>
<td>Wage and material risk E-installations</td>
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<tr>
<td>2119</td>
<td>Unexpected E-installations</td>
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<td>Contractor Sum W-installations</td>
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<td>Wage and material risk W-installations</td>
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<tr>
<td>2141</td>
<td>Wage and material risk contractor sum</td>
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<td>Unexpected contractor sum</td>
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<td>Contractor Sum site facility/infrastructure</td>
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<td>Provisional Sum pui</td>
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<td>2202</td>
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<td>Provisional Sum relocation costs/moving costs</td>
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<td>2211</td>
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<td>Description</td>
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<tr>
<td>3200</td>
<td>Honorarium PO</td>
</tr>
<tr>
<td>3210</td>
<td>Supervision PO</td>
</tr>
<tr>
<td></td>
<td>Project Management</td>
</tr>
<tr>
<td>3230</td>
<td>Honorarium third party development.</td>
</tr>
<tr>
<td>3240</td>
<td>Construction Management</td>
</tr>
<tr>
<td></td>
<td>Verschotten</td>
</tr>
<tr>
<td>3300</td>
<td>General research</td>
</tr>
<tr>
<td>3310</td>
<td>Construction research</td>
</tr>
<tr>
<td>3320</td>
<td>Constructional research</td>
</tr>
<tr>
<td>3330</td>
<td>Feasibility Study</td>
</tr>
<tr>
<td>3340</td>
<td>Traffic Safety</td>
</tr>
<tr>
<td>3350</td>
<td>Location Policy</td>
</tr>
<tr>
<td>3360</td>
<td>Land Survey/probes</td>
</tr>
<tr>
<td>3361</td>
<td>Environmental Research</td>
</tr>
<tr>
<td>3362</td>
<td>Noise Pollution Research</td>
</tr>
<tr>
<td>3370</td>
<td>Market Research</td>
</tr>
<tr>
<td>3380</td>
<td>Windtunnel research</td>
</tr>
<tr>
<td>3400</td>
<td>General advice</td>
</tr>
<tr>
<td>3420</td>
<td>Landscape Architect</td>
</tr>
<tr>
<td></td>
<td>Civil Engineering advice</td>
</tr>
<tr>
<td>3500</td>
<td>Technical installation advice</td>
</tr>
<tr>
<td>3505</td>
<td>Costing advice (construction advice)</td>
</tr>
<tr>
<td>3510</td>
<td>Construction advice</td>
</tr>
<tr>
<td>3520</td>
<td>Constructional advice</td>
</tr>
<tr>
<td>3522</td>
<td>Advice tools</td>
</tr>
<tr>
<td>3524</td>
<td>Parking advice/traffic engineering, Advice</td>
</tr>
<tr>
<td>3530</td>
<td>Fire Safety advice</td>
</tr>
<tr>
<td>3540</td>
<td>Landscaping/art advice</td>
</tr>
<tr>
<td>3550</td>
<td>Acoustic advice</td>
</tr>
<tr>
<td>3555</td>
<td>Construction Physics advice</td>
</tr>
<tr>
<td>3560</td>
<td>Legal advice</td>
</tr>
<tr>
<td>3570</td>
<td>Tax advice</td>
</tr>
<tr>
<td></td>
<td>Accountancy Costs</td>
</tr>
<tr>
<td>3580</td>
<td>Retail consultant</td>
</tr>
<tr>
<td>3590</td>
<td>Unexpected advice</td>
</tr>
<tr>
<td>3600</td>
<td>General costs</td>
</tr>
<tr>
<td></td>
<td>Agency Costs sales</td>
</tr>
<tr>
<td>3630</td>
<td>Agency Costs rental</td>
</tr>
<tr>
<td></td>
<td>Notary Costs (sales)</td>
</tr>
<tr>
<td>3710</td>
<td>Cleaning Costs commission</td>
</tr>
</tbody>
</table>
Cost Categories can be edited in the screen Cost Categories.

1.11.33 Example Warehouse

Inventories of products can be held in a warehouse. Examples of warehouses are:
1.11.34 Example Organization Relation Types

An organization relation type describes the relation type between two organizations. Examples of organization relation types are:

<table>
<thead>
<tr>
<th>Relationship Type</th>
<th>Description from</th>
<th>Description to</th>
<th>Code reversed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retains</td>
<td>Retains majority shares of</td>
<td>Majority shares in possession of</td>
<td>Owns a majority in Organization</td>
</tr>
<tr>
<td>Supplier</td>
<td>Supplies to</td>
<td>Is supplied by</td>
<td>Competitor</td>
</tr>
<tr>
<td>Competitor</td>
<td>Competitor of</td>
<td>Competes with</td>
<td></td>
</tr>
<tr>
<td>Partial interest</td>
<td>Holds less than 50% of shares in</td>
<td>Minority interest held by</td>
<td>Owns minority in Establishment</td>
</tr>
<tr>
<td>Location</td>
<td>Establishment of</td>
<td>Has an establishment in</td>
<td></td>
</tr>
</tbody>
</table>

Organization relation types can be edited in the screen Organization relation types.

1.11.35 Example Price Lists

A price list has - just like Menus - a tree structure, consisting of a set of prices for Units and other price lists. Price lists can be built with other price lists. Examples of price lists for projects in the real estate development sector are:

<table>
<thead>
<tr>
<th>Price list code</th>
<th>Price list description</th>
</tr>
</thead>
<tbody>
<tr>
<td>General purchasing</td>
<td>General purchasing</td>
</tr>
<tr>
<td>General sales</td>
<td>General sales</td>
</tr>
<tr>
<td>General empty</td>
<td>General empty</td>
</tr>
<tr>
<td>Sales customer logistics</td>
<td>Only for customers in the logistics</td>
</tr>
<tr>
<td>Sale Koopman</td>
<td>Koopman specific prices</td>
</tr>
<tr>
<td>City</td>
<td>Prices construction units project City</td>
</tr>
</tbody>
</table>

Price lists can be edited in the screen Price lists.

1.11.36 Example Process Categories

A process category is a grouping of Processes. Examples of process categories are:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Query</td>
<td>Query</td>
</tr>
<tr>
<td>Failure</td>
<td>Failure</td>
</tr>
<tr>
<td>Change</td>
<td>Change Request</td>
</tr>
<tr>
<td>Complaint</td>
<td>Complaint</td>
</tr>
<tr>
<td>Project Meeting</td>
<td>Project Meeting</td>
</tr>
<tr>
<td>WF IncInv</td>
<td>Workflow approving incoming invoice</td>
</tr>
<tr>
<td>WF OutInv</td>
<td>Workflow approving outgoing invoice</td>
</tr>
<tr>
<td>OOS</td>
<td>Out-of-scope</td>
</tr>
</tbody>
</table>
Process categories can be edited in the screen Process categories.

### 1.11.37 Example Process Provenances

A process provenance is a grouping of Processes on the basis of provenance. Examples of process provenances are:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NWB</td>
<td>Not a bug</td>
</tr>
<tr>
<td>PR</td>
<td>Problem Report</td>
</tr>
<tr>
<td>ER</td>
<td>Enhancement Request</td>
</tr>
<tr>
<td>Question</td>
<td>Question</td>
</tr>
<tr>
<td>PUR</td>
<td>Purchasing</td>
</tr>
<tr>
<td>Template</td>
<td>Template</td>
</tr>
<tr>
<td>Invoice</td>
<td>Invoice</td>
</tr>
<tr>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>M</td>
<td>Milestone</td>
</tr>
<tr>
<td>SUG</td>
<td>Suggestion for future work</td>
</tr>
<tr>
<td>Doc</td>
<td>User's documentation</td>
</tr>
<tr>
<td>UNK</td>
<td>Unknown, not classified yet</td>
</tr>
<tr>
<td>Process</td>
<td>Process-related (meetings etc)</td>
</tr>
<tr>
<td>SLS</td>
<td>Sales</td>
</tr>
<tr>
<td>Fix</td>
<td>Fix</td>
</tr>
<tr>
<td>Wf Leave</td>
<td>Request for leave</td>
</tr>
<tr>
<td>Sales real estate</td>
<td>Sale process real estate</td>
</tr>
</tbody>
</table>

Process provenances can be edited in the screen Process provenances.

### 1.11.38 Example Process Impact

A process impact is a grouping of Processes on the basis of impact. The process impact often determined the priority in combination with the urgency. Examples of process impacts are:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NWB</td>
<td>Not a bug</td>
</tr>
<tr>
<td>PR</td>
<td>Problem Report</td>
</tr>
<tr>
<td>ER</td>
<td>Enhancement Request</td>
</tr>
<tr>
<td>Question</td>
<td>Question</td>
</tr>
<tr>
<td>PUR</td>
<td>Purchasing</td>
</tr>
<tr>
<td>Template</td>
<td>Template</td>
</tr>
<tr>
<td>Invoice</td>
<td>Invoice</td>
</tr>
<tr>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>M</td>
<td>Milestone</td>
</tr>
<tr>
<td>SUG</td>
<td>Suggestion for future work</td>
</tr>
<tr>
<td>Doc</td>
<td>User's documentation</td>
</tr>
<tr>
<td>UNK</td>
<td>Unknown, not classified yet</td>
</tr>
<tr>
<td>Process</td>
<td>Process-related (meetings etc)</td>
</tr>
<tr>
<td>SLS</td>
<td>Sales</td>
</tr>
<tr>
<td>Fix</td>
<td>Fix</td>
</tr>
<tr>
<td>Wf Leave</td>
<td>Request for leave</td>
</tr>
<tr>
<td>Sales real estate</td>
<td>Sale process real estate</td>
</tr>
</tbody>
</table>

Process impacts can be edited in the screen Process impacts.
1.11.39 Example Process Note Categories

A process note category is a group of process notes (see processes). Examples of process note categories are:

<table>
<thead>
<tr>
<th>Process Note Category</th>
<th>Process note category description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audit</td>
<td>Audit</td>
</tr>
<tr>
<td>Various</td>
<td>Various other</td>
</tr>
<tr>
<td>Doc</td>
<td>User documentation</td>
</tr>
<tr>
<td>E-mail</td>
<td>E-mail</td>
</tr>
<tr>
<td>Fix</td>
<td>Fix request</td>
</tr>
<tr>
<td>Meeting</td>
<td>Personal meeting</td>
</tr>
<tr>
<td>Project group</td>
<td>Project group consultation</td>
</tr>
<tr>
<td>Steering group</td>
<td>Steering group consultation</td>
</tr>
<tr>
<td>Telephone</td>
<td>Telephone conversation</td>
</tr>
</tbody>
</table>

Process note categories can be edited in the screen Process note categories.

1.11.40 Example Process Status

A process status describes the condition of a process. Examples of process statuses are:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option excluding agreement to signing of the contract</td>
<td>Option excluding agreement to signing of the contract</td>
</tr>
<tr>
<td>Option including agreement to signing of the contract</td>
<td>Option including agreement to signing of the contract</td>
</tr>
<tr>
<td>Reservation</td>
<td>Reservation</td>
</tr>
<tr>
<td>Purchase contract signed</td>
<td>Purchase contract signed</td>
</tr>
<tr>
<td>Notarial transported</td>
<td>Notarial transported</td>
</tr>
</tbody>
</table>

Process statuses can be edited in the screen Process statuses.

1.11.41 Example Process Unit Status

The process unit status indicates the status of the units that are involved in the processing of the process. Examples of process units are:

<table>
<thead>
<tr>
<th>Process unit status code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entered</td>
<td>Registered in the system, but not yet sold</td>
</tr>
<tr>
<td>Sold</td>
<td>Sold w/ a signed contract</td>
</tr>
<tr>
<td>Billable</td>
<td>Can be invoiced</td>
</tr>
<tr>
<td>Invoiced</td>
<td>Invoiced and supplied</td>
</tr>
</tbody>
</table>

Process unit statuses can be edited in the screen Process unit status.

1.11.42 Example Products

A product is everything that can be offered on the market to meet a demand. A product can therefore be a tangible good, like an article in a store, but it can also be a service. Examples of products are:

<table>
<thead>
<tr>
<th>Product code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residence</td>
<td>Building designated for private residence.</td>
</tr>
<tr>
<td>Parking spot</td>
<td>Parking spot for 1 car.</td>
</tr>
<tr>
<td>Office</td>
<td>Independent office unit.</td>
</tr>
<tr>
<td>Shop</td>
<td>Independent store unit.</td>
</tr>
<tr>
<td>Overtime housing</td>
<td>Miscellaneous overtime housing construction</td>
</tr>
</tbody>
</table>
Overtime offices  Miscellaneous overtime offices

Products can be edited in the screen Products.

### 1.11.43 Example Product Group

Examples of common product groups for projects in property development are:

<table>
<thead>
<tr>
<th>Product Group Code</th>
<th>Product Group Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>Shops</td>
</tr>
<tr>
<td>W</td>
<td>Houses</td>
</tr>
<tr>
<td>K</td>
<td>Offices</td>
</tr>
<tr>
<td>B</td>
<td>Area Development</td>
</tr>
<tr>
<td>S</td>
<td>Special projects</td>
</tr>
<tr>
<td>IN</td>
<td>Internal</td>
</tr>
</tbody>
</table>

Product Groups can be edited in the screen Product Groups.

### 1.11.44 Example Product Groups

Products that belong with each other. Examples of product groups are:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>General Ledger Code</th>
<th>Payment Schedule</th>
<th>Sales Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real Estate Companies</td>
<td>Real estate for companies</td>
<td>8000</td>
<td></td>
<td>Company Sales</td>
</tr>
<tr>
<td>Real estate Residence</td>
<td>Real estate focused on residences</td>
<td>8000</td>
<td>WB10</td>
<td>Consumer Sales</td>
</tr>
</tbody>
</table>

Product Groups can be edited in the screen Product Groups.

### 1.11.45 Example Project Phases

Projects can be divided into their current project phase. Examples of project phases are:

<table>
<thead>
<tr>
<th>Project phase code</th>
<th>Project phase description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning</td>
<td>Planning</td>
</tr>
<tr>
<td>Acquisition</td>
<td>Acquisition</td>
</tr>
<tr>
<td>Development</td>
<td>Development</td>
</tr>
<tr>
<td>Realization</td>
<td>Realization</td>
</tr>
<tr>
<td>Wrapping up</td>
<td>Wrapping up (remainder)</td>
</tr>
</tbody>
</table>

Project phases can be edited in the screen Project phases.

### 1.11.46 Example Project Relation Types

A project relationship describes the relationship between two or more projects. Examples of project relation types are:

<table>
<thead>
<tr>
<th>Relationship Type</th>
<th>Description from</th>
<th>Code Reversed</th>
<th>Description to</th>
<th>Container</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ground</td>
<td>Superficies at Ground</td>
<td>Ground at Superficies</td>
<td>Superficies</td>
<td>N</td>
</tr>
<tr>
<td>Successor</td>
<td>Succeeded by</td>
<td>Successor of</td>
<td>Precursor</td>
<td>N</td>
</tr>
<tr>
<td>Construction Management</td>
<td>Guided from</td>
<td>Construction management</td>
<td>Guided</td>
<td>N</td>
</tr>
</tbody>
</table>

Project relation types can be edited in the screen Project relation types.

### 1.11.47 Example Project Version Categories

A project version category is a tool to subdivide project versions for, for example, various

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reports, such as ‘quarterly review’, ‘annual report’ and ‘prognosis 2011’. Examples of project
version categories are:

<table>
<thead>
<tr>
<th>Project Version Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quarterly Review</td>
<td>Quarterly Review</td>
</tr>
<tr>
<td>Business plan</td>
<td>Business plan</td>
</tr>
<tr>
<td></td>
<td>Monthly Review</td>
</tr>
<tr>
<td>Review</td>
<td>Draft</td>
</tr>
</tbody>
</table>

Project version categories can be edited in the screen [Project Version Categories](#).

### 1.11.48 Example Legal Form

The legal form of a company, enterprise or organization, is the legal form where the enter-
prise is cast. The legislation in each country determines which legal forms in the business as
possible.

Examples of legal forms are:

<table>
<thead>
<tr>
<th>Legal form code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GmbH</td>
<td>Gesellschaft mit beschränkter Haftung</td>
</tr>
<tr>
<td>AG</td>
<td>Aktiengesellschaft</td>
</tr>
<tr>
<td>P</td>
<td>Particulier</td>
</tr>
<tr>
<td>EZ</td>
<td>Eenmanszaak</td>
</tr>
<tr>
<td>SV</td>
<td>Stille vennootschap</td>
</tr>
<tr>
<td>OV</td>
<td>Openbare vennootschap zonder rechtspersoonlijkheid</td>
</tr>
<tr>
<td>OVR</td>
<td>Openbare vennootschap met rechtspersoonlijkheid</td>
</tr>
<tr>
<td>CV</td>
<td>Commanditaire vennootschap zonder rechtspersoonlijkheid</td>
</tr>
<tr>
<td>CVR</td>
<td>Commanditaire vennootschap met rechtspersoonlijkheid</td>
</tr>
<tr>
<td>BV</td>
<td>Besloten vennootschap</td>
</tr>
<tr>
<td>NV</td>
<td>Naamloze vennootschap</td>
</tr>
<tr>
<td>STG</td>
<td>Stichting</td>
</tr>
<tr>
<td>COOP</td>
<td>Cooperatie</td>
</tr>
<tr>
<td>VER</td>
<td>Vereniging</td>
</tr>
<tr>
<td>OVERH</td>
<td>Overheid</td>
</tr>
<tr>
<td>BVBA</td>
<td>Besloten vennootschap met beperkte aansprakelijkheid</td>
</tr>
<tr>
<td>SA</td>
<td>Société Anonyme</td>
</tr>
<tr>
<td>LLC</td>
<td>Limited Liability Company</td>
</tr>
<tr>
<td>Corp.</td>
<td>Corporation</td>
</tr>
<tr>
<td>LP</td>
<td>Limited Partnership</td>
</tr>
<tr>
<td>LLP</td>
<td>Limited Liability Partnership</td>
</tr>
<tr>
<td>Ltd.</td>
<td>Private Limited Company</td>
</tr>
</tbody>
</table>

Legal forms can be edited in the screen [Legal forms](#).

### 1.11.49 Example Interest Method

The interest method indicates in what way the interest is calculated. Examples of interest
methods are:

<table>
<thead>
<tr>
<th>Interest method code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6% Interest360E</td>
<td>6% in accordance with 360 Europe Interest days per Year, 0 days interest free</td>
</tr>
<tr>
<td>6% Interest365</td>
<td>6% in accordance with 365 Interest days per year, 14 days interest free</td>
</tr>
</tbody>
</table>
6% Interest360N  6% in accordance with 360 NASD Interest days per Year (Excel), 0 days interest free
8% Penalty Interest360E  8% in accordance with 360 Europe Interest days per Year (penalty interest), 0 days interest free
8% Penalty Interest365  8% in accordance with 365 Interest days per year (penalty interest), 0 days interest free
8% Penalty Interest360N  8% in accordance with 360 NASD Interest days per Year (Excel) (penalty interest), 0 days interest free

Interest methods can be edited in the screen Interest methods.

1.11.50 Example Roles

A role is a function within an organization (for example ‘Project Developer’) that can be performed by a person. Rights can be assigned to this role using Role Authorizations and subsequently this role can be assigned to users that are going to perform this function with User Roles. Examples of roles are:

<table>
<thead>
<tr>
<th>Role code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td>Application management</td>
</tr>
<tr>
<td>Exploitation</td>
<td>Service and exploitation</td>
</tr>
<tr>
<td>FA</td>
<td>Finance</td>
</tr>
<tr>
<td>Development</td>
<td>Development Invantive products</td>
</tr>
<tr>
<td>PD</td>
<td>Project development</td>
</tr>
<tr>
<td>Public</td>
<td>Public</td>
</tr>
</tbody>
</table>

Roles can be edited in the screen Roles.

1.11.51 Example Counters

A counter can be used in additional business rules to calculate a sequence number. See Additional Business Rules. Examples of counters are:

<table>
<thead>
<tr>
<th>Description</th>
<th>First value</th>
<th>Value increase</th>
<th>Cache size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task number</td>
<td>1000</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Counters can be edited in the screen Counters.

1.11.52 Example Timesheet Status

Examples of common timesheet statuses for hours in projects are:

<table>
<thead>
<tr>
<th>Hour Status Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial</td>
<td>Initial</td>
</tr>
<tr>
<td>Approved self</td>
<td>Approved by employee</td>
</tr>
<tr>
<td>Approved mgr</td>
<td>Approved by manager, billable</td>
</tr>
<tr>
<td>Invoiced</td>
<td>Invoiced and definitive</td>
</tr>
<tr>
<td>Planned</td>
<td>Planned</td>
</tr>
</tbody>
</table>

Timesheet Statuses can be edited in the screen Timesheet Statuses.

1.11.53 Example Skills

A skill is the ability to capably perform an act or solve a problem. Examples of skills are:

<table>
<thead>
<tr>
<th>Skill code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FN</td>
<td>Function</td>
</tr>
<tr>
<td>FN:SEUNIX</td>
<td>System engineer UNIX</td>
</tr>
<tr>
<td>FN:SEWIN</td>
<td>System engineer Windows</td>
</tr>
<tr>
<td>FN:MCSE</td>
<td>Microsoft Certified System Engineer</td>
</tr>
</tbody>
</table>

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1.11.54 Example Compactions

A roll up is a bundle of individual cost categories. Roll ups are used to combine financial information, which is registered per cost category, into a medium level, such as ‘Acquisition’, within projects. The financial information can also be requested on cost category, in case a less general division is required. The financial information can also be requested on master roll up level, in case a more general division is required. Examples of compactions are:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Roll Up</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Ground costs</td>
<td>1000-1999</td>
</tr>
<tr>
<td>19</td>
<td>Contributions</td>
<td>1000-1999</td>
</tr>
<tr>
<td>21</td>
<td>Contractor Sum</td>
<td>2000-2999</td>
</tr>
<tr>
<td>22</td>
<td>Provisional sum</td>
<td>2000-2999</td>
</tr>
<tr>
<td>23</td>
<td>General</td>
<td>2000-2999</td>
</tr>
<tr>
<td>24</td>
<td>Parking accommodation</td>
<td>2000-2999</td>
</tr>
<tr>
<td>25</td>
<td>Utility services</td>
<td>2000-2999</td>
</tr>
<tr>
<td>26</td>
<td>Installations</td>
<td>2000-2999</td>
</tr>
<tr>
<td>28</td>
<td>Environment</td>
<td>2000-2999</td>
</tr>
<tr>
<td>29</td>
<td>General construction costs</td>
<td>2000-2999</td>
</tr>
<tr>
<td>30</td>
<td>Honorarium third parties</td>
<td>3000-3999</td>
</tr>
<tr>
<td>31</td>
<td>Architect</td>
<td>3000-3999</td>
</tr>
<tr>
<td>32</td>
<td>Personnel</td>
<td>3000-3999</td>
</tr>
<tr>
<td>33</td>
<td>Research</td>
<td>3000-3999</td>
</tr>
<tr>
<td>34</td>
<td>Civil engineering</td>
<td>3000-3999</td>
</tr>
<tr>
<td>35</td>
<td>Advice costs</td>
<td>3000-3999</td>
</tr>
<tr>
<td>36</td>
<td>General costs</td>
<td>3000-3999</td>
</tr>
<tr>
<td>37</td>
<td>Various</td>
<td>3000-3999</td>
</tr>
<tr>
<td>38</td>
<td>Advertising</td>
<td>3000-3999</td>
</tr>
<tr>
<td>39</td>
<td>?</td>
<td>3000-3999</td>
</tr>
<tr>
<td>40</td>
<td>Special development costs</td>
<td>4000-4999</td>
</tr>
<tr>
<td>41</td>
<td>Revenues</td>
<td>9300</td>
</tr>
</tbody>
</table>
Compactions can be edited in the screen `Compactions`.

### 1.11.55 Example Work Schedules

A working schedule describes the hours contractual agreed upon for a labor agreement or the hiring of permanent and temporary personnel/staff. Examples of work schedules are:

<table>
<thead>
<tr>
<th>Work schedule code</th>
<th>Work schedule description</th>
</tr>
</thead>
<tbody>
<tr>
<td>40h</td>
<td>40 hours per week</td>
</tr>
<tr>
<td>32h w ednesday free</td>
<td>32 hours per week, every w ednesday free</td>
</tr>
<tr>
<td>16h mo+tu</td>
<td>16 hours per week, w ork every monday and tuesday</td>
</tr>
<tr>
<td>36h free every other w eek</td>
<td>36 hour per week, every second w eek friday free</td>
</tr>
</tbody>
</table>

Work schedules can be edited in the screen `Work schedules`.

### 1.11.56 Example Work Types

A labor type is a type of work that can be performed by an employee and that will be treated distinctively for invoicing or analysis. Examples of work types are:

<table>
<thead>
<tr>
<th>Work type code</th>
<th>Work type description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meeting</td>
<td>Meeting</td>
</tr>
<tr>
<td>Surveying</td>
<td>Surveying existing or future situation</td>
</tr>
<tr>
<td>Lighting plan</td>
<td>Lighting plan drawing</td>
</tr>
<tr>
<td>Furniture plan</td>
<td>Furniture plan drawing</td>
</tr>
<tr>
<td>Designing</td>
<td>Design drawing</td>
</tr>
<tr>
<td>Feasability</td>
<td>Feasability research</td>
</tr>
</tbody>
</table>

Work types can be edited in the screen `Work types`.

### 1.12 Versions

This chapter describes the changes in the application per version.

#### 1.12.1 Release 2012 R2

Released: 14-12-2012 as 2012 release 2.

Invantive Producer: bXX.

Kettle: 4.4.0-stable

iReports: 4.8.0

Changes and bug fixes:

<table>
<thead>
<tr>
<th>Number</th>
<th>Type</th>
<th>Product</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>21282</td>
<td>PR</td>
<td>Achtergrondverwerking</td>
<td>Als een voorgaande job fout is gegaan en er geen uitvoerbestand is, dan gaat de nieuwe job ook fout.</td>
</tr>
<tr>
<td>18831</td>
<td>ER</td>
<td>Achtergrondverwerking</td>
<td>Extra velden in contract taak generatie en kunnen opnemen meer placeholders.</td>
</tr>
<tr>
<td>18546</td>
<td>ER</td>
<td>Achtergrondverwerking</td>
<td>Achtergrondproces helemaal alleen kunnen draaien op systeem.</td>
</tr>
<tr>
<td>Number</td>
<td>Type</td>
<td>Product</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>------</td>
<td>---------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>19794</td>
<td>PR</td>
<td>Achtergrondverwerking</td>
<td>Fout in achtergrondprocessen. Deze komen met de status K. Opgelost door package aan te passen.</td>
</tr>
<tr>
<td>19497</td>
<td>PR</td>
<td>Achtergrondverwerking</td>
<td>Meervoudig vertalen tekst in berichten indien nodig.</td>
</tr>
<tr>
<td>20121</td>
<td>ER</td>
<td>Achtergrondverwerking</td>
<td>Vermijd ORA-31626 / ORA-31633 / ORA-00955 / SYS. DBMS_SYS_ERROR / SS.KUP/$FT bij export door elke export job een andere naam te geven.</td>
</tr>
<tr>
<td>20398</td>
<td>PR</td>
<td>Achtergrondverwerking</td>
<td>net.sourceforge.jtds.jdbc.Driver Unable to load driver for database connection pool.</td>
</tr>
<tr>
<td>20706</td>
<td>ER</td>
<td>Achtergrondverwerking</td>
<td>Automatisch gegenereerde emails kunnen vertragen met een instelbare tijd.</td>
</tr>
<tr>
<td>20909</td>
<td>PR</td>
<td>Achtergrondverwerking</td>
<td>Starten job blijft wachten op invoer parameters.</td>
</tr>
<tr>
<td>20986</td>
<td>PR</td>
<td>Control</td>
<td>Invantive Control: Rand verdwint als er geen rijen zijn</td>
</tr>
<tr>
<td>1928</td>
<td>PR</td>
<td>Composition</td>
<td>Veld ice_comp_max_users kunnen bewerken in igen_Ice_all.</td>
</tr>
<tr>
<td>19043</td>
<td>ER</td>
<td>Control</td>
<td>Sorteervolgorde optioneel kunnen aangeven in picklist in Invantive Control (buiten sorteer volgorde in view zelf).</td>
</tr>
<tr>
<td>12917</td>
<td>ER</td>
<td>Control</td>
<td>Functionbeveiliging.</td>
</tr>
<tr>
<td>19430</td>
<td>ER</td>
<td>Control</td>
<td>Grootte in bytes van extension tonen in Control bij grid Extensions.</td>
</tr>
<tr>
<td>19766</td>
<td>PR</td>
<td>Control</td>
<td>Excel Control raakt voor synchroniseren niet uit editmode van een cel.</td>
</tr>
<tr>
<td>17402</td>
<td>PR</td>
<td>Control</td>
<td>Registreren pending changes blijft hangen bij 20k. DisconnectedContext foutmelding in MDA.</td>
</tr>
<tr>
<td>13092</td>
<td>PR</td>
<td>Control</td>
<td>System.InvalidOperationException: The Transaction object is not associated with the Connection object.</td>
</tr>
<tr>
<td>19411</td>
<td>ER</td>
<td>Control</td>
<td>DLL-s van extensies comprimeren voor bijvoorbeeld Control.</td>
</tr>
<tr>
<td>19537</td>
<td>ER</td>
<td>Control</td>
<td>Automatisch bepalen of een reporting view mogelijkheid tot toevoegen, bew erken, verw iederen heeft.</td>
</tr>
<tr>
<td>19501</td>
<td>PR</td>
<td>Control</td>
<td>Sessies Invantive Control w orden gedeeld terwijl dit niet mag.</td>
</tr>
<tr>
<td>19548</td>
<td>PR</td>
<td>Control</td>
<td>Bij verwijderen nummer in Invantive Control w ordt 0 terug gestuurd naar database i.p.v. null.</td>
</tr>
<tr>
<td>14240</td>
<td>ER</td>
<td>Control</td>
<td>Uitbreiden Publiceren Nieuw Model in Excel.</td>
</tr>
<tr>
<td>19494</td>
<td>PR</td>
<td>Control</td>
<td>Aameldscherm heeft geen labels afhankelijk van taal.</td>
</tr>
<tr>
<td>20886</td>
<td>PR</td>
<td>Control</td>
<td>Kan DLL-s niet gebruiken in rekenmodel en het rekenmodel w ordt weer tig Mb in plaats van 200 Kb.</td>
</tr>
<tr>
<td>20965</td>
<td>PR</td>
<td>Control</td>
<td>Kan Waarderingmodel niet publiceren naar nieuw model ivm resizen blokken en Excel tabellen.</td>
</tr>
<tr>
<td>18771</td>
<td>PR</td>
<td>Control</td>
<td>Rand verdwint als er geen feiten in de database staan.</td>
</tr>
<tr>
<td>20972</td>
<td>PR</td>
<td>Control</td>
<td>Publiceren naar nieuw model werkt niet voor gekoppelde blokken met feiten.</td>
</tr>
<tr>
<td>21366</td>
<td>PR</td>
<td>Control</td>
<td>Time-out w aarderingsmodel vastgoedproject na 2 minuten.</td>
</tr>
<tr>
<td>21354</td>
<td>PR</td>
<td>Document</td>
<td>Kan document niet bew erken ondanks voldoende rechten.</td>
</tr>
<tr>
<td>19595</td>
<td>PR</td>
<td>ERP Gateways</td>
<td>Vertaalbaar maken bubs#exact% packages.</td>
</tr>
<tr>
<td>20502</td>
<td>ER</td>
<td>ERP Gateways</td>
<td>Extra velden in interfaces voor koppeling met Active Directory personenlijsten.</td>
</tr>
<tr>
<td>19228</td>
<td>PR</td>
<td>Exact Online</td>
<td>Vreemd adres in Exact Online, namelijk adres van Contact ipv relatie.</td>
</tr>
<tr>
<td>20966</td>
<td>PR</td>
<td>Kopersfacturatie</td>
<td>Kan na upgrade de onderdelen lijst niet meer muteren. Speelt in meer onderdelen van kopersfacturatie.</td>
</tr>
<tr>
<td>20742</td>
<td>ER</td>
<td>Kopersfacturatie</td>
<td>kunnen filteren per projectentiteit.</td>
</tr>
<tr>
<td>19966</td>
<td>ER</td>
<td>Kopersfacturatie</td>
<td>Renteberekening volgens w ens Ballast Nedam (KAO - Koopaannemingsovereenkomst).</td>
</tr>
<tr>
<td>Number</td>
<td>Type</td>
<td>Product</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>------</td>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td>19910</td>
<td>ER</td>
<td>Kopersfacturatie</td>
<td>Vasthouden aantal dagen rente methode al gebruikt zodat rente berekening ook over meerdere periodes kan.</td>
</tr>
<tr>
<td>19703</td>
<td>ER</td>
<td>Kopersfacturatie</td>
<td>Procesunit statusovergangen: geboekt vlag tonen voor Kopersfacturatie.</td>
</tr>
<tr>
<td>19861</td>
<td>PR</td>
<td>Kopersfacturatie</td>
<td>Proces status historie toont te veel informatie.</td>
</tr>
<tr>
<td>20069</td>
<td>ER</td>
<td>Kopersfacturatie</td>
<td>Naam betalingsschema toevoegen bij fout in bubs#tak_uni_split_for_payment_schedule.</td>
</tr>
<tr>
<td>20510</td>
<td>ER</td>
<td>Kopersfacturatie</td>
<td>Meer mogelijkheden om het contractnummer voor procesunits in de facturatie te genereren.</td>
</tr>
<tr>
<td>19960</td>
<td>ER</td>
<td>Kopersfacturatie</td>
<td>Bankgegevens voor factuurprint kopersfacturatie (BIC, naam bank).</td>
</tr>
<tr>
<td>20033</td>
<td>ER</td>
<td>Kopersfacturatie</td>
<td>Kunnen registreren kostenplaats en kostensoort op Artikel net zoals grootboek code voor boekingen. Optioneel op Unit. T.b.v. kopersfacturatie.</td>
</tr>
<tr>
<td>21307</td>
<td>PR</td>
<td>Kopersfacturatie</td>
<td>Zoeken naar project in kopersfacturatie toont leeg scherm.</td>
</tr>
<tr>
<td>21235</td>
<td>PR</td>
<td>Outlook</td>
<td>ORA-01461 bij sturen email.</td>
</tr>
<tr>
<td>21312</td>
<td>PR</td>
<td>Outlook</td>
<td>Prijslijstregels icon bij Unit opvragen heeft w itte achtergrond.</td>
</tr>
<tr>
<td>20636</td>
<td>ER</td>
<td>Outlook</td>
<td>Google like zoeken in applicaties.</td>
</tr>
<tr>
<td>21350</td>
<td>PR</td>
<td>Outlook</td>
<td>Ontstaan foutieve di-s in distribute hoofdmap voorkomen.</td>
</tr>
<tr>
<td>21395</td>
<td>ER</td>
<td>Outlook</td>
<td>Performance tuning Summaries.</td>
</tr>
<tr>
<td>20658</td>
<td>ER</td>
<td>Outlook</td>
<td>Queries bij Outlook alleen afvuren als iemand ook echt met Outlook w erk.</td>
</tr>
<tr>
<td>21352</td>
<td>PR</td>
<td>Outlook</td>
<td>Performance uren synchronisatie verhogen.</td>
</tr>
<tr>
<td>20968</td>
<td>PR</td>
<td>Outlook</td>
<td>Profielopties error als je op Cancel drukt bij aanmelden op OLA.</td>
</tr>
<tr>
<td>20422</td>
<td>ER</td>
<td>Outlook, Control</td>
<td>Ook registreren van fouten in een Microsoft client in de database.</td>
</tr>
<tr>
<td>17815</td>
<td>PR</td>
<td>Outlook, Web</td>
<td>Kan niet alle projecten zien in query.</td>
</tr>
<tr>
<td>20006</td>
<td>ER</td>
<td>Outlook, Web</td>
<td>Alle projecten zien rechten kunnen beperken tot specifieke rapportage groep.</td>
</tr>
<tr>
<td>19905</td>
<td>ER</td>
<td>Outlook, Web</td>
<td>Moeilijke standaard w achtw orden voor system gebruiker.</td>
</tr>
<tr>
<td>19543</td>
<td>PR</td>
<td>Outlook, Web</td>
<td>Melding dalpre1099 Gebruiker niet gekoppeld al geven bij het aanmelden in plaats van database sessie maken.</td>
</tr>
<tr>
<td>2635</td>
<td>ER</td>
<td>Outlook, Web</td>
<td>Koppeling processen met kostensoort en contract.</td>
</tr>
<tr>
<td>8745</td>
<td>PR</td>
<td>Outlook, Web</td>
<td>ORA-07445 in build 40 door bug in Oracle's CLOB implementatie &quot;klassificatie reeks&quot;.</td>
</tr>
<tr>
<td>17505</td>
<td>ER</td>
<td>Outlook, Web</td>
<td>Demo data uitbreiden t.b.v. automatisch testen softw are.</td>
</tr>
<tr>
<td>18916</td>
<td>ER</td>
<td>Outlook, Web</td>
<td>Mooier opmaken handboek.</td>
</tr>
<tr>
<td>18958</td>
<td>ER</td>
<td>Outlook, Web</td>
<td>Frans vertaling.</td>
</tr>
<tr>
<td>18762</td>
<td>ER</td>
<td>Outlook, Web</td>
<td>Veld Toelichting op tvd, gvd en vdd.</td>
</tr>
<tr>
<td>19454</td>
<td>ER</td>
<td>Outlook, Web</td>
<td>Veld Naam in Persoon wordt niet goed gevuld door aanvullende bedrijfsgels.</td>
</tr>
<tr>
<td>17529</td>
<td>ER</td>
<td>Outlook, Web</td>
<td>Datumformaat niet meer hard coderen.</td>
</tr>
<tr>
<td>18946</td>
<td>PR</td>
<td>Outlook, Web</td>
<td>Licentie staat het verlagen van het aantal gebruikte licenties toe.</td>
</tr>
<tr>
<td>20950</td>
<td>PR</td>
<td>Outlook, Web</td>
<td>Wijzigen/verwijderen uren: w ordt niet gekeken naar rol voor onbeperkt w ijzigen.</td>
</tr>
<tr>
<td>20594</td>
<td>ER</td>
<td>Outlook, Web</td>
<td>Nationaliteit van persoon kunnen registreren.</td>
</tr>
<tr>
<td>20596</td>
<td>ER</td>
<td>Outlook, Web</td>
<td>Registratie LDAP account bij persoon t.b.v. ontdubbeling.</td>
</tr>
<tr>
<td>20844</td>
<td>ER</td>
<td>Outlook, Web</td>
<td>Extra velden op proces, uur en procesunit om de verwachte eenheds verkoopprijs vast te kunnen leggen. Dient gevuld te w orden door aanvullende bedrijfsgels.</td>
</tr>
<tr>
<td>19195</td>
<td>ER</td>
<td>Outlook, Web</td>
<td>Datatype van Gew icht bij organisatierelaties veranderen in decimal.</td>
</tr>
<tr>
<td>20476</td>
<td>ER</td>
<td>Outlook, Web</td>
<td>Langer slaapn als aanmelden niet lukt om zodoende hackpogingen te frustreren.</td>
</tr>
<tr>
<td>20504</td>
<td>ER</td>
<td>Outlook, Web</td>
<td>Voor kopersfacturatie extra mijlpalen toevoegen aan verkoopkans t.b.v. notariele akte.</td>
</tr>
<tr>
<td>18614</td>
<td>ER</td>
<td>Outlook, Web</td>
<td>Vasthouden toelichting en eerste/laatste ervaring bij persoonlijke vaardigheden.</td>
</tr>
<tr>
<td>19866</td>
<td>ER</td>
<td>Outlook, Web</td>
<td>Iconanje voor procesnotitie categorie.</td>
</tr>
<tr>
<td>20018</td>
<td>ER</td>
<td>Outlook, Web</td>
<td>Vasthouden w anneer een concept factuurregel voor het laatst geexporteerd en/ of geaccepteerd is.</td>
</tr>
<tr>
<td>20312</td>
<td>ER</td>
<td>Outlook, Web</td>
<td>Veld Auteur kunnen opgeven en w ijzigen bij Procesnotitie in web en OLA.</td>
</tr>
<tr>
<td>20470</td>
<td>ER</td>
<td>Outlook, Web</td>
<td>RSS adres voor personen en organisaties.</td>
</tr>
<tr>
<td>20708</td>
<td>PR</td>
<td>Outlook, Web</td>
<td>Uitschakelen dat je documenten kunt muteren bij gesloten processen e/o projecten.</td>
</tr>
<tr>
<td>Number</td>
<td>Type</td>
<td>Product</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>------</td>
<td>--------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>20709</td>
<td>PR</td>
<td>Outlook, Web</td>
<td>Je kunt de projectcode wijzigen van een proces dat afgesloten is.</td>
</tr>
<tr>
<td>20228</td>
<td>ER</td>
<td>Outlook, Web</td>
<td>Auteur op Procesnotities t.b.v. dashboarding.</td>
</tr>
<tr>
<td>20255</td>
<td>ER</td>
<td>Outlook, Web</td>
<td>Persoon - persoon relaties.</td>
</tr>
<tr>
<td>17568</td>
<td>ER</td>
<td>Outlook, Web</td>
<td>Scherm conceptfactuurregels uitbreiden met nieuw e velden voor Kopersfacturatie vastgoed.</td>
</tr>
<tr>
<td>20903</td>
<td>PR</td>
<td>Outlook</td>
<td>12345 invoeren cursor verschuift in Invantive for Outlook.</td>
</tr>
<tr>
<td>20503</td>
<td>ER</td>
<td>Outlook</td>
<td>Iconmpjes in summary scherm bij telefoon, website e.d.</td>
</tr>
<tr>
<td>20511</td>
<td>ER</td>
<td>Outlook</td>
<td>Extra kader om pasfoto en organisatie plaatjes in detailscherm.</td>
</tr>
<tr>
<td>20249</td>
<td>ER</td>
<td>Outlook</td>
<td>Object Reference not set to an instance of an object in UnitEigenschapwaarden Toevoegen.</td>
</tr>
<tr>
<td>17137</td>
<td>ER</td>
<td>Outlook</td>
<td>Macht elk rapporten ook vanuit Outlook kunnen opvragen, zowel algemeen als vanuit specifieke schermen zoals Projecten en Projectbudgetten.</td>
</tr>
<tr>
<td>19404</td>
<td>PR</td>
<td>Outlook</td>
<td>Project Bew erken scherm volgorde velden anders dan w eb versie.</td>
</tr>
<tr>
<td>19418</td>
<td>ER</td>
<td>Outlook</td>
<td>Mooiere foutmelding als plaatje ophaal niet lukt uit nieuw ststream.</td>
</tr>
<tr>
<td>19456</td>
<td>PR</td>
<td>Outlook</td>
<td>Unit Eigenschapwaarden Bew erken geeft Artikkeligenschap fouten.</td>
</tr>
<tr>
<td>17177</td>
<td>ER</td>
<td>Outlook</td>
<td>Kunnen zoeken op betrokkenheid bij een proces.</td>
</tr>
<tr>
<td>17245</td>
<td>ER</td>
<td>Outlook</td>
<td>In plan scherm rekening houden met vaardigheden van persoon en benodigde vaardigheden.</td>
</tr>
<tr>
<td>18181</td>
<td>ER</td>
<td>Outlook</td>
<td>Icoons in de menubalk van Vision/Estate.</td>
</tr>
<tr>
<td>18192</td>
<td>ER</td>
<td>Outlook</td>
<td>Mogelijk maken om ContractBudget en ContractTaakGeneratie te bew erken via Toolstrips.</td>
</tr>
<tr>
<td>18399</td>
<td>ER</td>
<td>Outlook</td>
<td>Vanuit Projectoverzicht - Openen Kasstroomprojectje met Details en Dagdetails.</td>
</tr>
<tr>
<td>18492</td>
<td>ER</td>
<td>Outlook</td>
<td>Kunnen zoeken ook op categorie bij Recentie Items.</td>
</tr>
<tr>
<td>18620</td>
<td>ER</td>
<td>Outlook</td>
<td>Picklists moeten in het Nederlands, nu Engels.</td>
</tr>
<tr>
<td>19292</td>
<td>ER</td>
<td>Outlook</td>
<td>Generaliseren DropDown n menu's bij toevloeg menu's.</td>
</tr>
<tr>
<td>19508</td>
<td>ER</td>
<td>Outlook</td>
<td>Op Organisatie kunnen zoeken ook bij betrokkenheden.</td>
</tr>
<tr>
<td>19520</td>
<td>ER</td>
<td>Outlook</td>
<td>Tonen label van procesunitstatus in scherm procesunit statusovergangen.</td>
</tr>
<tr>
<td>18254</td>
<td>PR</td>
<td>Outlook</td>
<td>Bij verw erken document archiveren met zelfde naam en tijdstip ORA-00001 fout</td>
</tr>
<tr>
<td>18482</td>
<td>PR</td>
<td>Outlook</td>
<td>Vertalingen OLA Configuratiescherm w orden niet geladen bij installatie.</td>
</tr>
<tr>
<td>18950</td>
<td>PR</td>
<td>Outlook</td>
<td>Vroegtijdig afbreken error: ORA-20163: The module 'Invantive® Control (20121.0.205.2937 COD)' has not been certified for use with this version of Invantive Producer. Please contact your system administrator.</td>
</tr>
<tr>
<td>19034</td>
<td>PR</td>
<td>Outlook</td>
<td>Openen van één document, zorgt dat alle documenten in grid geopend w orden</td>
</tr>
<tr>
<td>19500</td>
<td>PR</td>
<td>Outlook</td>
<td>Aanmaken niet Organisatie. Selecteren verkoopvoorwaarden laat nu inkoopvoorwaarden zien.</td>
</tr>
<tr>
<td>19544</td>
<td>PR</td>
<td>Outlook</td>
<td>Bij reply w ordt originele mail overschreven --&gt; niet gew enst.</td>
</tr>
<tr>
<td>19580</td>
<td>PR</td>
<td>Outlook</td>
<td>Outlook neemt veel geheugen in gebruik en geeft foutmelding: Parameter is not valid.</td>
</tr>
<tr>
<td>19936</td>
<td>PR</td>
<td>Outlook</td>
<td>Grote knoppen zoals &quot;Assign association&quot; w erken niet meer bij mail</td>
</tr>
<tr>
<td>19488</td>
<td>PR</td>
<td>Outlook</td>
<td>Verkeerde picklist op Projectfase: laat ook ongeldige vervolgstatussen zien.</td>
</tr>
<tr>
<td>19636</td>
<td>PR</td>
<td>Outlook</td>
<td>Archiveren als document geeft bij zoeken naar Herkomen foutmelding en vervolgens leeg zoekscherm.</td>
</tr>
<tr>
<td>10285</td>
<td>ER</td>
<td>Outlook</td>
<td>Meten prestaties netw erk verbinding met database.</td>
</tr>
<tr>
<td>20656</td>
<td>ER</td>
<td>Outlook</td>
<td>Autorisatie op mail / note / kalender item w el of niet tonen Invantive functionaliteit.</td>
</tr>
<tr>
<td>20896</td>
<td>ER</td>
<td>Outlook</td>
<td>Grijze knoppen w eghalen in OLA e.d. als iemand geen rechten heeft.</td>
</tr>
<tr>
<td>20907</td>
<td>PR</td>
<td>Outlook</td>
<td>Processen: H i j vult ook naam bij melder in als die persoon niet voorkomt bij Melders o.b.v. afzender email.</td>
</tr>
<tr>
<td>21251</td>
<td>ER</td>
<td>Outlook</td>
<td>Deepssearch en maxhits opgeven bij snel zoeken.</td>
</tr>
<tr>
<td>21278</td>
<td>PR</td>
<td>Outlook</td>
<td>Filter prijs component vertoont lege regels.</td>
</tr>
<tr>
<td>21310</td>
<td>PR</td>
<td>Outlook</td>
<td>Duidelijke melding als URL niet gedownload kan w orden met plaatje.</td>
</tr>
<tr>
<td>20612</td>
<td>ER</td>
<td>Outlook, Web</td>
<td>Organisatievelden: DUNS (Dun &amp; Bradstreet), Graydon en RSIN nummer t.b.v. makkelijker herkennen organisaties.</td>
</tr>
<tr>
<td>20614</td>
<td>ER</td>
<td>Outlook, Web</td>
<td>Bij klasificaties w aardes en getallen kunnen registreren, bijvoorbeeld voor relatie naar meerdere ERP administraties of omzetcijfers per jaar.</td>
</tr>
<tr>
<td>20669</td>
<td>ER</td>
<td>Outlook, Web</td>
<td>Verplichten dat prijs opgegeven w ordt voor bepaalde units bij gebruik op een proces t.b.v. generieke factuirtens.</td>
</tr>
<tr>
<td>20714</td>
<td>ER</td>
<td>Outlook, Web</td>
<td>Proxy voor kunnen verbinding naar Basware e.d.</td>
</tr>
<tr>
<td>Number</td>
<td>Type</td>
<td>Product</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>------</td>
<td>------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>20775</td>
<td>ER</td>
<td>Outlook, Web</td>
<td>Relatie tussen BTW code en grootboek kaart waar de boekingen op terecht zouden moeten komen (voor maatwerk accounting package integratie).</td>
</tr>
<tr>
<td>20776</td>
<td>ER</td>
<td>Outlook, Web</td>
<td>Persoon alleen kan registreren binnen w elke kostenplaats hij valt.</td>
</tr>
<tr>
<td>20956</td>
<td>ER</td>
<td>Outlook, Web</td>
<td>Kopersfacturatie: datum start bouw + technische oplevering.</td>
</tr>
<tr>
<td>21285</td>
<td>PR</td>
<td>Outlook, Web</td>
<td>Heropenen gesloten processen niet mogelijk door takatri1329.</td>
</tr>
<tr>
<td>21287</td>
<td>PR</td>
<td>Outlook, Web</td>
<td>Gewenste starttijd wordt in het engels aangegeven in het scherm Achtergrondprocessen.</td>
</tr>
<tr>
<td>21288</td>
<td>PR</td>
<td>Outlook, Web</td>
<td>gbrlij3901: Kan Persoon Stefan de Vries niet vinden.</td>
</tr>
<tr>
<td>20772</td>
<td>ER</td>
<td>Producer</td>
<td>Toevoegen aantal vrije kolommen als parameter op applicatie (default is nu 10).</td>
</tr>
<tr>
<td>19663</td>
<td>ER</td>
<td>Producer</td>
<td>Taalonaafhankelijk vlag bij vertalingen en glossary terms.</td>
</tr>
<tr>
<td>19718</td>
<td>ER</td>
<td>Producer</td>
<td>SearchBaseForm, SearchBase en SearchPanelBase maken voor vereenvoudiging zoekschermen.</td>
</tr>
<tr>
<td>20138</td>
<td>ER</td>
<td>Producer</td>
<td>Generatie screenshots en health checks schermen.</td>
</tr>
<tr>
<td>19852</td>
<td>ER</td>
<td>Producer</td>
<td>Ook additional w hier clause van eerste view element kunnen gebruiken.</td>
</tr>
<tr>
<td>18427</td>
<td>ER</td>
<td>Producer</td>
<td>Grids kunnen bewerken.</td>
</tr>
<tr>
<td>19651</td>
<td>PR</td>
<td>Producer</td>
<td>Bouwunits knopen in Kopersfacturatie versieren niet altijd juist.</td>
</tr>
<tr>
<td>18370</td>
<td>PR</td>
<td>Producer</td>
<td>Vertaalgkaal maken aanmeldschermen in O9.</td>
</tr>
<tr>
<td>18790</td>
<td>PR</td>
<td>Producer</td>
<td>Overschakelen van exp op expdp. Exp niet meer ondersteund vanaf 11g R2.</td>
</tr>
<tr>
<td>19390</td>
<td>PR</td>
<td>Producer</td>
<td>Loading... w ordt getoond i.p.v. de proces status lijst.</td>
</tr>
<tr>
<td>19251</td>
<td>PR</td>
<td>Producer</td>
<td>Tekst in rapporten w orden niet bold geladen in Arial Unicode.</td>
</tr>
<tr>
<td>19005</td>
<td>ER</td>
<td>Producer</td>
<td>Moeilijke standaard w acht woorden voor systemgebruiker.</td>
</tr>
<tr>
<td>18590</td>
<td>ER</td>
<td>Producer</td>
<td>DetailsEditBase generiek maken.</td>
</tr>
<tr>
<td>18782</td>
<td>ER</td>
<td>Producer</td>
<td>Blog tonen bij aanmelden in OLA, ECA, QT, Studio, w eb.</td>
</tr>
<tr>
<td>18503</td>
<td>ER</td>
<td>Producer</td>
<td>Web service gateway werkt maken voor Autodesk Revit. Autodesk Revit is meer.net dan Microsoft Office producten.</td>
</tr>
<tr>
<td>18493</td>
<td>ER</td>
<td>Producer</td>
<td>Dataloos rapport uitbreiden met toegevoegde velden.</td>
</tr>
<tr>
<td>19057</td>
<td>PR</td>
<td>Producer</td>
<td>Omzetten bew erkschermen naar nieuw e DetailsEditBase.</td>
</tr>
<tr>
<td>19836</td>
<td>PR</td>
<td>Producer</td>
<td>Afsplitsen schermen Outlook add-in schermen naar aparte assembly t.b.v. genereren schermen (verminderen afhankelijkheden Outlook)</td>
</tr>
<tr>
<td>19570</td>
<td>PR</td>
<td>Producer</td>
<td>Ondersteuning decimale scheider / groeps karakter.</td>
</tr>
<tr>
<td>19406</td>
<td>PR</td>
<td>Producer</td>
<td>Formaat van numerieke velden w ordt niet goed w eergegeven.</td>
</tr>
<tr>
<td>19421</td>
<td>ER</td>
<td>Producer</td>
<td>Disconnecten mogelijk maken, plus opruim en verbindingen.</td>
</tr>
<tr>
<td>19436</td>
<td>PR</td>
<td>Producer</td>
<td>Omzetten summary schermen naar nieuw e methode.</td>
</tr>
<tr>
<td>19437</td>
<td>ER</td>
<td>Producer</td>
<td>Nieuwe (RSS) kunnen tonen in .net applicaties t.b.v. bruikbaarheid.</td>
</tr>
<tr>
<td>18445</td>
<td>ER</td>
<td>Producer</td>
<td>Summaries om bouwen naar summarybase.</td>
</tr>
<tr>
<td>20454</td>
<td>ER</td>
<td>Producer</td>
<td>Verbetere cache mechanisme voor w ebservicenl.nl.</td>
</tr>
<tr>
<td>20163</td>
<td>ER</td>
<td>Producer</td>
<td>Utfaseren Microsoft .net Oracle Data Provider voor ondersteuning XMLTYPE.</td>
</tr>
<tr>
<td>20589</td>
<td>PR</td>
<td>Producer</td>
<td>Hoofdletterongevolg zoeken in .net datalag.</td>
</tr>
<tr>
<td>19388</td>
<td>PR</td>
<td>Producer</td>
<td>In .net frameork gaat bepalen geselecteerde regel in tabel niet goed.</td>
</tr>
<tr>
<td>20745</td>
<td>ER</td>
<td>Producer</td>
<td>Verbindingsecontrole voor snel verbinding opbouwen en niet meer via ping maar via http om irrelevant firewall al blokkerend over te slaan.</td>
</tr>
<tr>
<td>20892</td>
<td>ER</td>
<td>Producer</td>
<td>Negatieve getallen overal kunnen invoeren - ook nodig voor kopersfacturatie.</td>
</tr>
<tr>
<td>20094</td>
<td>ER</td>
<td>Producer</td>
<td>Verwijderen 'verplichte' auditkolommen zorgt voor niet kunnen genereren .NET code.</td>
</tr>
<tr>
<td>20144</td>
<td>ER</td>
<td>Producer</td>
<td>XMLType ondersteuning door Invantive Producer</td>
</tr>
<tr>
<td>20952</td>
<td>PR</td>
<td>Producer</td>
<td>Na time-out (?) w omservice krijg je als je verder w erkt in OLA een &quot;Object reference not set to an instance of an object&quot;.</td>
</tr>
<tr>
<td>20252</td>
<td>ER</td>
<td>Producer</td>
<td>Help toevoegen aan Kopersfacturatie en andere add-ins op Invantive voor Outlook.</td>
</tr>
<tr>
<td>21273</td>
<td>PR</td>
<td>Producer</td>
<td>PL/SQL: numerieke fout of fout in w aarde: tekenstringbuffer is te klein in I TGEN_C A C H E .</td>
</tr>
<tr>
<td>20973</td>
<td>PR</td>
<td>Producer</td>
<td>Slimmer bepalen te gebruiken instellingenbestand settings.xml.</td>
</tr>
<tr>
<td>20980</td>
<td>PR</td>
<td>Producer</td>
<td>Settings.xml wordt niet altijd gevonden in lokale cache als VPN d o w n is.</td>
</tr>
<tr>
<td>19674</td>
<td>ER</td>
<td>Query Tool</td>
<td>QueryTool: Schermen maken voor vragen naar Bind variabelen zoals in andere pakketten.</td>
</tr>
<tr>
<td>19553</td>
<td>ER</td>
<td>Query Tool</td>
<td>In/uitschakelbare regelovergang.</td>
</tr>
<tr>
<td>20000</td>
<td>ER</td>
<td>Query Tool</td>
<td>Bestanden met query's kunnen openen in het DMS van uit het Query Tool.</td>
</tr>
<tr>
<td>19332</td>
<td>PR</td>
<td>Query Tool</td>
<td>Processen Tabblad in zoekscherm generereer fout.</td>
</tr>
<tr>
<td>19694</td>
<td>ER</td>
<td>Query Tool</td>
<td>Oracle trace inbouwen en in QueryTool.</td>
</tr>
<tr>
<td>Number</td>
<td>Type</td>
<td>Product</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>------</td>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td>17495</td>
<td>ER</td>
<td>Query Tool</td>
<td>Table selector in query tool.</td>
</tr>
<tr>
<td>20722</td>
<td>ER</td>
<td>Rapporten</td>
<td>PDF w eergeven ook als er geen uitoer is van een rapport.</td>
</tr>
<tr>
<td>18499</td>
<td>ER</td>
<td>Rapporten</td>
<td>Toevoegen functieparameters op alle rapporten.</td>
</tr>
<tr>
<td>19876</td>
<td>ER</td>
<td>Rapporten</td>
<td>Upgrade naar JasperReports 4.6.0.</td>
</tr>
<tr>
<td>20836</td>
<td>ER</td>
<td>Rapporten</td>
<td>Upgrade naar JasperReport 4.8.0.</td>
</tr>
<tr>
<td>19134</td>
<td>ER</td>
<td>Rapporten</td>
<td>Rapportparameters onderdrukken functieparameters op rapport pagina.</td>
</tr>
<tr>
<td>18678</td>
<td>ER</td>
<td>Rapporten</td>
<td>Controle methode voor parameters op functies.</td>
</tr>
<tr>
<td>20967</td>
<td>ER</td>
<td>Rapporten</td>
<td>Net-nette opmaak errors bij opstarten rapport.</td>
</tr>
<tr>
<td>20322</td>
<td>FR</td>
<td>Studio</td>
<td>Juiste icoontje op executable.</td>
</tr>
<tr>
<td>20323</td>
<td>ER</td>
<td>Studio</td>
<td>Invantive.Producer.Studio.exe kunnen starten vanaf de netw erkschijf z:; ook zonder capsolicy te gebruiken.</td>
</tr>
<tr>
<td>20330</td>
<td>ER</td>
<td>Studio</td>
<td>Icoonjes voor mappen in Studio.</td>
</tr>
<tr>
<td>19117</td>
<td>ER</td>
<td>Studio</td>
<td>Hernoemen velden voor Invantive Studio.</td>
</tr>
<tr>
<td>19498</td>
<td>ER</td>
<td>Studio</td>
<td>Vullen client_identifier vanuit *.session.bod voor analyse (o.a. w eb-service).</td>
</tr>
<tr>
<td>19622</td>
<td>ER</td>
<td>Studio</td>
<td>Glossaries definieren in Invantive Producer voor definities, woordenlijsten e.d.</td>
</tr>
<tr>
<td>19950</td>
<td>ER</td>
<td>Studio</td>
<td>Relaties genereren in.net voor genereren schermen.</td>
</tr>
<tr>
<td>20333</td>
<td>ER</td>
<td>Studio</td>
<td>Juist vullen middelste kolom.</td>
</tr>
<tr>
<td>20334</td>
<td>ER</td>
<td>Studio</td>
<td>Add en Delete knoppen.</td>
</tr>
<tr>
<td>20336</td>
<td>ER</td>
<td>Studio</td>
<td>Lijst velden in eigenschappendeel niet alfabetisch sorteren maar functioneel.</td>
</tr>
<tr>
<td>20445</td>
<td>ER</td>
<td>Studio</td>
<td>Raadjes in meerdere resoluties toevoegen.</td>
</tr>
<tr>
<td>20078</td>
<td>ER</td>
<td>Tw infield</td>
<td>Koppeling Tw infield - Invantive.</td>
</tr>
<tr>
<td>21351</td>
<td>ER</td>
<td>Web</td>
<td>Ondersteuning Android brow sers.</td>
</tr>
<tr>
<td>21426</td>
<td>PR</td>
<td>Web</td>
<td>Sluit icoontje w erkt w el op IE 9 en Firefox, maar toont geen kruisje.</td>
</tr>
<tr>
<td>21368</td>
<td>PR</td>
<td>Web</td>
<td>Na aanklikken factuurregel is popup niet w eg te krijgen.</td>
</tr>
<tr>
<td>20982</td>
<td>PR</td>
<td>Web</td>
<td>Annuleren knop in Zoeken en Opvoeren / Bew erken popup ipv er buiten klikken. Er buiten klikken mag niks meer doen.</td>
</tr>
<tr>
<td>20450</td>
<td>ER</td>
<td>Web</td>
<td>Ont erpen icons voor Invantive Vision op iPad/iPhone.</td>
</tr>
<tr>
<td>18858</td>
<td>ER</td>
<td>Web</td>
<td>Zoeken via integers met een format (SEQ) w erkt bij sommige locales niet.</td>
</tr>
<tr>
<td>19291</td>
<td>ER</td>
<td>Web</td>
<td>Tonen toelichting in scherm Rolautorisaties.</td>
</tr>
<tr>
<td>19890</td>
<td>ER</td>
<td>Web</td>
<td>Upgrade naar Premium Pack 2 van H&amp;M.</td>
</tr>
<tr>
<td>20238</td>
<td>ER</td>
<td>Web</td>
<td>Transparantie in alle icoontjes.</td>
</tr>
<tr>
<td>20146</td>
<td>ER</td>
<td>Web</td>
<td>Upgrade CKEditor naar versie 3.6.4: controle op spelling, editor readonly kunnen maken vanuit custom javascript.</td>
</tr>
<tr>
<td>19365</td>
<td>PR</td>
<td>Web</td>
<td>Klikken op invantive logo om terug te gaan naar dashboard w erkt niet meer.</td>
</tr>
<tr>
<td>19392</td>
<td>PR</td>
<td>Web</td>
<td>Velden Beginstatus Oud/Nieuw Eindstatus Oud/Nieuw geven fouten in scherm Projectfase Overgangen.</td>
</tr>
<tr>
<td>19393</td>
<td>PR</td>
<td>Web</td>
<td>Wis filter w ist verkeerd in scherm Mijn Instellingen.</td>
</tr>
<tr>
<td>6810</td>
<td>PR</td>
<td>Web</td>
<td>Beperken mogelijke tekens in de bestandsnaam als je documenten upload via w eb fron- tend.</td>
</tr>
<tr>
<td>17356</td>
<td>PR</td>
<td>Web</td>
<td>Tekst valt buiten kader in Taken scherm</td>
</tr>
<tr>
<td>19302</td>
<td>PR</td>
<td>Web</td>
<td>Web: Paginering w ebfrontend neemt de op de pagina ingestelde rijen per pagina niet over, maar gebruikt alleen w aarde uit sessie.</td>
</tr>
<tr>
<td>19305</td>
<td>PR</td>
<td>Web</td>
<td>Insert knop w erkt niet op meerdere w eb forms</td>
</tr>
<tr>
<td>19848</td>
<td>PR</td>
<td>Web</td>
<td>Layout fouten in w eb schermen ftr_all en kps_all.</td>
</tr>
<tr>
<td>19462</td>
<td>PR</td>
<td>Web</td>
<td>Foumeling bij openen van scenario: ORA-01461: Kan een LONG-w aarde allen binden voor het invoegen van een LONG-kolom</td>
</tr>
<tr>
<td>19492</td>
<td>PR</td>
<td>Web</td>
<td>In bubs_tus_all ontbreken verplichte velden tus_begin_status_vlag en tus_eind_status_vlag</td>
</tr>
<tr>
<td>19575</td>
<td>PR</td>
<td>Web</td>
<td>Kalender bij tijdreizen w erkt niet.</td>
</tr>
<tr>
<td>20360</td>
<td>ER</td>
<td>Web</td>
<td>Scherm zoeken in het menu via de menu balk.</td>
</tr>
<tr>
<td>20361</td>
<td>ER</td>
<td>Web</td>
<td>Stylen nieuw e picklists.</td>
</tr>
<tr>
<td>20899</td>
<td>ER</td>
<td>Web</td>
<td>Projecten scherm: Performance picklist projectcluster directeur verhogen door er picklist van te maken.</td>
</tr>
</tbody>
</table>
Further:
New OLA screens.

Known major issues:
None.

Installation
• See Installation and Upgrade

New Features
• Grant rights to the new screens / reports.
• Configure new profile options.

Specialties
• None.

1.12.2 Release 2013 R1
Released: 14-12-2012 as 2013 release 1.
Invantive Producer: bXX.
Kettle: 4.4.0-stable
iReports: 4.8.0
Changes and bug fixes:

<table>
<thead>
<tr>
<th>Number</th>
<th>Type</th>
<th>Product</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2191 5</td>
<td>ER</td>
<td>Exact Online</td>
<td>In Exact Online het factuur email adres en per adres factuur verw erken, plus 35% volume reductie.</td>
</tr>
<tr>
<td>2191 6</td>
<td>ER</td>
<td>Exact Online, Reeleezee, Multivers</td>
<td>Kunnen opgeven patroon voor omschrijving op facturen uit Exact Online, Reeleezee en Multivers, bijvoorbeeld voor afdrukken factuurperiode.</td>
</tr>
<tr>
<td>2200 2</td>
<td>ER</td>
<td>Outlook</td>
<td>Meer dan 7.000 handles in Outlook na gebruik relaties bijwerken.</td>
</tr>
<tr>
<td>2159 9</td>
<td>PR</td>
<td>Outlook</td>
<td>Openen rapport w erdt niet duidelijk vanuit Outlook. Foutmelding is te vaag.</td>
</tr>
<tr>
<td>1717 7</td>
<td>ER</td>
<td>Outlook</td>
<td>Zoeken op betrokkenheid.</td>
</tr>
<tr>
<td>1782 9</td>
<td>ER</td>
<td>Outlook</td>
<td>Stuur mail aan meerdere personen / organisaties.</td>
</tr>
<tr>
<td>2180 2</td>
<td>PR</td>
<td>Outlook</td>
<td>Organisatie- en ProjectDetails geven foutmelding m.b.t. databron conversie vanuit Documentenlijst.</td>
</tr>
<tr>
<td>2183 6</td>
<td>PR</td>
<td>Outlook</td>
<td>Als bubs-ola-mail-sjabloon-bij-verzenden aan staat, dan verdwijnen in 2012R2 soms de inhoud van de mail.</td>
</tr>
<tr>
<td>2187 6</td>
<td>ER</td>
<td>Outlook</td>
<td>Via 1 functie in bubs_functies_v kun je toegang geven tot Budgetaanvragen.</td>
</tr>
<tr>
<td>2187 8</td>
<td>ER</td>
<td>Outlook</td>
<td>Lijst projecten bij zoeken beperken tot alleen de open projecten.</td>
</tr>
<tr>
<td>2188 6</td>
<td>ER</td>
<td>Outlook</td>
<td>Als je bij Selecteer Project een projectcode opgeeft die niet in het filter zit, dan svp een waar-enschuing geven. Nu w eet de gebruiker niet w at hij fout doet.</td>
</tr>
<tr>
<td>2212 2</td>
<td>PR</td>
<td>Outlook</td>
<td>Personen grid verdwint.</td>
</tr>
<tr>
<td>2211 6</td>
<td>PR</td>
<td>Outlook</td>
<td>LOV bij documentclassificaties opent verkeerde scherm Organisaties ipv Documenten</td>
</tr>
<tr>
<td>2212 5</td>
<td>ER</td>
<td>Outlook</td>
<td>Veld Contract tonen bij Proces. Ook kunnen invullen.</td>
</tr>
<tr>
<td>2213 9</td>
<td>PR</td>
<td>Outlook</td>
<td>Alleen gebruiker invullen bij Nieuw processen als Houder als die gebruiker ook houder kan zijn.</td>
</tr>
<tr>
<td>2086 2</td>
<td>ER</td>
<td>Outlook</td>
<td>In scherm Projecten en Processen ook foto’s van personen weergeven indien voorhanden.</td>
</tr>
<tr>
<td>2207 4</td>
<td>PR</td>
<td>Outlook</td>
<td>Licentie error van PDF visualizer als je previewt.</td>
</tr>
<tr>
<td>2061 4</td>
<td>ER</td>
<td>Outlook, Web</td>
<td>Bij classificaties w aardes en getallen kunnen registreren, bijvoorbeeld voor relatie naar meerdere ERP administraties of omzetcijfers per jaar.</td>
</tr>
<tr>
<td>2145 0</td>
<td>PR</td>
<td>Web</td>
<td>Opbrengstsoorten heeft geen Nieuw knop, ondanks rechten.</td>
</tr>
<tr>
<td>2148 7</td>
<td>PR</td>
<td>Web</td>
<td>Kan gebruiker niet toevoegen door &quot;Kon rijk om toe te voegen niet vinden.&quot;</td>
</tr>
<tr>
<td>2161 0</td>
<td>PR</td>
<td>Web</td>
<td>Procesdossier opvragen werkt niet door verkeerde URL bij iconen.</td>
</tr>
<tr>
<td>2148 6</td>
<td>PR</td>
<td>Web</td>
<td>Gemaakte en gefactureerde uren w eer toevoegen aan OLA Proces en Web bubs_tak_all.</td>
</tr>
<tr>
<td>2160 8</td>
<td>PR</td>
<td>Web</td>
<td>ORA-20163 Kan functieparameter niet vinden als rapport geopend wordt terwijl er andere URL parameters opgegeven zijn in de webfrontend.</td>
</tr>
<tr>
<td>2149 0</td>
<td>PR</td>
<td>Web</td>
<td>Autocomplete picklist heeft namen met spaties op het einde. Daardoor w erkt insert soms niet.</td>
</tr>
<tr>
<td>2158 2</td>
<td>PR</td>
<td>Web</td>
<td>Internal error! Can not find the element with ID null.</td>
</tr>
<tr>
<td>2159 1</td>
<td>PR</td>
<td>Web</td>
<td>Te lange bestandsnamen w eb frontend. Kan niet installeren sinds nieuw e frontend w eb.</td>
</tr>
<tr>
<td>2174 0</td>
<td>PR</td>
<td>Web</td>
<td>Wilt u de pagina verlaten en w ijzigingen kw jtrakken wordt onnodig vaak gevraagd.</td>
</tr>
<tr>
<td>Number</td>
<td>Type</td>
<td>Product</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>------</td>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td>2099</td>
<td>PR</td>
<td>Web</td>
<td>Alleen parameters tonen in web frontend die zichtbaar mogen zijn. In bubs_jpr_ins wordt hiermee al rekening gehouden.</td>
</tr>
<tr>
<td>2146</td>
<td>PR</td>
<td>Web</td>
<td>Invalid ID in lus variabele fout bij uitoeren rapporten (agg, pot, uot en kpe).</td>
</tr>
<tr>
<td>2161</td>
<td>PR</td>
<td>Web</td>
<td>Nieuw knop niet zichtbaar (o.a. in bubs_sct_all); Controleer andere schermen.</td>
</tr>
<tr>
<td>7451</td>
<td>ER</td>
<td>Web</td>
<td>Logistieke module.</td>
</tr>
<tr>
<td>2190</td>
<td>PR</td>
<td>Web</td>
<td>Tijdreizen werkt niet.</td>
</tr>
<tr>
<td>2193</td>
<td>ER</td>
<td>Web</td>
<td>Relatie op project naar BTW code zodat je voor onderwijsinstellingen ook per klantproject kunt opgeven wel/niet alles factureren met BTW.</td>
</tr>
<tr>
<td>2197</td>
<td>ER</td>
<td>Web</td>
<td>Filiaal kunnen opgeven bij een persoon in aanvulling op kamernummer.</td>
</tr>
<tr>
<td>2198</td>
<td>ER</td>
<td>Web</td>
<td>Standaard filteren achtergrondprocessen op aanvrager = huidige gebruiker.</td>
</tr>
<tr>
<td>2202</td>
<td>PR</td>
<td>Web</td>
<td>Getoonde klassificaties beperken tot degene die mogen op dit soort object.</td>
</tr>
<tr>
<td>2206</td>
<td>PR</td>
<td>Web</td>
<td>Standaard verkeerde ingangsdatum voor status op uren.</td>
</tr>
<tr>
<td>2207</td>
<td>ER</td>
<td>Web</td>
<td>Toevoegen knop bij Kasstroomprojecties.</td>
</tr>
<tr>
<td>2208</td>
<td>ER</td>
<td>Web</td>
<td>Workflow kunnen opgeven bij kasstroomprojecties.</td>
</tr>
<tr>
<td>2083</td>
<td>PR</td>
<td>Web</td>
<td>Vervangen dropdowns door Autocomplete Javascript</td>
</tr>
<tr>
<td>2147</td>
<td>PR</td>
<td>Web</td>
<td>Stuur metingen eindigde met gen-fetch-measurements niet aanw zig.</td>
</tr>
</tbody>
</table>

### Installation
- No specialties.

### Implementation
- No specialties.

## 2 Invantive Query Tool
With the Invantive Query Tool working with your data via SQL becomes easy. Invantive Producer makes it possible to edit a real-time data warehouse using SQL. Maintaining integrity and maintaining information security according to ISO 27002. The Invantive Query Tool is an addition to Invantive Producer and derived products such as Invantive Vision, Invantive Estate, Invantive Control and Invantive Composition.

With the Invantive Query Tool you can:
- Execute SQL-queries and request the results in a table.
- Immediately group, filter and sort the results in the table on the screen.
- Print the results or export them to Adobe PDF, Microsoft Excel or Microsoft XPS.
- Automate processes with assistance from Oracle PL/SQL (only in combination with Oracle RDBMS).
- Retrieve old queries from a file or from the list in the tab "History".
• Connect directly through a native connection for the concerned type database (for example Oracle SQL*Net for Oracle) or connect through the Invantive Webservice so that you do not have to install database-specific software on a work location.

• Supply the database user with a connection or connect to an already installed Invantive product with associated user codes.

• Retrieve the structure of a table or view.

• Request the output of dbms_output, itgen_output and itgen_log of an Oracle PL/SQL block (only in combination with Oracle RDBMS).

• Retrieve an execution plan ("query plan" or "explain plan") of an Oracle SQL query. (only in combination with Oracle RDBMS)

• Request the trajectory ("Oracle Trace") of a SQL statement (only in combination with Oracle RDBMS).

2.1 Learn SQL
More information on what SQL is and how it can be used can be found at: http://en.wikipedia.org/wiki/SQL.

The manual at http://sqlzoo.net also provides a good insight and in addition allows for interactive learning of how you can use SQL to retrieve, edit and create data.

2.2 Functioning
This paragraph describes the functioning of the Query Tool.

The Query Tool consists of two parts:

• The editor section.

• The output section.

In the following paragraph there are several examples of what you can do with the Invantive Query Tool:

2.2.1 Query Tool Examples
• The figure below shows the request by means of a SQL query, of persons grouped by organization.
Displaying the description of an object (using the F4 key). This corresponds to the Oracle function ‘Describe’. The figure below shows the data in the business object persons (bubs_gebruikers_v).
The result of the SQL query can be exported to Microsoft Excel, Adobe PDF, Microsoft XPS and can be printed on a printer.

The image shows the result of the SQL query in Microsoft Excel.

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The image shows the result of the SQL query in Adobe Acrobat.
2.2.2 Editor

In the editor you can execute queries. There are five types of SQL statements possible:

- Select.
- Insert.
- Update.
- Delete
- PL/SQL (Begin ... End, without line breaks and blank lines)

A possible transaction is immediately recorded at the end of the execution of the statement.

Menu File

Here queries can be opened, saved, saved under a different name and printed.

In addition, via 'Exit' the Query Tool can be closed.

Menu Editor
The ‘Editor’ menu contains all items with which you can edit the query text.

**Menu Editor**

Via ‘Run’ you can run the query. The results of the query are displayed in the Query Results tab in Query Output.

**Menu Database**
This menu consists of three specific database menu items:

SQL area: This menu item places the following query in the editor:

```
select *
from itgen_db_sqlarea_r
where 1=1
order by elapsed_time desc
```

Sessions: ?
Database session: ?

**Menu Help**

Using this menu the Help for the Query Tool can be requested as part of the Invantive Vision Help.

**Export Menu**

Using the Export tab, you can print the output of queries or export it to different formats.

### 2.2.3 Query-output

The query output can be started with the function key 'F9'.

If the editor contains a valid query this will lead to output in different tabs under the tab 'Output'.

#### 2.2.3.1 Query-results

Executing a query results in filling the tab Output with the records delivered by the query.
Also the number of rows and the execution time will be displayed.

2.2.3.2 DBMS-output

This tab includes the output of dbms_output.put_line statements (only in combination with Oracle RDBMS)

2.2.3.3 Explain Plan

The Explain Plan can be executed using the menu item 'Explain Plan' or using the key combination Ctrl+E:

The executing of 'Explain Plan' ensures the filling of the tab 'Explain Plan' with the rows which are completed by the 'Explain Plan' of Oracle:
In the tab, the way the query will be executed by Oracle is shown in tree form. With this the to be executed actions are in order of the ID, so from a branch with the deepest level back to the parent level and back to a related level; this is called 'Processing in Order'.

2.2.3.4 Trace
This tab contains the result of an Oracle trace (only in combination with Oracle RDBMS)

2.2.3.5 History executed queries
Executing a query ensures the filling of the tab history because the data of the last executed query is added.

As long as the Query Tool is open a record is added after each output.

2.3 Availability
The following Invantive products provide a user license of Invantive Query Tool:
- Invantive Estate for Outlook;
The Invantive Query Tool is also separately available and can be downloaded via the link: http://webservice.invantive.com/qt/publish.htm

2.4 System Requirements
To use Invantive Query Tool on your PC or terminal server you will need the following software including licenses:
- Microsoft .NET 4.5.
- Minimum 2 GB of internal memory.
- Screen resolution of 1280 x 1024 or higher.
- Invantive Webservice or local drivers.

Use on Mac, tablet or smartphone is not possible.

2.5 Installation
Perform the next steps to install Invantive Query Tool:
- Use an Internet browser to go to the link: http://webservice.invantive.com/qt/publish.htm. Then click 'Install', next save the file and execute it.
After installation, the following window will be shown. In this screen, you need to enter the location of the connection file. See Connections Settings for an explanation of the connection file. Select ‘OK’ to save your changes.
• Next comes the login screen. Next enter the username, password and connection and select 'OK'.

• In order to change the settings of Invantive Query Tool after installation, press 'Crtl' when starting up Invantive Query Tool.

### 2.6 Versions

This chapter describes the changes in the application per version.

#### 2.6.1 Release 2014 R1

Released: XX-XX-2014.

Invantive Producer: bXX.

Changes and bug fixes:

<table>
<thead>
<tr>
<th>Number</th>
<th>Type</th>
<th>Product</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1293</td>
<td>ER</td>
<td>Invantive Query Tool</td>
<td>dbms_output en explain plan in Query Tool</td>
</tr>
<tr>
<td>2171</td>
<td>PR</td>
<td>Invantive Query Tool</td>
<td>Describe werkt niet in Query Tool ondanks rechten op de functie itgen_querytool_describe.</td>
</tr>
<tr>
<td>1994</td>
<td>ER</td>
<td>Invantive Query Tool</td>
<td>Lijst meest recente documenten (stuk of 10) tonen in Bestandsmenu.</td>
</tr>
</tbody>
</table>
Installation
- No specialties.

Implementation
- No specialties.

3 Invantive Webservice
This chapter describes the possibilities of the Invantive Webservice.

3.1 Web services
Because of the technological changes and the mobility of employees more and more traditional work spaces are disappearing. Employees work at home more often or make use of travel time work time. Work processes like the making of financial reports or the start-up of a new project take place more and more outside of the office. For companies this means that work processes are assigned differently and should be optimized. To allow for the work processes to run as efficient and effective as possible it is required to have quick and safe access to the company network through the Internet.

Webservices make it possible for companies to organize work processes through the Internet even smarter. By providing access to the company network and applications using webservices, it is possible to coordinate and optimize processes from each location.

3.2 Advantages
The Invantive Webservice offers various advantages:

- The Invantive Webservice makes it easy to quickly and safely exchange data through the internet between various databases and services. For companies this means that the execution of financial calculations and the manufacturing and recording of contracts is available from every location. the Invantive Webservice allows different companies to work together more effective and more efficient within a project.

- That is because the Invantive Webservice simplifies the exchange of information between different parties within a project. The Invantive Webserve makes it possible to give partners - through http(s) - authorized access to applications and databases. The advantage of this is that existing applications and applications based on Invantive Producer can easily exchange data. This means that partners can use one application for the planning of projects, execution of complex calculation models and the registration of work hours. Using the Invantive Webservices the data can - depending on the security model - be retrieved and processed in the own administration. This makes it possible to provide multiple clients and/or relations quick and safe access to the company network with the Invantive Webservice.

- With the Invantive Webservice work processes can be organized even smarter and be optimized. The result is the more effective and efficient work on a project.

3.3 System Requirements
Client
To use Invantive Webservice on your PC or terminal server you will need the following software including licenses:

- Microsoft .NET 4.5.
- Minimum 2 GB of internal memory.
- Screen resolution of 1280 x 1024 or higher.

**On-Premises**

For the use of Invantive Webservice as server within the private network you will need (so-called "on-premises" use):

- Minimum of 4 Gb internal memory.
- Screen resolution of 1280 x 1024 or higher.
- Minimal 1 central processing unit for server use not older than 2 years.
- Drivers for the supported databases or own specific drivers for business applications.

**3.4 Concept**

With the Invantive Webservice Invantive applications and applications based on Invantive Producer can exchange data with databases and other services using the internet or the company network.

It is also possible to use these applications without Invantive Webservice, but for installations with more than one user this is strongly discouraged. With the Invantive Webservice it will take no time outside of the client installation to allow an extra user or PC to make use of a database; without the Invantive Webservice this will take considerably more time for each PC and/or user.

The exchange of data happens through webservies that use the so-called http and/or https protocol. Depending on the chosen security model you can exchange data with databases in the company network using the Invantive webservice both within the company network as well as on the internet from Invantive applications and applications based on Invantive Producer.

You can also - if authorized - exchange data with databases at various companies. With this you can easily collaborate with multiple clients and/or relations in an efficient manner, wherever you are and whenever you feel the need to. Every client and/or relation also has an own installation of the Invantive Webservice.

The Invantive Webservice works as follows:

- A user starts an application based on Invantive technology.
- The application will know automatically or hear from the user which connection is to be used with which user name and password.
- The connection are is retrieved in a list with available connections and the related (possible redundant) channels.
- On the basis of the retrieved preferences and availability a channel is chosen for communication.
- Through this channel a connection is established with the service provided by the webservice.
Data and requests are exchanged. If the connection drops, then the connection is automatically established again. A possible alternative channel for the connection is used if the desired channel is not available.

### 3.5 Database platforms
An installation of the Invantive Webservice consists of one or multiple installations of the Invantive Webservice programming. In addition to the programming you also need to indicate the connections to databases that can be used through this installation. These can at least be the following database platforms:

- Microsoft SQL Server
- Oracle RDBMS
- MySQL
- IBM DB2 UDB (Linux, Unix, Windows)

The actual choice of the database platform depends on which application you will be using. Some (company) applications only work on a portion of the database platforms.

The support of extra database platforms can be added by a system developer or ordered with Invantive.

Requests are routed to providers as soon as requests for data or actions arrive to the webserver. In the configuration file you can adjust in which order this happens (see image).

See also [Providers Configuration](#).

### 3.6 Redundance
For a higher availability you can install multiple installations of the Invantive Webservice programming. These installations can be located on one server or on multiple servers. With
multiple servers you ensure a better availability: even if a server breaks then the users can still keep on working (see image).

The redundance can be set in the settings.xml file. See also Connection configuration. As soon as a connection is no longer available the programming of your user will try to use a different available connection.

3.7 Installation
This element describes the installation of the Invantive Webservice and its components.

3.7.1 Invantive Webservice Programming
Execute following steps to make the Invantive Webservice available to the users.

- Install Microsoft IIS 7 or 8 including ASP.NET support.
- Install Microsoft .NET Framework version 4.5 or newer. In the Control Panel among the installed programs there will then be listed ‘Microsoft .NET Framework 4.5’.
- Copy invantive-webservice in the distribution to the folder that is known within Microsoft IIS, preferably ‘webservice’ within the folder of the application or alternatively c:\inetpub\wwwroot\invantive-webservice, c:\inetpub\wwwroot\<OMGEVING>-ws or (preferably) ENVI RONMENTDIR\webservice.
- Adjust settings.xml in this folder as described in settings.xml.sample.
- Start Microsoft IIS with ‘inetmgr’ or through Control Panel.
- Select ‘Properties’ from the folder.
- Convert the folder to application with an own application pool:

![Add Application Window]

- Set the application in for use of the application pool 'ASP.NET v4.0':

![Edit Application Pool Window]

- Set the standard page Service.ashx:
You can now test the web service by opening the page. You will receive output such as (123522):
I

ntative Webservice

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Service Service

You have created a service.

To test this service, you will need to create a client and use it to call the service. You can do this using the svcutil.exe tool from the command line:

```
svcutil.exe http://local/ws_ita_pbubs/Service.asmx
```

This will generate a configuration file and a code file that contains the client class. Add the two files to your client application and use the generated class.

C#:

```c-sharp
class Test
{
    static void Main()
    {
        ServiceClient client = new ServiceClient();
        // Use the 'client' variable to call operations on the service.
        // Always close the client.
        client.Close();
    }
}
```

Visual Basic:

```vbnet
Class Test
    Shared Sub Main()
        Dim client As ServiceClient = New ServiceClient()
        ' Use the 'client' variable to call operations on the service.
        ' Always close the client.
        client.Close()
    End Sub
End Class
```

3.7.2 Certificate

If you make use of https, then you need to submit a certificate (see also http://www.iis.net/learn/manage/configuring-security):

- Start MMC with 'Run'.
- Go to the File menu and select 'Add/Remove Snap-in'.
- Click on Certificates and click on 'Add'.
- Select 'Computer Account' and click on 'Next'.
- Select 'Local Computer' and click on 'Finish'.
- Select 'OK'.
- Click on 'Certificates (Local Computer)' in the middle part of the window.
- Click on the right on 'Personal'.
- Select 'All tasks' and then 'Import'.
- Set up the filter for 'Personal Information Exchange (*.pfx)'.
- Select the .pfx bestand as Personal Certificate.
- Enter the password.
- If desired you select the check box 'Mark this key as exportable.'.
- Allow automatic placement in the storage for the certificate based on the type.
- Select 'Finish'.
- Close the MMC.
- It is not necessary to save the settings of MMC.
• Start Microsoft IIS through 'inetmgr'.
• Click right on the website (usually 'Default Website').
• Go to 'Edit bindings'.
• Add a 'https' binding and choose the Friendly Name of the certificate that you have just imported.

3.7.3 Connection Configuration

To make a connection with an Invantive application or an application based on Invantive Producer there needs to be a file settings.xml with included within the configuration of the connection settings. This has to be an XML file with the same design as the example. The file can contain the configuration to connect with one or more servers.

If you start an Invantive-based application product for the first time the settings.xml file is searched for at multiple locations in succession:

• the installation folder containing setup.exe;
• from the installation folder a folder upwards;
• from the installation folder a folder up and the file folder in it;
• from the installation folder two folders up;
• from the installation folder two folders up and the file folder under it;
• from the installation folder three folders up;
• from the installation folder three folders up and the file folder under it;
• in the folder c:\ws.

If the settings.xml file can not be found, the user will be asked where the settings.xml file is located. The chosen location of the settings.xml file is remembered and used from that moment.

In the text below it is described how it works:

```xml
<?xml version="1.0" encoding="utf-8"?>
<!--
(C) 2004-2013 Invantive BV, the Netherlands (www.invantive.com).


Purpose:
Configuration of the Invantive Webservice and direct database connections available to client and the Invantive Webservice acting as a database client.

Explanation:
Connections are used to retrieve data from a database and to update the contents of databases.
This settings file can accommodate all settings for database and web service connections that are used by Invantive products.
This file contains a number of structured elements, explained further on.

Top level: the connection groups.
This is the root level of the settings file. It only contains connection groups.
```
Attributes:
* "default": The default connection. The format is 'group\connection'.
  the first connection with the given name will be used when the group element
  is omitted.
* "forceDefault": If true, only the default connection can be used. No other
  connection is
  eligible for selection based upon this settings.xml file. You can use for in-
  stance when you
  add a new default connection and you want to make sure everyone switches to
  the new connection,
  irrespective of what connection is currently used as default.

The group level:
This level defines a set of connections, logically grouped together. You are
free to choose the way of grouping.
Examples of logical manner of grouping: by customer, by environment (production,
test).

Attributes:
* "name": The name of the group.

The connection level:
This level defines an actual logical connection.
For example: Production environment Acme site.
Under this level, the actual transport mechanism and its settings can be defi-

The connection and associated failovers are tried when initially establishing
the connection and when reconnecting
after the provider detected a connection loss.
The elements of this level can consist of two types:
* physical connection (either an Invantive Webservice or direct database connec-
  tion);
* failovers.
All physical connections listed will be brought online during application use.

Attributes:
* "name": The name of the logical connection.

The webservice element:
This element defines a connection using the Invantive.Providers.Webservice pro-

der. This provider is capable of proxying database connections over HTTP/HTTPS. A
client
can connect to a database directly through a webservice, but a webservice can
route
this request also to another Invantive Webservice and so on.

Attributes:
* "url": the url of the Invantive Webservice.
* "encoding": the encoding to use.
  This will be passed as header on the request.
  Allowed values are: "binary" or "text". Default: binary. Use text for debug-
  ging purposes or with poor CPU.
* "compression": the compression method to use.
  This will be passed as header on the request. Allowed values are: "auto",
  "true" or "false". Default: "auto" (will set compression enabled)
Within a fast LAN network and/or with slow servers, we recommend no compressi-
on. In all other situations, we recommend
  compression to be enabled.

The database element:
This element defines a connection to a database using a provider
specific for that type of database.
Attributes:
* "connectionString": the ADO.NET connection string for the specified provider. You can specify Data Source, User Id and other settings.
* "provider": the name of the ADO.NET connection provider. For example: "Oracle.DataAccess.Client"

The failover level:
The failover level can define a list of database or webservice settings. It supplements the webservice/database element.
Connection settings defined in a failover can be used to have a failover connection when one connection cannot be established. This can be useful when relying on an internet connection or presence of a VPN tunnel.
Settings defined in this section will be evaluated one after another, starting top down.
When any of the failovers can be established, no other failovers will be tried.

Attributes:
* (none)

Examples:

This example illustrates a single connection. The software will sequentially try to:
* Connect to the 'authenticationServer' Active Directory server;
* Connect to one of the connections in the failover:
- First the database connection (when connection from the internal network or VPN);
- The first webservice connection;
- The second (or 'failover') webservice connection.

<connections default="Customer A\Production" forceDefault="false">
  <group name="Customer A">
    <connection name="Production">
      <database connectionString="Data Source=authenticationServer;User Id=USER-NAME;Password=THETHISPASS;Pooling=false" provider="Invantive.CustomerA.ActiveDirectory"/>
    </connection>
    <failover>
      <database connectionString="Data Source=localhost;User Id=USERNAME;Password=THETHISPASS;Pooling=false" provider="Oracle.DataAccess.Client"/>
      <webservice url="http://www.customer-a.com/ws/" encoding="binary" compression="true"/>
      <webservice url="http://failover.customer-a.com/ws/" encoding="binary" compression="true"/>
    </failover>
  </group>
</connections>

This example illustrates connections to different database platforms. The software will try to:
* Connect to the IBM DB2 UDB database when connection 'DB2' is selected;
* Connect to the Microsoft SQL Server database when connection 'SQLServer' is selected;
* Connect to the Oracle MySQL server when connection 'MySQL' is selected;
* Connect to the Oracle RDBMS server when connection 'Oracle' is selected;

<connections default="Customer A\Production" forceDefault="false">
  <group name="Customer A">
    <connection name="DB2">
      <database connectionString="Server=localhost;Database=THE_DATABASE;UID=USERNAME;PWD=PASSWORD;CurrentSchema=schema" provider="IBM.Data.DB2"/>
    </connection>
    <connection name="SQLServer">
      <database connectionString="Server=localhost;Database=THE_DATABASE;UID=USERNAME;PWD=PASSWORD;CurrentSchema=schema" provider="Oracle.DataAccess.Client"/>
      <webservice url="http://example.com/ws/" encoding="binary" compression="true"/>
      <webservice url="http://failover.example.com/ws/" encoding="binary" compression="true"/>
    </connection>
  </group>
</connections>
3.7.4 Providers Configuration

In the providers configuration file providers.xml you configure which requests are processed by which providers and how the requests are routed within the Invantive Webservice. The possibilities are described in the sample file providers.xml.sample:

```xml
<?xml version="1.0" encoding="utf-8"?>
<!--
(C) 2004-2013 Invantive BV, the Netherlands (www.invantive.com).


Configuration of providers for Invantive Webservice

Purpose:
You can configure providers here, sorted by order.
Providers are tried to handle a request in decreasing order. So the provider with order 500 is offered the request before the provider with order 400 is offered the request.
Providers with order 70, 80, 90, 100 and 200 are reserved for Invantive internal use (see the table below).

Explanation:
Providers are used to provide functionality that is not part of the webservice. A provider knows how to handle a specific action on a specific platform.
Some providers are included in the installation, such as providers for database or webservice connectivity or a file logging provider.
The default providers are included in the software, so they are not listed here between the <providers> tag.

A provider does in general NOT define WHERE the action will be executed. That is normally specified by the settings.xml.
```
But specific providers may contain the location WHERE the action will be executed as default value or specified as attributes with the provider's configuration.

Default providers:
The default providers are always available.
A list of the default providers and their order (which cannot be used again):

<table>
<thead>
<tr>
<th>Order</th>
<th>Name</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>80</td>
<td>Microsoft SQL Server</td>
<td>Provider supporting the execution of actions on Microsoft SQL server 7.0 and later. See <a href="http://msdn.microsoft.com/en-us/library/">http://msdn.microsoft.com/en-us/library/</a> kb9s9ks0.aspx.</td>
</tr>
<tr>
<td>90</td>
<td>IBM DB2 UDB</td>
<td>Provider supporting the execution of actions on IBM DB2 UDB 9.7 for Windows. Not tested on any other version.</td>
</tr>
<tr>
<td>100</td>
<td>Oracle RDBMS</td>
<td>Provider supporting the execution of actions onOracle RDBMS 9i - 12c. Needs ODP.NET and OCI to be installed.</td>
</tr>
<tr>
<td>200</td>
<td>Invantive Webservice</td>
<td>Provider that is executing action by forwarding it to another Invantive Webservice over HTTP/HTTPS. Order 200 ensures that forwarding is preferred instead of a database connection by default.</td>
</tr>
</tbody>
</table>

The providers tag contains a list of providers available, each one consisting of the provider-tag.

Attributes of the <provider> tag:
* "order": Sorting order of the provider. The higher the value, the sooner it is called.
* "file": The file name of the provider. This can be a path relative to the Providers directory, or an absolute path.
  Fully specify the path or use a path relative to the Invantive Webservice installation folder.
  Do not use the ASP.NET/IIS ~/-prefix to indicate the current folder.
* "class": Optional. Full class name of the provider. You can specify the class name to increase startup performance since it reduces the time needed querying the file.
  You need to specify the class if you want to load a single provider in a file that contains multiple providers.

The elements of the <provider> tag:
* All: you can specify elements within the provider tag. See for instance the <templatenfolder> element in the example below.
  Their names and values will be passed as attributes to the provider during instantiation.

Example:

```xml
<providers>
  <provider
    order="998"
```
The Invantive Webservice can make use of various providers that record and retrieve data, but also offer other services. Here are the standard available providers.

### 3.7.5.1 Oracle Provider for Invantive Webservice

In this chapter the configuration of the provider is described.

In addition, some suggestions are provided to execute the installation of the Oracle programming. However, this is no replacement of the knowledge and experience with the local situation and trainings that an administrator or DBA has from his role and the results of the instal-
Oracle Client Installation

The installation of the Oracle client can be done following the next steps:

- Navigate to the folder containing the ‘setup’ program, for example:

- The Oracle installation program appears:
We recommend to install the most comprehensive version within the license agreement, so that all devices are readily available if they should be needed later:
Select Installation Type

Oracle Client 11.1.0.6.0

What type of installation do you want?

- InstantClient (150MB)
  Installs Instant Client software.

- Administrator (697MB)
  Installs the management console, management tools, networking services, utilities, basic client software.

- Runtime (440MB)
  Installs tools for developing applications, networking services and basic client software.

- Custom
  Enables you to choose individual components to install.

- Select the required languages via 'Product Languages'. Here we recommend to choose all languages:
Select 'OK' and then 'Next'. We recommend to install the software under 'c:\oracle':
Subsequently a number of checks will be performed. If problems are found, solve them first:

- Check the settings.
- Check if ODP.Net is listed between the products to be installed.
- Execute the installation by choosing 'Install':
The progress is displayed:
Afterwards a configuration program for the network configuration is started. Choose ‘Cancel’, we advise you to use the configuration file ‘tnsnames.ora’ as described in the next part of the instructions:
• Select ‘Next’:

Configuration Assistants

The following configuration assistants will configure and start the components you selected earlier.

<table>
<thead>
<tr>
<th>Tool Name</th>
<th>Status</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oracle Client</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oracle Net Configuration Assistant</td>
<td>Canceled</td>
<td>Recommended</td>
</tr>
</tbody>
</table>

Details (see full log at C:\Program Files\Oracle\Inventory\Logs\InstallActions\2008-09-07_01-33-33PM\log):

Configuration assistant "Oracle Net Configuration Assistant" was canceled.
Close the error message about the failure of the Oracle Net Configuration Assistant.
Select 'Exit'.

Oracle Client Configuration

Follow these steps to configure the Oracle client:

- Construct (if not available yet) a tnsnames.ora configuration file.
- In a tnsnames.ora file ('tns' is the abbreviation for 'Transparant Network Substrate') all Oracle based databases ('services') and the route via the network to get there, are described.
- An example of a description of the service:

```sql
  dvt11r2.invantive.local =
  ( description =
    ( address_list =
      ( address = (protocol = tcp) (host = 192.168.172.16) (port = 1521) )
    )
  )
  ( connect_data =
    (sid=dvt11r2)
    (global_name = dvt11r2.invantive.local)
  )
```
- This one describes that on the server with IP address 192.168.172.16 on port 1521 a program runs that knows how to make a connection with an Oracle database with the SID dv-
t11r2 and the global name dvt11r2.invantive.com.

- Full instructions on creating tnsnames.ora can be found in the Oracle documentation.
- Make sure that the tnsnames.ora file is located on the same place on all PC's, preferably in way to make it easy to add services from a central location. For fixed workplaces often a network drive is used, for example, as follows:

Open the register with 'regedit' and go to the key HKLMSOFTWARE\Oracle\KEY_OraC-
lent11g_home1:

- Add a string with the name 'TNS_ADMIN' and make it point to the network location:
Change also the NLS_LANG to ‘DUTCH_THE_NETHERLANDS.AL32UTF8’ to make sure that messages appear in dutch and the Unicode character set is used. If you use Oracle Instant Client, then there is no NLS_LANG in the Windows registry; that's why you need to define the NLS_LANG environment variable in Windows.

If you use Oracle Instant Client, then there is no NLS_LANG in the Windows registry; that's why you need to define the NLS_LANG environment variable in Windows.

Test the connection from a command prompt with ‘tnsping’:

It is still not certain if the user/password are correct, but it is certain that a network connection to the Oracle service can be built.
Finally, check the connection by logging in with SQL*Plus.

### 3.7.5.2 Microsoft SQL Server Provider for Invantive Webservice

In this chapter the configuration of the provider is described.

In addition some suggestions are provided to execute the installation of the Microsoft programming. However, this is no replacement of the knowledge and experience with the local situation and trainings that an administrator or DBA has from his role and the results of the installation are therefore not guaranteed.

#### Installation Microsoft SQL Server Client

There are no installation steps for the Microsoft SQL Server Client. The Microsoft SQL Server Client is supplied with every .NET installation.

#### Configuration Microsoft SQL Server Client

There are no configuration settings for the Microsoft SQL Server Client.

### 3.7.5.3 MySQL Provider for Invantive Webservice

In this chapter the configuration of the provider is described.

In addition, some suggestions are provided to execute the installation of the MySQL programming. However, this is no replacement of the knowledge and experience with the local situation and trainings that an administrator or DBA has from his role and the results of the installation are therefore not guaranteed.

#### Installation MySQL Client

The MySQL Connector/Net client is available at [http://dev.mysql.com/downloads/connector/net/](http://dev.mysql.com/downloads/connector/net/). The installation of the MySQL client MySQL Connector/Net proceeds as follows:

- Double click the MSI installation file from the zip at above mentioned website.
- Choose the button 'Next'.
- Choose the button 'Typical'.
- Choose the button 'Install'.
- Choose the button 'Finish'.

#### Configuration MySQL Client


### 3.7.5.4 IBM DB2 Provider for Invantive Webservice

In this chapter the configuration of the provider is described.

Furthermore, some suggestions are given to execute the installation of the IBM DB2 programming. However, this is no replacement of the knowledge and experience with the local situation and trainings that an administrator or DBA has from his role and the results of the installation are therefore not guaranteed.

#### Installation IBM DB2 Client

Configuration IBM DB2 Client
There are no configuration settings for the IBM DB2 Client.

3.8 Terminology
Hieronder beschreven we de gebruikte termen.

3.8.1 Channel
A channel is the medium on which data and requests are exchanged between an Invantive Producer client application and an Invantive Webservice server.

3.8.2 Connection
A connection is the definition of possibilities to establish a channel between an Invantive Producer client application and an Invantive Webservice server.

3.9 Versions
This chapter describes the changes in the application per version.

3.9.1 Release 2014 R1
Released: XX-XX-2014.
Invantive Producer: bXX.
Changes and bug fixes:

<table>
<thead>
<tr>
<th>Number</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
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<td>22414</td>
<td>ER</td>
<td>IBM DB2 data provider support.</td>
</tr>
<tr>
<td>23456</td>
<td>ER</td>
<td>IBM DB2 ook via ODBC mogelijk maken.</td>
</tr>
<tr>
<td>22594</td>
<td>ER</td>
<td>Ondersteuning voor redundant verbindingen (failover).</td>
</tr>
<tr>
<td>23279</td>
<td>PR</td>
<td>Onder specifieke condities treedt een Byte[] error op bij gebruik van de webservice.</td>
</tr>
</tbody>
</table>

Installation
• No specialties.

Implementation
• No specialties.

4 Contact Information
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Follow the instructions of your navigation system. The offices are located above Carglass. Parking spots are on the right side. Parking spots are indicated with a sign with 'Invantive'.
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