



Customer Relationship  
Management

## **CRM Automator Guide**

**Version 14.1**

# Notices

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# Preface

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For details, see the following topics:

- [About this documentation](#)
- [Notation conventions](#)
- [Aurea global support](#)

## About this documentation

This guide is part of the documentation set for Aurea CRM.

## Notation conventions

This document uses the following notation conventions:

Convention	Meaning
Fixed-width	Fixed-width font indicates code, path names, file names, environment variable names, parameter names, command names, machine names, URLs.
<b>Bold Fixed-width</b>	<b>Bold Fixed-width</b> font is used to indicate user input or to emphasize certain lines of code.
<i>Italic Fixed-width</i>	<i>Italic Fixed-width</i> font indicates a placeholder for which you must supply a value.
<b>Bold Sans serif</b>	<b>Bold sans serif</b> typeface indicates the names of graphic user interface elements such as dialog boxes, buttons, and fields.
<i>Italic serif</i>	In text, <i>italic serif</i> typeface indicates the first use of an important term. The term is defined in the glossary.
Underlined	Underlined text in command lines and parameter descriptions indicate that you only have to enter the underlined part of the command or parameter name. For example, if you use the <u>-LOGFILE</u> parameter in a command, you only need to enter <code>-LOGF</code> .
[ ]	Brackets enclose optional arguments.
{ a   b   c }	Braces enclose two or more items. You can specify only one of the enclosed items. Vertical bars represent OR separators. For example, you can specify a or b or c.

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Convention	Meaning
...	Three consecutive periods indicate that you can repeat the immediately previous item. In code examples, they can be horizontal or vertical to indicate omissions.
<b>Menu &gt; Choice</b>	An angle bracket between two menu items indicates that you should choose an item from a menu. For example, the notation <b>File &gt; &gt; Exit</b> means: "Open the <b>File</b> menu and choose <b>Exit</b> ."
>>	Links to related information in other chapters or documents are indicated using the >> symbol.

## Aurea global support

If you encounter a problem while using an Aurea product or require assistance with downloading the software or upgrading a product release, please open a ticket on [Aurea Support Central](#). Preferably, search the articles on the [Aurea Knowledge Base](#) for solutions to your issues before opening a ticket.

Information about the support organization is available on Support Central. The product documentation is available at <https://help.aurea.com/crm/#>.

For information about purchasing an upgrade or professional services, contact your account executive. If you do not know who your account executive is, or for other queries, [contact us](#) through our [website](#).

# 1

## Introduction

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Introduction and overview of the workflow engine.

Workflows allow you to:

- Display related information from various info areas on a single screen; e.g. all activities a person is involved in
- Define commands that trigger actions
- Access and manipulate data in the database
- Define and depict new relationships in the database
- Distribute processes amongst stations and users by sending workflows via e-mail
- Add, edit and delete data manually or automatically
- Guide users through their daily tasks, determining which data is displayed and accessible; e.g. all their current contacts including the contact history and links to associated opportunities, projects and offers
- Define conditions that influence the subsequent steps in the workflow
- Configure overviews in which numerical fields are aggregated
- Create custom links between various info areas and display an overview thereof. Users can switch between associated records

## Triggers and workflows

Learn about the difference between triggers and workflows.

**Triggers** are used to automatically apply **changes** to the database, either interactively or in the background. Triggers are initiated by events in the database (e.g. changes to a record).

**Workflows** can also display data in the database, in addition to manipulating data. Workflows are initiated by commands (e.g. clicking on a button).

You can incorporate triggers in workflows.

For more information, refer to [Triggers](#) in the *Web Administrator Guide*.





## Explanation of terms

Learn about the terms used in this guide.

The following terms are used throughout this document:

### Modes

There are four different **modes** available in Aurea CRM. The command bar contains the icons used to switch between modes.

Mode	Description
	<b>New mode</b> allows you to add new records to the database.
	<b>Edit mode</b> allows you to make changes to data in the database.
	<b>Delete mode</b> allows you to delete records from the database.
	When in <b>new</b> or <b>edit</b> mode, click on <b>Cancel</b> to return to <b>view mode</b> .

Workflows in Aurea CRM can perform different actions depending on the current mode.

### Info areas, levels and windows

**Info areas** corresponds to the **tables in the data model**. Functions and triggers are defined for info areas.

**Levels** are a **representation of these info areas/tables**. Data from several info areas can be displayed in a level, and command buttons are available in each level. Buttons (which can trigger workflows) and masks (which can be used in workflows) are defined for levels as opposed to info areas.

A **window** consists of one or more levels displaying data.

In the workflow engine, levels are used to display the data in a process, and the entire workflow is displayed in a window. The parent-child hierarchies between the levels corresponds to the process hierarchy. The workflow itself is the top-most level, and is the parent of all other levels in the workflow.

### Parent and children

Multiple levels can be displayed on screen at the same time in a workflow. These levels need to be related to one another in the data model.

For example, contact records are added for companies or persons. You can display companies and persons in one level in the workflow, and contacts in another level. Because the contact records are children of the company/person records (i.e. directly linked), the child level displays the contacts linked to the currently selected company or person.



Changes to the **parent** level affect all **child** levels. If you switch between companies, then the level containing the contact records is also updated to display the contact records for the new company. Conversely, switching between records in the child level **does not** change the record displayed in the parent level (as the parent record is the same for both child records). If you close the parent level, all child levels are closed automatically.

**An overview of Aurea CRM's data model is available for each vertical as a separate PDF document.**

Processes in a workflow can trigger other processes. These new processes are started as child processes of the original process. Generally your process hierarchy is related to the hierarchy in Aurea CRM's data model. You can edit the data model to add new info areas or create links between existing areas, if necessary, see [Data Model](#) in the *Web Administrator Guide*.

## Keys and indexes

Learn about the use of keys and indexes in Aurea CRM.

Aurea CRM uses **indexes** to quickly retrieve specific records. Indexes are also used to associate linked records in the database using Aurea CRM's internal search engine. There are often several indexes available in an info area; one of the indexes is the **unique key**. This key uniquely identifies a record in Aurea CRM.

Each field in the index requires a certain number of places (see *Key Table* in the appendix in the vertical-specific manuals for details of the indexes in all info areas).

### Keys

A record in Aurea CRM has its own **unique key**. The key always contains information on the record's parent(s), if applicable. For example, the contact key includes the keys of the company and person for which the contact was added. Key fields are stored in records and are used to link records with one another. For example, contact records include fields that store the company key and person key, thereby associating the record with a specific company and person within that company.

For companies, persons and contacts, the key is composed as follows (the number of places required by individual fields are indicated in brackets):

Info area	Key length	Key fields and places
Company	6	Co.Gr.(2) + Co.No.(4)
Person	12	Co.Gr.(2) + Co.No(4) + Pe.Grp.(2) + Pe.No.(4)
Contact	16	Co.Gr.(2) + Co.No(4) + Pe.Grp.(2) + Pe.No.(4) + Date(4)

Persons are assigned to companies using the company group and number (**Co.No.** and **Co.Gr.**) in their key. The key for contact records in turn uniquely references both the company and person keys (if applicable).

The person key fields are empty in company-related records, i.e. records that are stored for a company, not a specific person in a company. In this case, the conditions **Pe.No.** = <empty> and **Pe.Grp.** =

<empty>" return true. This can be used to determine whether a record is company-related or person-related.

If your workflow includes companies, persons and contacts, you can display the persons assigned to each company and the contacts stored for the company or person.

The key is used to determine which records should be displayed. For example, to display the persons assigned to a company, the first 6 places in the person key (**Co.Gr. + Co.No.**) should match the company key.

In effect, you have three options when displaying contacts:

Option	Compare	Compare with
person-related	12 places	Co.Gr.(2) + Co.No.(4)
company-related	12 places	Co.Gr.(2) + Co.No(4) + Pe.Grp.(2) + Pe.No.(4)
both person and company-related contacts	6 places	Co.Gr.(2) + Co.No(4) + Pe.Grp.(2) + Pe.No.(4) + Date(4)

## Indexes

As well as the unique keys, alternative **indexes** are available in many info areas. Indexes are a combination of fields (e.g. **Co.Gr. + Co.No. + Pe.Grp. + Pe.No. + Date**). Note that apart from the **key**, indexes do not generally identify a record uniquely. For example, one of the indexes available for contacts is the date and time of the contact. However, there may be any number of contacts scheduled for the same time.

You can search info areas using indexes just as quickly as with the unique key. Aurea CRM uses keys and indexes for its internal search functions.

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**Note:** For a list of all the indexes available in each info area, refer to the *Key Table* in the appendix of the vertical-specific manuals.

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## Links and relationships in the datamodel

Learn about the links and relationships in a datamodel.

Because a contact **must** be associated with a company, the **Contact** info area is a **child** of the **Company** and **Person** info areas. Consequently, the company for which a contact record is added needs to be clear from the current context or specified by the user. For example, when adding a contact from the **Company**.

**+ Person** level, the contact is added for the selected company and person. If the contact is added from an info area not linked to the **Company** and **Person** info areas, the parent record needs to be specified manually.

## Workflow basics

Learn how to create and manage a workflow.

### Creating a Workflow

Before defining a workflow, the following should be decided:

- The goals of the workflow
- Whether the database needs to be configured
- Which info areas are displayed in which levels
- How the data contained in the various levels is related in the datamodel
- Which commands trigger what actions

### The workflow infoarea

Workflows are defined in the **Workflow** info area.



Select **Info > Workflow** from the menu to open the **Workflow** info area.

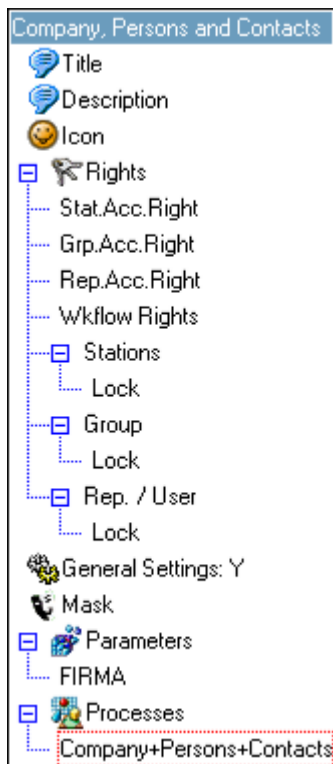
---

**Note:** You need to be logged on to Aurea CRM with administrator privileges in order to edit workflows.

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The screen contains an overview of the current workflow in tree form on the left. Click on an element in the overview to edit the corresponding settings.

You can choose to display or hide individual branches in the tree, as in Windows Explorer. Click on  to display a branch and click  to hide a branch.



<b>Title</b>	Enter the title of the workflow here.
<b>Description</b>	Enter a description of the workflow that is displayed when the workflow is carried out.
<b>Icon</b>	You can assign an icon to the workflow. The icon is displayed in the level header.
<b>Rights</b>	You can determine which access rights are taken into account when the workflow is carried out (station, group and user access rights).
<b>General Settings</b>	You can determine how the workflow is executed. For example, workflows can be set to run in the background.
<b>Mask</b>	You can determine a mask for the root process.
<b>Parameters</b>	Parameters are used by the workflow to store data temporarily. There are two types of parameters: field parameters and record parameters. Parameters are stored on the parameter stack, and values on the stack can be sorted by value.
<b>Processes</b>	A workflow consists of one or more processes. A process defines which info area is displayed, what data is available and which commands trigger which actions.

## Example

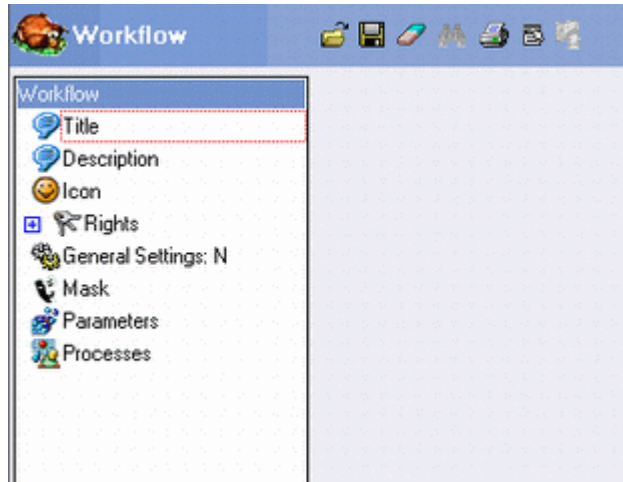
Learn to implement your own workflow.

Workflow concepts are best understood by implementing your own workflow. The following example builds up a simple workflow to display a rep's contacts and demonstrates how various processes can be linked to one another. An in-depth description of the various elements that make up a workflow can be found under [Workflow elements](#) on page 36.

**Note:** Workflows can only be defined by the administrator (SU). Before starting with the examples, ensure that you are logged on to Aurea CRM with administrator privileges.

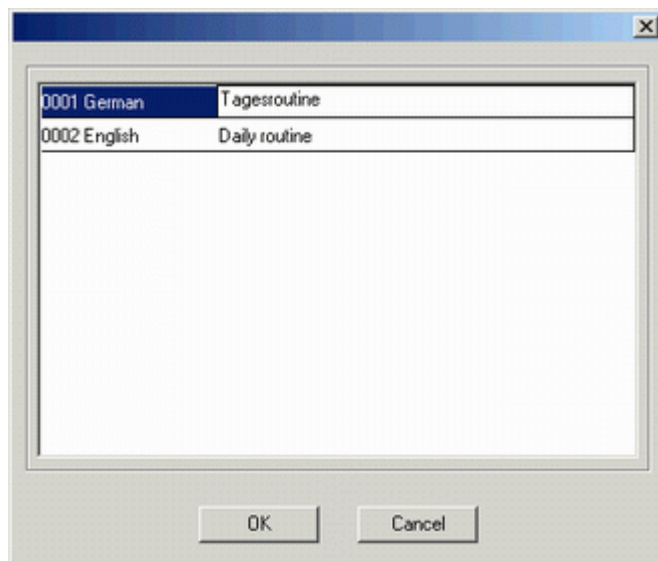
---

1. Select **Info > Workflow** to open the **Workflow** info area.



The tree structure to the left of the screen contains an overview of your workflow.

2. Save the workflow under the name **Daily routine**. The overview of the workflow to the left of the screen now displays **Daily routine** instead of **Workflow**.
3. Click on **Title** and enter the workflow's title in all the desired languages. Confirm with **OK**.



4. Enter a lengthier **Description** of the workflow in the same way. The title and description are displayed while the workflow is executed.

## Displaying today's contacts

A workflow can consist of several processes. The first process in our workflow should display all of the current rep's contacts that are scheduled for today.

The data displayed in the workflow is taken from the **Contact** info area. There are two criteria for selecting the contacts that are displayed: the current rep and the current date.

1. Click on **Processes** in the overview. The **Processes** table is displayed.

No	Short Text	Description	Icon	Input Criteria	Type	Definition	Level No.	Key Definition	Command

2. Describe the process by entering text in both the **Short Text** and **Description** fields. The **Short Text** is only displayed in this table. The **Description** is displayed once the process is executed.
3. Select **New View** in the **Type** column. This determines that a new level will be opened to display today's contacts.
4. Click in the **Definition** field. The following dialog box is displayed.

This dialog box is used to select the desired info areas and define how they are displayed.

5. Click on **Select** under **Info Areas**. Select the **Contact** info area and confirm with **OK**. The name of the info area is now displayed below the **Select** button.

This process only depicts data from a single info area. However, it is possible to include several info areas in a single process and to configure separate settings for each info area.

6. Click on **Contact** in the list below the **Select** button. This allows you to determine the settings for the **Contact** info area.



- 
7. Enable the **Edit** option below the list of info areas (do not select **New** or **Delete**). This determines that the contacts displayed can be edited; however records cannot be deleted or added.
  8. Use the **Start Mode** drop-down list to select the mode (**New, Edit, Delete, Display**) that the process is opened with. Choose **Display** in this case.
  9. Use the **Read** pane to determine the index used to select the contact records in the database to display.

Select "2. Date(4)+Time(2)" under **Index**. Enter a **Key Length** of '4'.

A key length of 4 corresponds to using the date (first 4 places) to select the records displayed in the workflow. The time is ignored in this case, as we wish to select all of today's contacts, irrespective of the time. We determine that the records are selected using a date parameter containing today's date later on.

10. Click on the **Condition** check box.

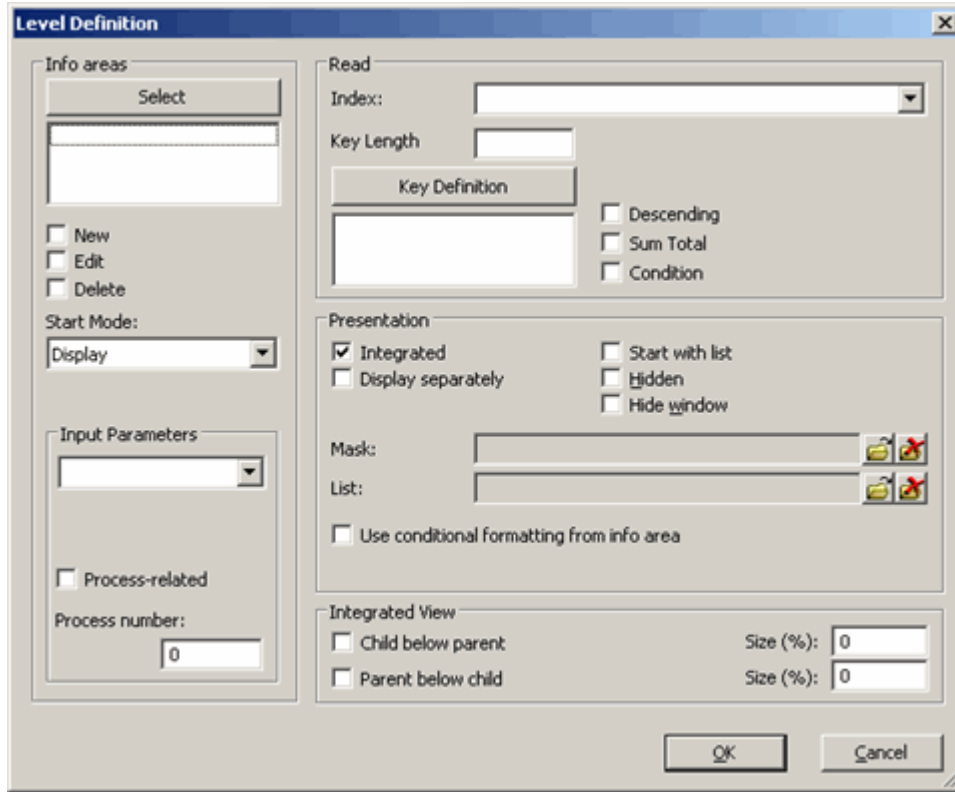
As only the contacts for the current rep are to be displayed, enter "Rep ID = Current Rep" as a variable condition.

11. You need to select a mask used by your workflow. You can specify masks for both list and mask views. Click on the **Load** button next to **Mask** and **List**. For the moment, we can use one of Aurea CRM's default masks. Click on **Choose Default Mask** in the dialog box that is displayed upon clicking the **Load** button. Choose a default mask from the list.

When designing your own workflows, you can use masks designed in the mask generator, see [Mask Generator](#) in the *Win Administrator Guide*.

12. Enable **Start With List**.

13.The dialog box should look as follows:



14.Confirm with **OK**. The **Definition** cell in the **Processes** table now contains a tick.

### Selecting the contacts using a parameter

Learn how to select contacts using parameters.

To select today's contacts, we need to define a **parameter** that contains the current date. The parameter is then compared to the contacts' **index** over the first 4 places (the date component).

1. Select **Parameters** from the tree structure on the left.
2. Enter the following data in the table:

No	Parameters	Source	Name	Type	Mands	Multipl	Content	Variable
0	Field	External	Today					Today's Date

3. Click in the **Key Definition** cell in process 1 in the **Processes** table.
4. Enter the following data to determine that the "Today" parameter is used to limit the contacts displayed.

Parameters	Process	Not Empty	Field	Offset	Length	Target File	Target Field	Limit
Today						Contact	Date	
Today						Contact	Date	✓

5. Close the **Key Definition** table. You are returned to the **Processes** table. The **Key Definition** cell now contains a tick.
6. Save the workflow.

---

**Note:** You could also use conditions to determine that those contact records scheduled for today are displayed. However, with large volumes of data, this is a very slow process. Using indexes improves performance considerably and should be employed whenever possible.

---

## The first test

Before starting the first test run, make sure there are several contact records stored for both today and several other days.

Assign some of these contacts to the current rep and some to other reps.

Select **Extras > Workflow** from the menu and select the workflow. The following is displayed:

Company	Person	Date	Time	Contact	Status	Rep.	Purpose
myCOM		04/03/2005	1:00 pm	Visit	Scheduled	Warren Teed	Presales
US Daughter	Farkas Saar	04/03/2005	5:30 pm	Telephone	Scheduled	Warren Teed	Support

Note that only the **Edit** button is available from the command bar (and neither **New** nor **Delete**). The name, title and description of the workflow and process are displayed to the left (in the currently selected language).

If you change the date of one of the contacts, then the contact is no longer displayed in the list, as it no longer meets the defined condition.

Close the workflow and return to the **Workflow** info area.

## Second process to display associated companies and persons

Learn how to add a second process to display associated companies and persons

The company and person linked with the selected contact record should also be displayed. To do so, you need to define a second process and specify how the first process interacts with the second.

## Process definition

1. Enter a text and description for the second process in the **Processes** table (click on the corresponding cell in the empty line). Select **New View** in the **Type** cell. Click on the **Definition** cell to open the **Definition** dialog box.
2. Click the **Selection** button, and select the **Company** info area. **Company** is now listed under the **Selection** button. Select this entry and enable **Edit**.
3. Add the **Person** info area as well, and enable **New** and **Edit**.
4. Define "1. Co.Grp(2)+Co.No.(4)" as the index for the **Company** info area.
5. Enter a **Key Length** of 6 (2 places for **Co.Grp**, 4 places for **Co.No.**).
6. Click on the **Key Definition** button and select the **Contact** info area. This determines that the key is taken from the **Contact** info area. Remember that the contact record uses the company group and key to identify the company the contact relates to. You still need to define that the contact is taken from process 1.
7. Define "1. Co.Grp(2)+Co.No.(4)+Pe.Grp.(2)+Pe.No.(4)" as the index for the **Person** info area.
8. Enter a **Key Length** of 6. Click on the **Key Definition** button and select the **Contact** info area. This determines that all persons in the company entered in the contact should be displayed.
9. Select a mask to be used by mask and listview.
10. Ensure that the **Integrated** option is enabled (the default setting). This determines that both companies and contacts are displayed on the screen.
11. Click on **OK** to confirm your settings and close the dialog box.

## Triggering the second process

You now need to define how the second process is triggered from the first.

1. Click on the **Command** cell in the first process line. In the **Command** table, select "Double-click in list" in the **Command** cell.



No	Command	Button
0	Double-click in list	

2. Click in the **Action** field.
3. Choose "Create Child" in the **Action** cell and enter 2 in the **Process** cell.



No	Result	Comm	Action	Level	Process
0			Create Child	2	

This determines that a double-click on the list in process 1 initiates process 2 as a child of process 1. Selecting a contact in the first process displays the details of the associated company or person in the second process.

4. Save the workflow.

## Testing process 2

Start the workflow. Double-click on the list in process 1. You should note the following:

- Process 1's display switches to the mask mode (this is the default action defined for a double-click).
- The second process is displayed.
- If you navigate between contact records in process 1, the company/persons displayed in process 2 are updated automatically. However, navigating in process 2 has no effect on process 1.
- Each process is assigned to a level. In order to close a process, close the level. To close the workflow, close the workflow window.

## Editing the command

The command defined to open process 2 should be edited as follows:

- A double-click should not cause the display to switch to maskview.
- Process 1 should be locked upon opening process2.

Click in the **Action** cell in the **Command** table. Add the following actions to the "Double-click in List" command in process 1:

No	Resul	Comm	Action	Level	Process
0			Create Child		2
1			Lock Process		1
2			Command Disabled		

A double-click in process 1 now causes the following actions:

- Child process 2 is started.
- Process 1 is locked and can no longer be edited.
- The default command (switch to mask view on double-click) is suppressed by the "Command Disabled" option.

### Unlocking process 1

If you test the workflow in this state, you cannot return to process 1 after exiting process 2. Process 1 remains locked; in order to work with process 1, you need to unlock it once process 2 is closed.

Add the "Close" command to process 2 and associate it with the action to unlock process 1:

No	Command	Button
0	Double-click in list	

No	Resul	Comm	Action	Level	Process
0			Create Child		2

### Editing the mask and configuring the display

The following changes should be made to process 2:

- Instead of displaying all the persons in a company, only the person entered in the contact selected in process 1 should be displayed.
- The mask used by process 2 should occupy a larger area of the screen.

To do so:

1. Edit the definition of process 2:

Ensure that you have selected the **Person** info area from the list of info areas. Select the first index in the list. The key is generated based on the contact selected in process 1, and the key length is 12 (2+4+2+4). This causes the person key to be compared to the contact key over the entire key length, including the places used by the **Pe.Grp.** and **Pe.No.** fields. When comparing the first 6 places, only the company keys was compared, and all the persons in the company entered in the contact were displayed.

2. Enter the following settings under **IntegratedDisplay**:

This defines that process 2 should be displayed below process 1, and that 20% of the space available is reserved for process 1.

3. Carry out a test run.

## Starting a workflow in aurea CRM win

Learn how to start a workflow in Aurea CRM win

For details on using workflows in Aurea CRM web, refer to the [Aurea CRM Web Administrator Guide](#). The following text describes how to start workflows in Aurea CRM win.

### Starting a workflow from the menu

1. Select **Extras > Workflow** from the menu. A list of workflows available are displayed.
2. Select the desired workflow and confirm with **OK**.

Note that if a workflow requires mandatory input criteria, such as a person, the workflow is only accessible if the necessary data is available.

## Starting a workflow by actions in the database

Workflows can be triggered by database events such as adding, editing or deleting a record (as with triggers). These events are defined in the **Rights** module, see [Rights](#) in the *User Manual*. You can determine which workflows are initiated for which users by assigning the access rights to these users. You can also specify that workflows are only activated when certain fields are updated, or if a record satisfies a condition before or after it is edited, see [Configuring Workflows in the Rights Module](#).

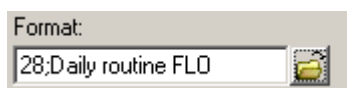
You can also use the **Triggers** cell in the **Rights** info area to determine that workflows should be started. Use this option to combine triggers and workflows that need to be executed in a specific order (the triggers and workflows are carried out in the order they are entered).

Note that triggers and workflows can make changes in the database and therefore themselves initiate further workflows.

## Starting a workflow using a button

To start a workflow with a button:

1. Define a button in the mask generator, as described in [Mask Generator](#) in the [CRM Win Administrator Guide](#).
2. Open the **Button Properties** dialog box by double-clicking on the button.
3. Click on the **Load** button under **Format**, select **Workflow** and select a previously defined workflow from the list.



You can also configure buttons to appear as entries in the context menu. For more information, refer to the [Mask Generator](#) topic in the [CRM Win Administrator Guide](#).

You can also start workflows using buttons in the level header or the **New** button in the general toolbar. These are defined in the desktop settings, see [Desktop](#) in the [CRM Win Administrator Guide](#).

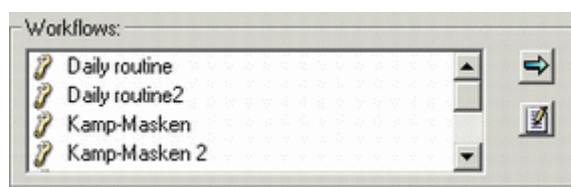
## Starting a workflow from the icon bar



To add workflows to the icon bar:

1. Select **Extras > Define Desktop** from the menu.
2. Click the **Fixed Icon Bar** button.

The **Define Fixed Dialog Bar** lists all the available workflows under **Workflows**:





1. Click the  icon to add a workflow to the iconbar.
2. Click the  icon to determine the settings (text and icon) for the workflow.

For more information on configuring the icon bar, refer to the [Desktop](#) topic in the [CRM Win Administrator Guide](#).

### Starting a workflow from a to-do

Workflows can be initiated from To-Do records handled by Aurea CRM server. Only hidden workflows can be executed from To-Do records.

The following settings are required in the To-Do record:

- Enter the Aurea CRM server user in the **Rep/Group** field of the to-do.
- Select "Calculate" as the **To-Do Type**.
- Select "Workflow" in the **Execution Type** field.
- Enter the desired workflow format in the **Execution Format** field.

### Configuring workflows in the rights module

Use the **Rights** info area to determine that workflows are initiated when certain events occur in the database.

The following events can initiate workflows:

- Changes to data carried out by users, workflows, triggers, imports (only **Hidden** workflows) or in the **Maintenance** module (only **Hidden** workflows).
- Merging companies or persons: Workflows are initiated when companies or persons are deleted when merging. No workflows are initiated for child records.
- Functions in the business logic.

---

**Note:** Workflows are **not** initiated by changes to data caused by communication or importing templates with Aurea CRM cockpit.

---

These settings apply to all users (including the administrator) assigned these access rights as either their station, group or user access rights. For details on how workflows are affected by extended access rights and on inheriting settings, see [Further Settings for Triggers and Workflows](#) and [Inheritance Properties per Element](#) in the [Core Administrator Guide](#).

When a database action initiates a workflow, the workflow is added to the stack, which stores all workflows yet to be executed. Workflows are added to the stack in the order they are entered in the list. The order in which you enter workflows can therefore be important.

If you want to execute both triggers and workflows in a specific order, enter both the triggers and workflows in the **Triggers** cell in the **Rights** info area instead. The triggers and workflows are then executed in the order they are entered in the **Triggers** table. For more details, see [Triggers](#) in the [Core Administrator Guide](#).

## Defining workflow events

Learn how to define a workflow event.

To define a database event as a workflow event:

1. Switch to the **Rights** info area in the **Rights** module.
2. Click in the **Workflow** cell of the desired info area. The **Workflow** info area is displayed for the selected info area.
3. Double-click on **New Line** to add a new workflow. The **Load** dialog box opens.
4. Select a workflow and click **OK**. By default, the **Related** cell is enabled. This ensures that the next workflow is not started until this workflow has been completed. If you disable this option, the workflow is executed immediately if it is a hidden workflow. Up to 32 workflows may be active at one time.
5. Click in the **With Conditions** cell to define a condition. The workflow is only executed if this condition is met, see [Conditions](#) in the [User Manual](#).

The condition is tested as soon as the event takes place, and the workflow is only added to the stack if the condition is met.




Enable the **New** cell to initiate the workflow when a new record is added. The workflow is executed once the new record is saved. If a condition is defined in the **With Conditions** cell, the condition is tested before the workflow is executed.

6. Enable the **Del** cell to initiate the workflow when a record is deleted. If a condition is defined in the **With Conditions** cell, the condition is tested before the workflow is executed.
7. Enable the **Upd** cell to initiate the workflow when an existing record is updated. The workflow is executed once the record is saved. You can define conditions that need to be met by the record both before and after it is updated. Define the condition that needs to be met by the record before it is edited in the **Old Condition** cell. Define the condition applied to the updated record in the **With Conditions** cell.

If you enable the **Upd**, **Old Condition** and **With Conditions** cells, the workflow is only executed if the record was changed from the status defined under **Old Condition** to the status defined under **With Conditions**.

**Example:** A workflow should be executed if the **Status** of a contact record is changed from "Scheduled" (**Old Condition**) to "Completed" (**WithConditions**).

8. If the **Upd** cell is enabled, you can use the **Upd Fields** column to determine that the workflow is only initiated after certain fields are edited. Click in the **Upd Fields** cell to open the **Trigger Fields** info area which displays all fields in the info area.

No.	Field Name	Type	Length	Trigger	Optional
4	Contact		9	✓	✓
5	Status		9	✓	✓
6	Date		10	✓	

- All the fields with a tick in only the **Trigger** cell (and not the **Optional** cell) **must** be edited before the workflow is initiated.
- **At least one** of the fields with a tick in the **Optional** column must be edited before the workflow is initiated.

In the above example, the workflow is only initiated once changes are made to the **Date** field and at least one of either the **Contact** or **Status** fields (or both). This condition does not affect the **New** and **Del** columns.

9. Click on  (OK) to return to the **Workflow** mask.
10. Click on  (OK) to return to the **Rights** info area.
11. Save the access rights and assign them to the appropriate users, groups or stations.

## Workflow examples

You can find some workflow examples in this topic.

### Example 1

This workflow displays all the persons stored for the current company. The workflow is defined as follows:

Options:

**Title** = Persons in company

General Settings: Runs in context, Hide start window Parameters:

**Parameters** = Record, **Source** = Extern, **Name** = COMPANY, **Type** = Company, mandatory

Process:

Persons:

- Definition:

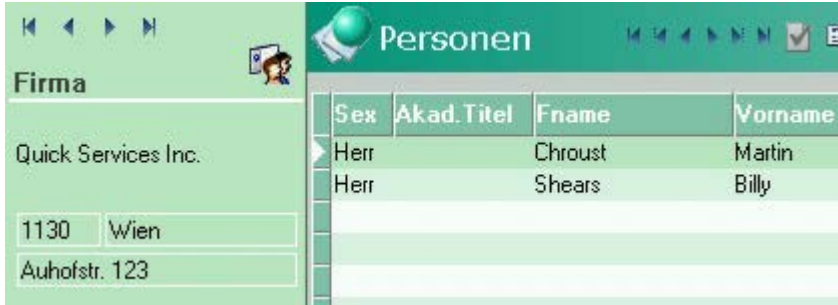
Info Area 1 = **Company**, **Input parameter** = COMPANY

Info Area 2 = **Person**, **Index** = Co.Gr. + Co.No. + Pe.Gr. + Pe.No., **Key length** = 6

**Start With List** enabled

- Commands: **Command** = New Input Parameter, **Info Area** = **Company**  
 Action: **Parameter** = COMPANY, **Parameter action** = Edit  
 Action: **Action** = Refresh

If you switch to a new company using the summary index card, the view is updated to reflect the new company:



Note that:

- The summary index card is displayed.
- The workflow description is not displayed.

**Example 2**

This process counts the number of visits by the rep assigned to a company over the period of a year and enters the value in the **FreeN1** field.

Workflow Settings:

Title: Number of contacts per company rep General settings: Hidden

**Parameters:**

Nr	Parameters	Source	Name	Type	Mandatory	Multiple	Content
0	Record	External	COMPANY	Company	✓		
1	Field	Internal	Count	+Int(4 bytes)			0
2	Field	Internal	Rep	String			

**Processes:**

Process 1 – "Company"

**Definition:**

Info Area = Company, Edit

Input Parameter = COMPANY

**Command:**

Command = Edit, Action

**Action 1:**

Action = Execute

**Action 2:**

---

Info Area = Company, Parameters = Count, Param. Action = Complete Field, Field = FreeN1

**Action 3:**

Action = Save

**Action 4:**

Action = Exit Workflow; Format = <workflow name>

**Input criterion 1:**

Info Area = Company, Key Definition: Parameters = COMPANY, Result

**Result:**

Result = TRUE, Param.Action = Edit, Parameters = Rep, Field = AD1

**Input criterion 2:**

Result

**Result:**

Result = Regardless, Action = Create Child, Process = 2, Parent Process = 1

**Process 2 - "Contacts"****Definition:**

Info Area = Contact, Index = (1)Co.Gr.+Co.No.+Pe.Grp.+Pe.No.+Date+Time, Key Definition: Company, Key Length = 6

Condition: Status = Done, Contact = Visit

**Command:**

Command = Next Record, Info Area = Contact, Parameters = Rep, Operator = '=', Comp. Field = Rep 1

**Action 1:**

Result = TRUE, Parameters = Count, Param. Action = Add, Content = 1

**Action 2:**

Result = Regardless, Action = Execute

**Action 3:**

Result = Regardless, Command execute = Y, Action = Next Record

**Action 4:**

Result = Regardless, Command execute = N, Action = Edit, Process = 1

**Input criteria:****Result:**

Result = Regardless, Action = First Record

**Result:**

Result = Regardless, Action = Next Record

This workflow only applies changes to the company record.

## Workflow properties

Each workflow can have a title and a description assigned in all available languages.

When the workflow is executed, they are displayed in the current Aurea CRM language. If no entry has been entered for the current language, the default entry is displayed instead.

Daily Routine	
Title	0001 Deutsch Tagesroutine
Description	0002 Englisch Daily Routine

**Daily Routine**

Name  
Daily Routine

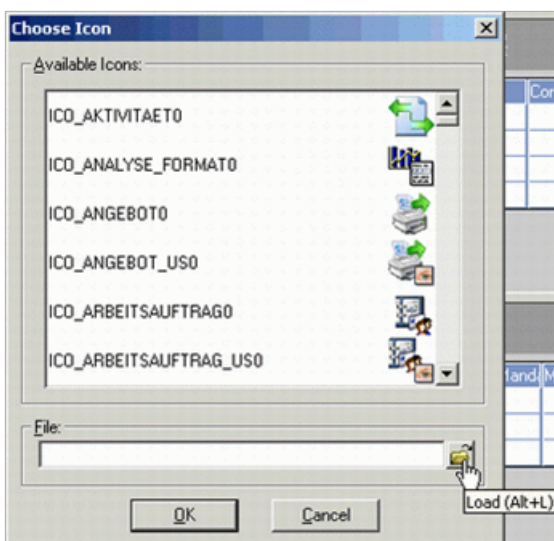
Title  
Daily Routine

Description  
Your appointments for today are displayed here

## Icon

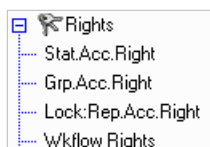
You can assign icons to processes in a workflow. The icon is displayed in the level header.

Click on the **Icon** cell in the line representing the process and choose an icon from the dialog box that opens. You can also choose to load your own icon using the **Load** button to the right of the **File** field.



## Right settings and denying access

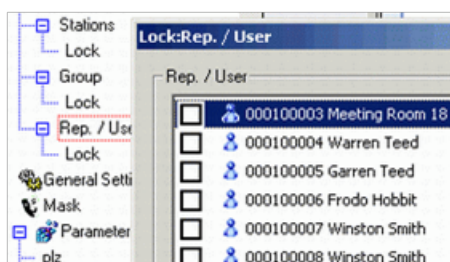
You can use the tree structure to define which rights are applied when the workflow is executed. In the example below, the station and group access rights are applied, but not the rep's individual access rights.



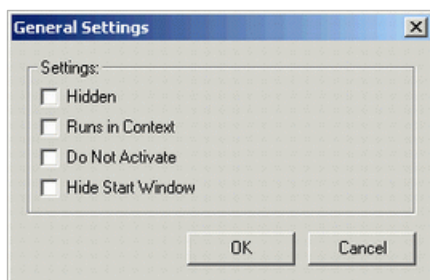
You can specify an additional rights format for the workflow under **Workflow Rights**.

Furthermore, you can permit or deny access to the workflow by specific stations, groups or reps.

If you click on **Rep**, you can choose the reps to whom this setting applies. You can choose to lock the workflow for the selected reps, or only allow the selected reps to access the workflow.



## General settings



Click on **General Settings** in the tree structure to access the general settings for the workflow.

### Hidden

Determines whether the workflow runs in the background and cannot be sent to the foreground. Only

**Hidden** workflows can be used in Aurea CRM web.

---

**Note:** The Aurea CRM server user can only execute hidden workflows.

---

### Runs in Context

Determines whether the workflow is executed with the summary index card displayed.

### Do Not Activate

Determines whether the workflow is started in the background. It is moved to the foreground using either the **Show Process** or **Show Window** actions.

### Hide Start Window

Determines whether the start window hidden.

Enable this setting if you wish to use default processes in your workflow and to be able to influence their appearance using the workflow's settings (e.g. **Start With List**).

---

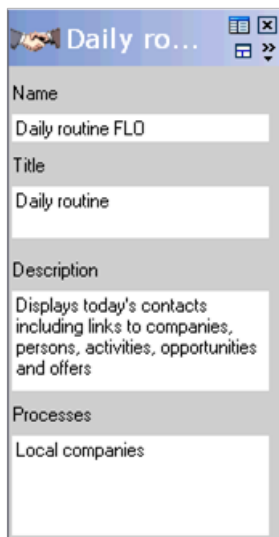
**Note:** Ensure that any workflows that are defined as **Hidden** are automatically closed upon completion. Otherwise the workflow process remains open in the background.

This does not apply to background workflows that are triggered by navigating in the summary index card, which are closed once the parent process is closed.

If you define a workflow with the **Do Not Activate** option enabled, ensure that the workflow is either brought to the foreground at some point or closed automatically.

---

### Appearance



When the workflow is executing, Information on the workflow is displayed in the following fields:



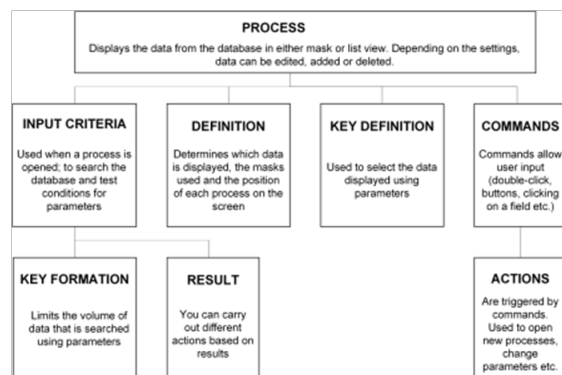
Field	Description
Name	Name of the workflow.
Title	Title of the workflow.
Description	The descriptive text entered for the workflow in the currently selected language.
Processes	Describes the current process. You can also use this field to display text when certain commands are executed, see <a href="#">Actions</a> .

## Editing tables

Learn how to display, delete and edit tables.

### Displaying and editing dependent tables

Workflow consists of several elements. Processes are central to a workflow; other elements are defined for processes. The following diagram illustrates the relationships between the various workflow elements:



The process and parameter elements are accessed by clicking on **Processes** and **Parameters** in the tree structure on the left. The other elements are accessed by clicking in the corresponding cell in the parent's table; e.g. click the **Key Definition** cell in the **Processes** table to access the **Key Definition** table.

The **Process** table is linked to a range of child tables: **Input Criteria**, **Key Definition** and **Command**. Each process occupies a line in the **Process** table. The dependent elements in the process are represented by cells in the line relating to the process. To edit an element, click on the corresponding cell. If an entry is present for one of the elements, a tick is displayed in the cell.

You can access the **Input Criteria**, **Definition**, **Key Definition** and **Command** tables from the **Process** table. Similarly, you can access the **Action** table from the **Command** table, and access the **Result** table from the **Input Criteria** table.

In addition to the elements related to processes, you can also define parameters. Parameters are used to store records or field values. The data stored in a parameter can be used to write data to records, form keys and determine input criteria.

## Deleting data in tables

To delete a specific line, highlight a cell in the line and select **Delete line** from the context menu.

To delete all the lines in a table, select **Delete all lines** from the context menu in the corresponding table.

## Copying data in tables

You can selectively copy individual lines from tables, as well as all lines in a table. Any associated data in child levels is also copied. If you copy a command, for example, any actions defined for the command are also copied.

### Copying individual lines

1. Click in a cell in the line you wish to copy.
2. Select **Copy line** from the context menu. Any data previously stored on the clipboard is overwritten.
3. If you wish to copy further lines before pasting your data, do the following:
  - a. Click in a cell in the next line you wish to copy.
  - b. Select **Append line to clipboard** from the context menu.

The currently selected line is added to the data already stored on the clipboard, i.e. the first line you copied.
  - c. Repeat the process, selecting **Append line to clipboard** for any further lines.

### Copying all lines in a table

1. Select **Copy all lines** from the context menu to add all the lines in the current table to the clipboard. Any information previously stored on the clipboard is overwritten.
2. Select **Append all lines** from the context menu to add all the lines in the current table to the data already stored on the clipboard.

### Pasting data from the clipboard

Select **Paste** from the context menu to paste the contents of the clipboard to the current table. You can only copy and paste data from within the same table. You can thus copy commands between processes by copying a command from one process to the command table in a second process, for example.

### Repositioning entries

You can move lines in any table (apart from the **Process** and **Parameters** tables) by dragging lines to the desired position.

To change the order:

1. Click on the number of the line you wish to move and hold down the mouse button for a short while. If you now move the mouse, the cursor changes:



2. Drag the line to its new position.
3. Release the mouse button. The line is moved to its new position.

# 2

## Workflow elements

Elements are the building blocks of a workflow.

Below are the elements of a workflow. You can visit each of these to know the details.

### Process

Learn about the processes inside a workflow.

A workflow consists of one or more processes. You can define the following for each process:

- **Title** and **description** in various languages
- Process **dependencies** (parent-child hierarchies)
- How data from individual info areas is **displayed**
- Parameters used to select data (**keyformation**)
- **Conditions** determining when a process or action is started
- Which **actions** are triggered by which **commands**

Click on **Processes** in the tree view to access the **Processes** table. Enter data by clicking in the corresponding cells.

Each process can have a title and a description in all available languages.

The short text and description are also displayed in the **Processes** table in the **Workflow** info area. The description is displayed when the workflow is executed in the language selected by the user.

Daily Routine	
Name	Daily Routine
Title	Daily Routine
Description	Your appointments for today are displayed here

---

**Note:** You need to enter either a description or short text before you can access the other cells.

---

### Process types and definitions

The type of process is entered in the **Type** column. The following options are available:

Process Type	Description
New View	<p>Opens a new level to display the workflow data. Click in the <b>Definition</b> cell to configure the settings for the process.</p> <p>Enter a level in the <b>Level No.</b> cell to apply the default desktop configuration defined for that level to the workflow (e.g. header settings), see <a href="#">Desktop</a> in the <i>Win Administrator Guide</i>.</p> <p>Note that only the default desktop settings for the level can be used, as the parent level for levels used in workflows is the <b>Workflow</b> level and you cannot define specific desktop settings for the case where the <b>Workflow</b> level is the parent level.</p>
Existing View	<p>Executes the workflow in the level entered under <b>Level No.</b> (i.e. if 1001 is entered under <b>Level No.</b>, the workflow is executed in the <b>Company+Person</b> level).</p>

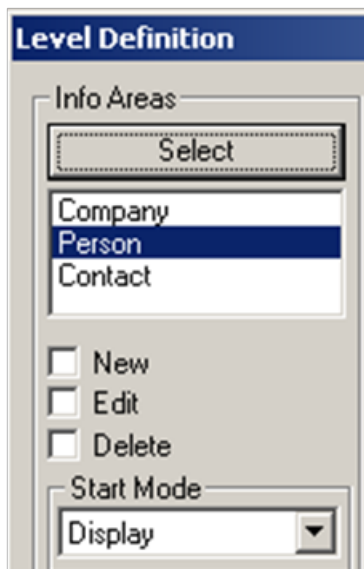
---

**Note:** You can only edit the process once you have entered a description or short text.

---

## Info areas

You can use these settings to determine which info areas are displayed in a process.

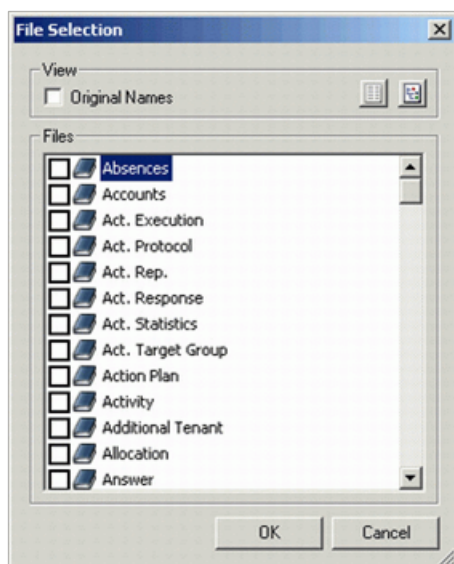


The order in which you select the info areas has the following effects:

- If you want to link records, records are linked from the upper info areas to the lower info areas in the list. In this case, companies are displayed. Persons are displayed for these companies and contacts for these persons.
- The contacts are sorted according to the order the info areas are selected; i.e. by company, then person, and finally by date.
- When navigating between records, you navigate in the lowest info area. In this case, once you reach the last contact record for a person, you navigate to the first contact stored for the next person. Once you have navigated through all persons in the company, you switch to the next company.

### Selecting info areas

Click on the **Select** button to select the info areas. You can navigate in the list by entering the first letters of the info area name. For example, to navigate to the **Company** info area, press 'C', 'O' and 'M' in quick succession.



Enable the corresponding check box to select an info area.

## Deleting Info Areas

To remove an info area, double-click on the name of the info area in the list. To reposition an info area, delete the info area and add it again in the correct order.

## Possible modes

You can determine which modes (**New**, **Edit**, **Delete**) are allowed for each info area.

Display mode is always available.

The corresponding buttons are only visible in the command bar if the corresponding option is enabled for at least one of the selected info areas in the process. If no action is assigned to the button in the command bar, clicking the button switches to the corresponding mode for all info areas for which this mode is enabled.

For example, suppose you are displaying a company and all persons in the company. New mode is only enabled for the **Person** info area. Clicking on the **New** button adds a new person to this company, not a new company.

You can define actions determining that a specific info area switches to a certain mode. Even if a mode is disabled for the info area in the **Definition** dialog box, you can still switch modes using actions. This allows you to automatically switch modes at specific stages in the workflow but prevent users from switching modes manually.

## Start mode

The **Start Mode** drop-down list determines which mode is active when the process begins. You need to select a mode that is enabled for at least one of the info areas displayed.

If you select a mode that is unavailable for an info area, that info area is opened in display mode.

## Input parameters

Data stored in record parameters can be used as input criteria for a process.

You can only select record parameters that are of the same type as the selected info area. If you want to transfer keys between info areas, you need to use the **Key Definition** table to do so.

The order in which records are sorted is also determined by the parameter. You can therefore also use input parameters to sort data in processes based on freely defined criteria.

## Read

This pane is used to determine the criteria according to which records in the process are selected.

You can use:

- Keys or indexes from other info areas in the same or parent processes. The key is defined under **Definition** in the **Process** table.
- Field parameters or fields from record parameters. These keys are defined in the **KeyDefinition** table.

## Index

You can enter one index per selected info area.

The index determines the following:

- The order in which the records are displayed.
- The index used as a key to compare and select records.

The first index in the list is always the info area's unique key.

## Key length and key definition

You can use data from other info areas to determine which records are displayed in a process.

Records are selected using the index fields. By determining the length of the key, you can specify which fields are used to select records.

Each index field requires a number of places in the index. The number of places used by a field is indicated in brackets in the index.

Suppose you want to define a process that displays companies, persons and contacts as follows:

- All the persons are displayed for a company
- All the contacts are displayed for a person



In this case, records are selected as follows:

- All companies in the database
- For each company in the database, all persons containing the company's key
- For each person found, all contacts containing the person's key

The **Co.Gr. + Co.No. + Pe.Grp + Pe.No** index is selected for the **Person** info area:

- **Co.Gr.** uses 2places
- **Co.No.** uses 4places
- **Pe.Grp.** uses 2 places
- **Pe.No.** uses 4places

**Note:** These figures do not correspond to the length of the fields; the contents of the fields are stored in a compressed format.

The first 6 places of the person index contain the company key (**Co.Gr. + Co.No.**). In order to select all persons in a company (based on the company key), click the **Key Definition** button.

Select the **Company** info area and set the key length to 6 (2 places for the company group and 4 for the company number):

To return all the contacts stored for the persons found, you need to compare the company and person keys stored in the person records (**Co.Gr.**, **Co.No.**, **Pe.Grp** and **Pe.No.**) to those in the contact records.

Because the key is compared with both the company **and** person keys, the length of the key is 12 in this case (2 + 4 + 2 + 4):

The info areas you specify under **Key Definition** need not be the same info areas as selected using the **Select** button.

For example, if process 1 displays a company, and process 2 is a child of process 1, the key defined for process 2 can refer to the company in process 1. You can also use parameters to select records.

The order of the info areas in the list determines the following:

- Links within a process are always from top to bottom. The key defined for an info area selected under **Selection** can always access those info areas that are listed above it.
- Navigation always takes place within the last info area entered. If this record is linked to a previous info area, both info areas are updated when navigating between records.

---

**Note:** If you select data using input parameters, you can still use the key to further restrict the records displayed.

---

### Descending

Enable the **Descending** option to sort records by descending indexes.

For example, if you select contacts based on the date and time, the contacts are ordered by date and time. If you enable **Descending**, the most recent contact is displayed first.

### Sum Total

If you enable this option for an info area, values are displayed as sum totals (if this is applicable). Other fields are left empty. Currency values are converted to the base currency first.

### Condition

You can specify conditions that limit the records that are displayed. Click on the **Condition** field to define or edit the condition. Once you have defined a condition, the check box is enabled.

---

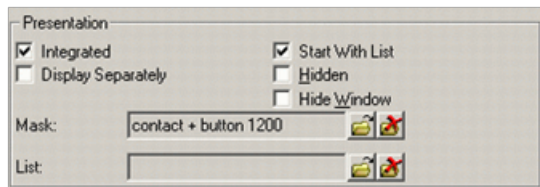
**Note:** If possible, use the index to restrict the number of records first. Applying conditions to a large number of records can impact negatively on performance.

---

## Presentation

This pane allows you to specify masks and list masks used by processes.

You can also determine whether the process is displayed as a mask or list when started, and whether the level is integrated or displayed separately.



You can choose to use a default mask or a previously defined custom mask. You can also define your own mask, see [Mask Generator](#) in the Win Administrator Guide.

If you are integrating default processes in a workflow and wish to override their default UI settings, you need to enable **Hide Start Window** in the general settings, see *General Settings*.

You can then choose to display the process as a list etc.

### Integrated

If a child process is opened, it occupies a portion of the space available. Use the **Size(%)** fields to determine how much space is retained by the parent process.



### Hidden

If enabled, the workflow runs in the background and cannot be sent to the foreground.

### Hide window

If enabled, determines that the process is started in the background and is hidden, until sent to the foreground using the "Show Process" action.

---

**Note:** Ensure that processes running in the background are either terminated automatically or sent to the foreground at some point.

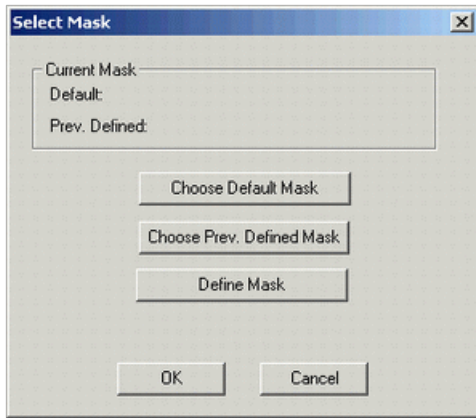
---

## Mask

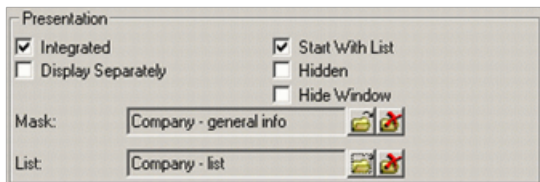
You can determine which masks are used by the workflow.

You can specify a mask for both **list** and **mask view**.

1. Open the **Definition** dialog box by clicking on the **Definition** cell in the process.
2. Click on the **Load** button to the right of the **Mask** or **List** fields. The following dialog box is displayed:



3. You can define a new mask or select an existing one. If you decide to use an existing mask, you can choose to use either a default mask (supplied by update) or one you have created yourself in the Mask generator, see [Mask Generator](#) in the Win Administrator Guide.



You need to select a mask, otherwise all data is displayed as if you had selected the **Data > All Mask Fields** option and the workflow generates errors whenever you double-click in the mask (unless you have disabled the default action, which is to switch views).

---

**Note:** You can edit existing masks in the mask generator. Start the mask generator (either using the **Define Mask** button or from the database module by selecting **Extras > Edit Mask**) and load the desired mask (**File > Load**).

---

### Use conditional formatting from info area

Enable this option to apply the conditional formatting defined for the info area to the workflow level.

## Configuring the appearance of processes

Learn how to configure the appearance of processes upon creation.

You can determine the appearance of processes created using the "Load Level", "Create" and "Create Child" actions by entering the appropriate settings in the **Content** column of the **Actions** table.

The following entries are available:

```
parent Size=x
```

Size of the parent window as a percentage of the available area.

---

`childSize=x`

Size of the child window as a percentage of the area available to child processes.

`integrate`

Use this setting to display the window using the integrated view.

`horizontal`

Use this setting to determine that any child processes of the new process should be arranged horizontally. This setting does not apply to the "Load Level" action, which automatically applies the user's desktop settings or the user's last settings custom settings for the level outside of the workflow.

`Vertical`

Use this setting to determine that any child processes of the new process should be arranged vertically. This setting does not apply to the "Load Level" action, which automatically applies the user's desktop settings or the user's last settings custom settings for the level outside of the workflow.

### Example:

```
Content = integrate, parentSize = 30, horizontal
```

This displays the new process in the integrated view; the parent process is assigned 30% of the available screen area; any child processes of the process are arranged horizontally.

## Commands

The **Command** table is used to determine which commands trigger which actions.

The action carried out is determined by conditions and the current mode.

You can define any number of actions for each command. To define the actions associated with a command, click on the cell in the **Action** column.

Commands are triggered by:

- Icons in the command bar
- Field changes by the user
- Records received from other processes
- Buttons in the mask. Buttons are added to the mask in the mask generator, see [Mask Generator](#) in the Administrator Guide
- Double-clicking in a list
- Closing a process
- Switching between records

The action associated with a command is specified in the **Actions** column and defined in the **Actions** table.

The **Commands** table contains the following columns:

## Command

Select the command you want to respond to from the list in the **Command** column.

The following table lists the commands available and how they are triggered from within the workflow.

Commands	Triggers
New Edit Delete	<p>These commands are triggered by the corresponding buttons in the command bar.</p> <p>If no info area is specified, the command is executed for all info areas for which this mode is permitted.</p>
Previous Record Next Record Previous Page Next Page First Record Last Record	<p>These commands are triggered by navigating between records. The process needs to be in view mode.</p>
Save, Save+Exit, Cancel	<p>These commands are triggered by the corresponding buttons in the command bar. The buttons are only available in new and edit mode.</p>
Close	<p>This command is triggered when the level is closed.</p>
Mask List	<p>These commands are triggered when the user switches between mask and list view. For example, select <b>Mask</b> to determine which actions should be carried out if the user switches the display to mask view.</p>
Double-click in list	<p>This command is triggered when a user double-clicks a record in the list.</p>
Item in list New item in List	<p>These commands are triggered when a user switches between records the list.</p> <p><b>Item in List</b> takes effect <b>before</b> the new record is the active record. You can therefore apply actions to the record the user moved from.</p> <p><b>New item in List</b> takes effect <b>after</b> the target record has become the active record.</p>
Mouse click on field	<p>This command is triggered by clicking on a field. The target field is specified in the <b>Info Area</b> and <b>Field</b> columns. This command is only permitted in view mode.</p>

Commands	Triggers
Mouse click on icon	<p>You can respond to users clicking on icons in the mask. Enter the number of the icon in the <b>Level No.</b> column. To determine the number, open the mask in the Mask Generator and select <b>Options &gt; Show all Elements</b> from the menu. Find the bitmap elements, and manually count through the bitmaps (the first bitmap's number is zero) until reaching the desired icon to determine its number.</p> <p>Icons can be added to masks using the Mask Generator, see <a href="#">Mask Generator</a> in the Win Administrator Guide.</p>
Select before Field Select after Field	<p>These commands are applied if the contents of a field are changed.</p> <p>Actions defined for <b>Select before Field</b> are carried out <b>before</b> the changes are stored in the database.</p> <p>Actions defined for <b>Select after Field</b> are carried out <b>after</b> the changes have been stored.</p> <p>Specify the field the command applies to in the <b>Info Area</b> and <b>Field</b> columns.</p>
Receive Record	This command is triggered whenever a record is received from another process.
Load Level Position in Level	These commands react to the <b>Load Level</b> and <b>Position in Level</b> actions (specified in the <b>Actions</b> table).
New Input Parameter	This command reacts to the user navigating between records in the parent level. For example, you can reread a parameter or refresh the display.
OK Find Mark	These commands react to actions in standard processes.

### Mode

Use the **Mode** column to determine that an action is only carried for a command out when executed in a specific mode. If you do not enter a mode, the action applies to all available modes.

### Conditions

Use the **Info Area** and **Condition** column to determine that an action is only carried out if the currently active record (in the specified info area) meets certain conditions.



## Comparing parameters

You can compare parameters to a field in the selected info area or with a fixed value using the Parameter, Operand, Comp. Value and Comp. Field fields.

Specify the parameter in the **Parameters** column. Enter the type of comparison in the **Operand** field. The following operators are available:

- = equal
- > greater than
- < less than
- >= greater than or equal
- <= less than or equal
- <> not equal
- () contains
- )( does not contain

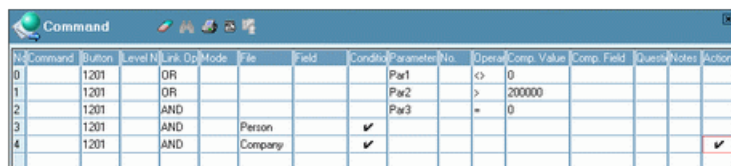
Either enter a comparison value in the **Comp. Value** column, or specify a field with which to compare the parameter in the **Comp. Field** column.

## Linking conditions

You can link several conditions, making the execution of an action dependent on multiple conditions.

There are two types of links: AND and OR. **All** conditions linked with an AND **must** be met for the condition to be fulfilled. **At least one condition** (or sub-set of conditions) linked with OR must be met for the condition to be fulfilled.

### Example of linking conditions



No	Command	Button	Level	N	Link	Op	Mode	File	Field	Conditio	Parameter	No.	Opera	Comp. Value	Comp. Field	Quest	Notes	Action
0		1201			OR						Par1		<>	0				
1		1201			OR						Par2		>	200000				
2		1201			AND						Par3		=	0				
3		1201			AND				Person									
4		1201			AND				Company									

In the above example, the action is only carried out, if:

- All 3 conditions linked with AND (2,3 and 4) are met
- and (at least) one of the conditions linked with OR (0,1) is met.

## Prompts

You can also prompt users as part of your workflow.

The user's response (yes/no) can also be treated as the result of the evaluation of a condition.

Enter the question in the available languages in the **Notes** column. Use the **Question** column to determine whether the user is only prompted (empty entry) or asked a question ('Y or 'N'). If you ask a question, you can use the users response to determine further actions.

If you associate several actions with a command, you can determine whether each individual action is carried out based on the answer given (or in any case).

Use the **True**, **False** or **Regardless** entries for the result in the **Actions** table to determine whether actions are carried out if the user answers 'Yes' (**True**), 'No' (**False**) or in any case (**Regardless**).

## Parameters

The **New Input Parameter** command allows the workflow to react when the user navigates in a parent level.

Data can be reread or the display refreshed. You need to specify the target info area under **Info Area**. Specify the actions applied to parameters using the **Param. Action** column in the **Actions** table, see [Parameter Actions](#).

## Actions

The **Actions** table is used to define which actions are carried out for each command.

These actions can involve processes, commands, buttons, triggers, single letters, e-mails as well as parameters.

If you define several actions, the actions are carried out in the order they are defined. After the actions have been carried out, the default action is also carried out.

---

**Note:** You can suppress the default action.

---

### Executing actions based on conditions

You can enter the following types of conditions when defining commands:

- Conditions applied to data in the database
- Conditions applied to parameters
- Conditions based on the reply a user gives to a prompt, see [Prompts](#).

The **Result** column is used to determine in which case the action is carried out:

---

<empty>	Always
True	If the condition was met or the user answered "Yes" to a prompt
False	If the condition was not met or a user answered "No" to a prompt
Regardless	Always (even if the condition could not be evaluated; e.g. a parameter was missing)

## Action columns

You can find the list of action columns in this topic.

The following actions can be selected from the **Action** column:

Action	Description
Execute	<p>Use <b>Execute</b> to carry out the default command associated with an action. For example, if the user clicks on the <b>New</b> button, the default action is to add a new record. If the user double-clicks in the mask, the view switches between mask and list mode by default.</p> <p>You can therefore execute the default command at any position in the list of actions (rather than as the last command).</p>
Command Disabled	No further commands are carried out (this suppresses the default command as well).
Exit Workflow	Exits the workflow. Enter the name of the workflow in the <b>Format</b> column.
Close	Enter a number in the <b>Process</b> column to close the process with that number. If you do not enter a number, the process to which the action belongs is closed.
Close Children	All child processes are closed.
Create	An independent process is opened. Use the <b>Content</b> column to determine the appearance of the new process, see <a href="#">Configuring the Appearance of Processes upon Creation</a> .
Create Child	The process entered in the <b>Process</b> column is opened as a child process. Use the <b>Content</b> column to determine the appearance of the new process, see <a href="#">Configuring the Appearance of Processes upon Creation</a> .
Show Process	Sends a process (specified in the <b>Process</b> field) to the foreground.
Hide Process	Sends a process (specified in the <b>Process</b> field) to the background.
Show Window	Sends the start window to the foreground.
Hide Window	Sends the start window to the background.
Refresh Parent Refresh Child	Refreshes the sort order in a process; e.g. if a change to a field has resulted in a different sort order.
Send Record Send to Parent Send to Child	Sends records ( <b>Info Area</b> column) to other processes (specified in the <b>Process</b> column).

Action	Description
Remove Record Remove from Parent Remove from Children	Deletes records in the current or other processes (specified in the <b>Process</b> column).
Activate Process	Activates the process entered in the <b>Process</b> column. If no number is entered, the current process is activated.
Lock Process Unlock Process	<b>Lock Process</b> prevents any changes to a process until the process is unlocked with <b>Unlock Process</b> .
Focus Process Remove Focus	<b>Focus Process</b> locks all other processes, until focus is removed using <b>Remove Focus</b> .
Set Text	<p>Changes the text displayed in the process description when the workflow is running to the text specified in the <b>Notes</b> column.</p> <p>You can include parameters in the text. Specify the parameter in the <b>Parameter</b> column. To determine where the parameter is displayed, enter a '&lt;#&gt;' at the appropriate position in the text.</p> <p>Alternatively, you can specify the parameter number manually following the hash character (e.g. &lt;#27&gt; for parameter 27), as well as the field number separated by a semicolon for record parameters (e.g. &lt;#29;13&gt; for field 13 in parameter 29).</p> <p>Parameter numbers are displayed in the <b>No.</b> column in the <b>Parameters</b> table (opened using <b>Parameters</b> in the tree view).</p> <p><b>Example:</b> If your parameter contains "update software AG", entering "You may not make any changes to &lt;#&gt;" would display the following:</p> <p>"You may not make any changes to update software AG".</p>

Action	Description
New Edit Delete	<p>These actions correspond to clicking the corresponding buttons in the command bar in view mode.</p> <p>Specify the target info area in the <b>Info Area</b> column. If you do not specify an info area, the action applies to all info areas for which this mode is enabled in the <b>Definition</b> dialog box.</p> <p>If you specify a target info area, the mode is activated for this info area, even if the mode is not enabled in the <b>Definition</b> dialog box.</p>
Save+Exit	<p>These commands save the record (in new and edit mode). <b>Save + Exit</b> also exits the process. If the last process is closed, the workflow is closed as well.</p>
Cancel	<p>This action corresponds to clicking the <b>Cancel</b> button in the command bar. Any changes to the record are ignored and the user is returned to view mode.</p>
Mask List	<p>These commands switch the display to either mask or list view.</p>
Prev. record Next record	<p>These commands switch between records.</p>
Previous page Next page	<p>These commands move to the next or previous page in the list.</p>
First record Last record	<p>These command switch the display to the first or last record.</p>
Press Button	<p>Corresponds to clicking on the button whose ID is entered in the <b>ID Button</b> column.</p>
Enable button Disable button	<p>These commands enable or disable the button whose ID is entered in the <b>ID Button</b> column.</p>

Action	Description
Trigger	<p>Starts a trigger or other format (workflow, dashboard, single letter, mask, analysis, XML, report, spreadsheet, timeline).</p> <p>Specify the format as follows:</p> <p>Using the format type and name:</p> <p>Enter the type (numeric) and name of the trigger in the <b>Format</b> cell, separated by a semicolon, e.g. "30;My_Dashboard".</p> <p>Using a record parameter:</p> <p>Enter the type in the <b>Format</b> cell, followed by a semicolon. Specify the field in the record parameter in the <b>Parameter</b> and (the right-most) <b>Field</b> cells, and select <b>Complete Field</b> in the <b>Param. Action</b> cell.</p> <p>Using a field parameter:</p> <p>Enter the number type in the <b>Format</b> cell, followed by a semicolon. Specify the parameter in the <b>Parameter</b> cell.</p> <p>Using a string stored in a field:</p> <p>Enter the type in the <b>Format</b> cell, followed by a semicolon. Specify the field parameter in the <b>Info Area</b> and (left-most) <b>Field</b> cells.</p>
E-mail	<p>An e-mail is sent to the selected company or person. If you initiate this action from a contact, the text stored in the contact as well as the document are included as attachments.</p>

Action	Description
Single Letter	<p>Generates a DDE single letter for the selected company or person.</p> <p>The format used to generate the single letter can be specified as follows: Using the format name:</p> <p>Specify the transfer format used by the letter in the <b>Format</b> cell. Using a record parameter:</p> <p>Specify the field in the record parameter in the <b>Parameter</b> and (the right-most) <b>Field</b> cells, and select <b>Complete Field</b> in the <b>Param. Action</b> cell. Using a field parameter:</p> <p>Specify the parameter in the <b>Parameter</b> cell. Using a string stored in a field:</p> <p>Specify the field parameter in the <b>Info Area</b> and (left-most) <b>Field cells</b>.</p>
Load Level	<p>Opens a new level in the workflow. Specify the number of the level to open in the <b>Level No.</b> column. Use the <b>Content</b> column to determine the appearance of the new process, see <a href="#">Configuring the Appearance of Processes upon Creation</a>.</p> <p>Use the <b>Close Level</b> action to close a level again.</p>
Position in Level	<p>Displays a specific record in the target level specified in the <b>Level No.</b> column. To display a record in another process, enter the process number in the <b>Process</b> column.</p> <p>The record is identified in one of two ways:</p> <p>From the current context; i.e. the currently selected company, person etc. By passing a record parameter, specified in the <b>Parameters</b> column.</p>
Close Level	<p>Closes the level specified in the <b>Level No.</b> column.</p>
Open document	<p>Opens the document stored in the parameter (record, document link or document path) or current process (info area and document field).</p>



Action	Description
Copy Record	Copies a record to the clipboard, similar to the <b>Copy</b> menu command. Specify the source info area in the <b>Info Area</b> column or the source record parameter in the <b>Parameter</b> column.
Insert Record	Pastes the record stored on the clipboard. Specify the target info area in the <b>Info Area</b> column.

## Executing actions based on the result of a command

The "Execute" action carries out the command that triggered the action.

You can determine that other actions are then carried out, depending on whether the command was executed successfully or not.

Use the **Command executed** column to determine under which conditions further actions are carried out:

<empty>	Always carry out this action
Y	The action is carried out if the command was <b>executed successfully</b>
N	The action is carried out if the command was <b>not executed successfully</b>

For example, the "Next record" command triggers a series of actions. The command can either be carried out successfully (i.e. there are further records) or unsuccessfully (the last record is already selected):



The image shows the 'Actions' dialog box with a table of actions. The table has columns: No, Resul, Command, Action, Lex, Proc, Para, D, BU, For, File, Field, Par, Pro, Param, A, Content, Field, Notes. The rows are:

No	Resul	Command	Action	Lex	Proc	Para	D	BU	For	File	Field	Par	Pro	Param	A	Content	Field	Notes
0			Execute															
1	Y											Par	Add	1				
2	Y		Next record															
3	N		Set Text															

## Buttons

Buttons are also used in the mask generator to add entries to the context menu.

Buttons can be added to masks in the mask generator.

For more details, refer to [Mask Generator](#) topic in the Win Administrator Guide. Workflows can react to all of Aurea CRM's internal buttons available in the **Button Properties** dialog box (trigger buttons, single letter, etc.).

You can also determine the level the target buttons is present in. This allows Aurea CRM to carry out the action associated with a button in a different level from the current level.

To do so, define an action of the type **Press Button** and enter the number of the target level in the **Level No.** field.

If the button is defined in the workflow level, the message is first passed to the workflow level. If no processing takes place there and the button is a trigger button, then the associated trigger is started in the target level.

If the button is only defined in the target level, the message is only passed to the target level and the action associated with the button is carried out there.

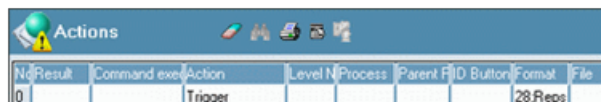
If no target level is specified, messages for trigger buttons (IDs 1200-1209) are passed to the current level, unless the message is otherwise processed by the workflow or the current level is a workflow level.

## Accessing other formats

You can trigger other workflows, dashboards or single letters from workflows by setting the action to "Trigger".

Define an action of the type "Trigger" and enter the desired format in the **Format** column. Use the same notation as for trigger buttons:

```
<Format type>; <Format name>
```



No	Result	Command exe	Action	Level N	Process	Parent FID	Button	Format	File
0			Trigger					23.Reps	

## Opening levels

You can open new levels using actions in the workflow.

You can also open a specific record in the new level. The record is either specified from the current context (i.e. the currently selected company, person etc.) or is passed as a record parameter.

The **Load Level** action opens the level specified in the **Level No.** column.

The **Position in Level** action switches the view to a specific record in the target level. The record must either be the current record in the current workflow level or passed as a record parameter. Specify the target info area in the **Info Area** column.

Use the **Load Level** command in conjunction with the **Position in Level** command to ensure that the target level is displayed.

## Parameter actions

Parameter actions are actions that are applied to a parameter.

The following types of actions are available for parameters:

Param. Action	Description
New Edit Remove	<p>You can add, change and remove individual parameters on the parameter stack. Specify the parameter affected by the action in the <b>Parameters</b> column.</p> <p>You can specify the parameter's process in the <b>Process</b> column.</p> <p>You can use the <b>Edit</b> parameter action to apply a regular expression to a field value and to write the result to a parameter:</p> <ul style="list-style-type: none"> <li>• Select the source field using the <b>Info Area</b> and right-most <b>Fieldcell</b>.</li> <li>• Enter the target parameter in the <b>Parameters</b> cell.</li> <li>• Select <b>Edit</b> in the <b>Param. Action</b> cell.</li> <li>• Enter the regular expression in the <b>Content</b> cell. For information on the syntax used by regular expressions, see <a href="#">Regular Expressions Syntax</a> in the Administrator Guide and <a href="http://msdn.microsoft.com/en-us/library/bb982727.aspx">http://msdn.microsoft.com/en-us/library/bb982727.aspx</a>.</li> </ul>
Clear	All parameters are removed from the stack.
Add Mul Sub Div	You add, subtract, divide and multiply numeric parameters. Use the <b>Content</b> column to specify the value to be added, subtracted etc.
Append Insert	You can either <b>Append</b> a string to the end of a string value or overwrite the existing value using <b>Insert</b> .
Complete Field	<p>Data stored in field parameters can be written to fields. You can write the following types of data to the field specified in the <b>Info Area</b> and <b>Field</b> columns:</p> <p>A fixed value entered in the <b>Content</b> column (double-click in the <b>Content</b> column to select catalog values from a list).</p> <p>Data from other fields in the same record. Leave the <b>Parameters</b> field empty and specify the source field in the right-most <b>Field</b> column.</p> <p>Data from a field parameter specified in the <b>Parameters</b> column Fields can only be completed in edit or new mode.</p>

The **New Input Parameter** command allows the workflow to react when the user navigates in a parent level. Data can be reread or the display refreshed. You need to specify the target info area under **Info Area**. Specify the action to parameters using the **Param. Action** column in the **Actions** table, see [Actions](#).

- Command: Command = New Input Parameter, Info Area =Company
- Action: Parameter = "Initial Company", Param. Action =Edit

Navigating between companies updates the "Initial Company" parameter, and further actions can be triggered using the new company. This command can be intercepted by any process.

## Examples

Here you can refer to some examples for action workflow item.

### Opening a Child Process

Clicking on (trigger) button 1200 in display mode in process 1 should start process 2 as a child. Process 1 should be locked for the duration of process 2.

No	Command	Button
0		1200

No	Res	Comm	Action	Le	Process
0			Create Child		2
1			Lock Process		1

### Closing a Child Process

Once process 2 is closed, process 1 is unlocked.

No	Command	Button
0	Close	

No	Res	Comm	Action	Le	Process
0			Unlock Proce		1

### Completing Fields

Clicking on button 1200 in display mode should transfer the contents of the **Rep** parameter to the **Rep 1** field in the company record. To do so, you have to ensure that the mode is switched to edit mode before performing the update and exit edit mode with **Save+Exit**.

Command					
No	Com	Button	Le	Link	Mode
0		1200			Display

Actions															
No	Res	Con	Action	Lev	Pro	Par	ID	BU	For	File	F	Para	F	Param. Ac	Field
0			Update												
1										Company		Rep		Complete	Rep.
2			Save+E:												

### Sending and Receiving Records

Clicking on button 1200 in process 2 triggers two commands and sends the allocation record to process 1. The reps stored in the **Rep** fields are then entered in the corresponding fields of the sales group displayed in process 2.

#### Process 2:

Command		
No	Com	Button
0		1200

Actions					
No	Res	Con	Action	Lev	Process
0			Send Re		1

#### Process 1:

Command					
No	Command	Li	Mod	File	
0	Receive Record			Allocation	

Actions						
No	File	Field	Parameters	P	Param. Action	Field
0	Allocation	Rep			Update	Rep. 1
1	Sales Group / Rep.	Rep			Complete Field	Rep. 1
2	Allocation	Rep			Update	Rep. 2
3	Sales Group / Rep.	Rep			Complete Field	Rep. 2

### Triggering Actions with Field Changes

In this example, an action is triggered by editing the **Country** field: If the country is changed (e.g. from Austria to Germany), the process' text field should display "Austria -> Germany". The parameter is added to the text using '<#>'. The first command is carried out **before** the new value is applied to the database:

Command							
No	Command	Bi	Le	Link	Mode	File	Field
0	Select before Field					Company	Country

Actions				
No	File	Parameters	Param. Action	Field
0	Company	Country	Update	Country

The next command is carried out **after** the new value is stored:

Command							
No	Command	Bi	Le	Link	Mode	File	Field
0	Select before Field					Company	Country
1	Select after Field					Company	Country

Actions							
No	Action	File	Parameters	Param. Action	Content	Field	Notes
0			Country	Append	->		
1		Company	Country	Append		Country	
2	Set Text		Country				✓

## Keys

Use the **Key Definition** table to select records based on data stored in a record parameter.

This allows you to:

- Incorporate records displayed earlier in the workflow.
- Define processes independently of other processes, yet still access data from other processes.
- Define links between records (e.g. enter a person key in a different person record) and edit these associations within the workflow.

Use the **Key Definition** table to define which fields in the record parameter are compared to which fields or indexes in the process.

**Note:** You should only use parameters that contain a value used to form a key, for example the company number. The last value added to the parameter stack is used to form the key.

You can compare parts of the field contents using the **Offset** column. Use **Limit** to specify when to abort a search.

The **Key Definition** table contains the following columns:

Column	Description
Parameters	Select the record parameter used to form the key here.
Process	The process that the parameter used to form the key is defined in.
Field	The field in the record parameter that is to be compared with the index.
Target Info Area Target Field	These fields are used to define which field from which info area is used to compare keys.

### Examples using keys

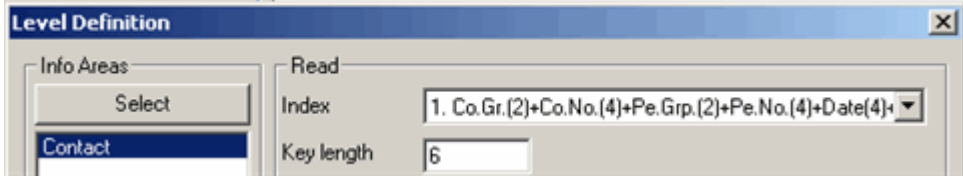
This topic has some examples that demonstrate the use of keys.

#### Linking to processes that are not parents

Process 2 is not a child of process 1. All contact records for the company (and associated persons) in process 1 should be displayed in process 2. The company record is stored as a parameter and compared to the contact keys.



Records are selected by matching up the first 6 places of the key (12 places would only return the company-related contacts).



#### Linking to external data

Generating keys for external data works much the same as in the previous example. You only need to change the parameter's **Source** to "External".



### Key formation using free fields

Keys can be formed using data from records. In this case, free fields are used in this database to store the person key, if a contact person moves between companies in the database. The existing person record is neither deleted nor merged, preserving the associated records (contact history, interests etc.). The old company and person keys are copied to free fields in the new record (**Co.Gr.** to **FreeC1**, **Co.No.** to **FreeN1**, **Pe.Grp.** to **FreeC2** and **Pe.No.** to **FreeN2**).

---

**Note:** This process could also be implemented using relationships and triggers.

---



To display the contacts with this person from the previous company:

1. Define a new parameter called "Current person". Select **Record** under **Parameters** and **Person** under Type.

No	Parameters	Source	Name	Type
0	Field	External	Today	
1	Record	Internal	Current Person	Person

2. The key defines which fields are compared to the fields stored in the parameter. The "Co.Gr. +Co.No. + Pe. Grp. + Pe. No. + Date" index is used for comparison purposes. The key is compared over the first 12 places (i.e. the company key and the person key).

Level Definition

Info Areas: Select Person, Contact

Read: Index: 1. Co.Gr.(2)+Co.No.(4)+Pe.Grp.(2)+Pe.No.(4)+Date(4)

Key length: 12

Key Definition

Descending  
 Sum all  
 Condition

3. A click in the list of persons triggers two actions. Define the following actions for this command:

No	Res	Com	Action	Lev	Process	Param	D B	Format	File	Field	Parameters	Process	Param	Action
0										Person	Priority	Current Person	2	Update
1			Create Child		5									

The first line determines that the parameter **Current Person** from the process (process 2) is added to the parameter stack. The second line determines that child process 5 is started. The contacts are displayed in process 5.

4. Determine which fields in the record parameter are compared with which fields in the index:

Parameters	Process	Not Empty	Field	Offset	Length	Target File	Target Field	Limit
Current Person	2		FreeC1			Person	Co.Grp.	
Current Person	2		FreeN1			Person	Co.No.	
Current Person	2		FreeC2			Person	Pe.Grp.	
Current Person	2		FreeN2			Person	Pe.No.	

## Input criteria

Learn about the input criteria workflow elements.

You can select data in workflows based on conditions that are dependent on the parent processes. To do so, use the **Input Criteria** and **Result** tables.

Input criteria also provide other options: you can determine that a process is only opened if certain conditions are met by the parameter, or choose to open additional processes as well.

Use the **Input Criteria** table to:

- Apply conditions to parameters
- Determine that a process is only opened if conditions are met
- Search the database
- Access keys formed using parameters
- Define the relationships between records and processes
- Define various actions dependent on these results

Column	Option
Link Operand	Use this column to determine whether the condition is linked with other conditions using a logical 'AND' or 'OR'.
Info Area Index	You can search for and select records using indexes. Determine the info area in the <b>Info Area</b> column and the index you wish to use in the <b>Index</b> column.
Read Type	Determines which records are returned: records with the same index ( <b>Equal</b> ), records with higher indexes ( <b>Greater, GreaterEqual</b> ), records with lower indexes ( <b>Less, LessEqual</b> ), or the first or last record ( <b>First or Last</b> ).
Key Length Key Definition	<p>You can use parameters to form keys.</p> <p>If you enter a <b>Key Length</b> of '-1', the length of the key is set to the length of the parameter entered under <b>Key Definition</b>.</p> <p>Click in the <b>Key Definition</b> cell to open the <b>Key Definition</b> table and define the key.</p>
Condition Extended Cond. Not Included	You can define further conditions applied to the records.
Parameters No. Operand Comp. Value Comp. Field	<p>You can apply conditions to parameters and compare them to either fixed values or fields in the info area being searched.</p> <p>Select the parameter in the <b>Parameters</b> column. Define the comparison using the <b>Operand, Comp. Value</b> and <b>Comp. Field</b> columns. Select the field to compare the parameter with in the <b>Comp. Field</b> cell. To compare the parameter with a fixed comparison value, enter the value in the <b>Comp. Value</b> field.</p>
Result	Used to configure how the result is used (see below).
Comment	Enter text in all available languages to be displayed when the workflow is carrying out this task.

## Result

Use the **Result** column to determine what happens if records meet the defined conditions or not.

If you only enter a condition, and leave the **Result** column empty, the conditions are used to determine whether the process entered in the **Process** column is opened.

---

Column	Option
Result	Determine whether the actions entered here take place if the result of the comparison in the <b>Input Criteria</b> table is TRUE or FALSE, or regardless of the result.
Parameters Process Param. Action Content Field	These options affect the parameter stack. For more details, see <a href="#">Parameter Actions</a> .
Action Process Parent Process	These options affect processes in the workflow, see <a href="#">Actions</a> .

Select the field from the info area entered in the **Info Area** column in the **Input Criteria** table. Otherwise the settings are similar to those for actions.

## Defining parameters

Learn how to define parameters for input criteria.

Steps to define parameters:

1. Define parameters for the **Area** field and the current company record:

Parameters				
No	Parameters	Source	Name	Type
1	Record	Internal	Current Person	Person
2	Field	Internal	Current area	

2. Define the following commands and actions in process 2:

Command																
No	Command	Button	Level	Link	Mode	File	Field	Condition	Parameters	No.	Operand	Comp.	Comp.	Question	Notes	Actions
3	Mouse click					Person	Priority	<input checked="" type="checkbox"/>						Y	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Actions														
No	Result	Comm	Action	Level	Proc	Param	ID	But	Format	File	Field	Parameter	Proc	Param. A
0	True									Person	Priority	Current c 2		New
1	True		Create Child											

The condition is "Area <> <empty>".

3. Enter the **Text** and **Description** of the next process, and set the Type to "New View". Click on the cell in the **Input Criteria** column.
4. Determine that the value stored in the parameter Current area should be compared to the Area value stored in all company records, and those records returned where the values correspond ('=' in the **Operand** field).

Input Criteria														
No	Link	File	Index	Real	Key U	Key D	Cond	Exter	Not In	Parameter	No.	Operand	Comp. V	Comp. Field
0		Company	1. Co.Grp.(1)+Co.No.(4)							Current		=		Area

If the condition is met (the result is TRUE), this record should be added to the parameter stack under **Current company**. All the companies that meet this condition are added to the stack.

5. Click on the cell in the **Result** column. Enter the following in the **Result** table:

Result		
Result	Param. Action	Parameters
True	New	Current Company

6. Close the table. The **Result** column now contains a tick. Close the **Input Criteria** table. The **Input Criteria** cell now also contains a tick.
7. Click the cell in the **Definition** column. Determine that you want companies to be displayed.

The screenshot shows a dialog box titled "Level Definition". It is divided into two main sections: "Info Areas" and "Read".

- Info Areas:** Contains a "Select" button and a list box. The list box has "Company" selected.
- Read:** Contains an "Index" dropdown menu with the value "1. Co.Gr.(2)+Co.No.(4)", a "Key length" input field, a "Key Definition" button, and a "Descending" checkbox.

8. Define that the company data are taken from the parameter stack under **Input Parameter**.

The screenshot shows a dialog box titled "Input Parameters".

- It has a "Current Company" dropdown menu.
- There are two radio buttons: "All Available" (which is selected) and "Individual".
- There is a "Process-related" checkbox.
- There is a "Process Number:" label followed by an input field containing the value "0".

# 3

## Testing a workflow

This section provides a quick overview of how to test your workflow.

You should determine:

- Whether the workflow meets your **requirements**
- Whether the **functions** are defined correctly
- Whether the workflow's **performance** is acceptable
- Whether the workflow contains **errors**

The formal definition of the workflow should include a list of **Requirements**, listing the levels and commands and their requirements.

Ask the person requesting the workflow to review the finished documentation to ensure that the workflow meets their demands.

## Functionality

Here you can find the checklist to test that the workflow functions correctly and to track down possible problems.

Below is the checklist:

Scenario	Test	Possible solutions
Starting	Check that the workflow starts correctly.	Define the correct rights settings; check the configuration settings.
	Check that the correct data is displayed when accessing various levels or info areas.	See the section on <a href="#">Troubleshooting</a> .
Level	Check that the level contains the correct data. If a level is opened from several commands or levels, test each scenario.	See the section on <a href="#">Troubleshooting</a> .



Scenario	Test	Possible solutions
Masks	Switch between list and mask view in all the levels, and check that the masks and lists are all defined correctly or that switching is denied.	Define masks and lists or prevent access to list or mask view.
Adding records	Test that new records are entered correctly in all the levels and that all the keys are also entered.	Deny access to new mode, change the key definition or use parameters to generate keys.
Navigating between records	Test that navigating between records in each level works as planned.	Edit the key definition.
	Ensure that only the desired records are displayed when you navigate.	Edit the key definition; remove erroneous records.
Commands	Execute each command at least once and in as many situations as possible. If a command makes changes to the parameter stack, carry out the command several times to test whether old values remain on the stack.	See the section on <a href="#">Troubleshooting</a> . Clear the parameter stack; see the section on <a href="#">Troubleshooting</a> .
Prompts	Test that actions are only carried out if the correct reply is given to a prompt.	Edit the <b>Result</b> column for the action or the <b>Question</b> column for the command.
Focus	Consider whether switching between levels could cause problems (e.g. when adding a dependent record).	Lock the process or give the process focus.
	Ensure that the focus is removed from a level if it is set.	Remove the focus.

Scenario	Test	Possible solutions
Data	Ensure that you are not treating data in the workflow differently from in the rest of Aurea CRM.	Configure the rights settings accordingly.
Security	Start the workflow as a user (without administrator privileges) and test that it is impossible to remove links and internal codes by mistake.	Configure the rights settings accordingly.

## Performance

Learn about the performance improvement for a workflow.

Add enough records and test the workflow under conditions that approximate your work environment as closely as possible.

The following impact on performance:

- Data that is not searched for using a key
- Conditions applied to large volumes of data
- Sort options

If you search for data using keys, it should be possible to use 10,000 records over a network without performance problems.

The following steps can improve performance:

- Reduce the volume of data that is searched.
- If you search through the database several times in a similar manner, save the results of the first search as parameters and use these parameters in later stages.
- Add indexes using the data model for fields that are used to search or sort large volumes of data.

## Troubleshooting

This topic describes possible sources of errors and how you can track down the cause of a problem.

To simplify troubleshooting, you can enable logs for workflows in the configuration settings, see [Workflow](#) in the [Configuration](#) topic of the *Core Administrator Guide*.

There are two types of errors:

- Records are displayed incorrectly.
- Commands are executed incorrectly.

## Common Errors and Causes

Scenario	Error	Cause / Solution
Level	Level not opened from a command	Define the input criteria.
		Enter the level number in the command.
Records	Too many records	The index or key length is missing.
	None / too few records	The level is not opened as a child.
		The key used to select records is too long causing records to be excluded.
		Check that you are using the correct index to select records.
		The record parameter is of the wrong type.
	The wrong records are displayed	The order in which the actions are carried out is wrong; the process is called first and <b>then</b> the parameter entered.
	Too many records displayed when accessing the level a second time	The parameter stack was not cleared.
Parameters	Parameters are empty	<b>Info Area</b> and <b>Field</b> entered incorrectly or left blank.
		Wrong parameter entered.
	Mathematical and string operations do not work	The parameter is of the wrong type.
Buttons	Default buttons are unavailable	Many default buttons are level-dependent and cannot be used in the workflow. In many cases you can define the same functionality yourself.
	Actions are not carried out when the button is clicked	Wrong button ID. Check that the ID of the button is the same as the value entered in the command.
Trigger	Triggers are not executed	The trigger format is spelled incorrectly. Open the trigger in the Trigger info area, and copy the trigger's name using Ctrl+C. Enter the name in the workflow using Ctrl+V.
		The source info area has not been specified.
Actions	The result is incorrect for commands that trigger several actions	Spread the actions over several commands, and execute these one after another. Test where the error lies and fix the problem.

### Making Values Visible

When troubleshooting, make sure you keep track of which values are stored in the records and parameters after each step.

To display the values:

<b>Records</b>	Select <b>View &gt; All Mask Fields</b> from the menu.
<b>Record Parameters</b>	Define a process with this parameter as an input parameter.
<b>Field parameters</b>	Display the parameter using the <b>Set Text</b> action.

# 4

## Sending a workflow by e-mail

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Learn how to send workflows to other users.

Aurea CRM allows you to send workflows to other users, including the formats used by the workflow (masks, triggers, trigger masks, DDE formats, catalog values).

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**Note:** Rights formats are not included.

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You should ensure that the following applies:

- The sender and receiver should have the same language version of Aurea CRM installed.
- No formats that use the same name as formats in the workflow should be present on the receiver's Aurea CRM. **Formats with the same name are overwritten!**

### Sending a workflow

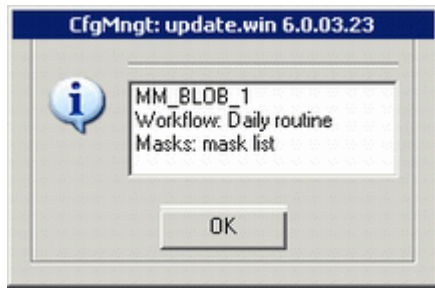
To send a workflow:

1. Select **Info > Workflow** from the menu to open the **Workflow** info area.
2. Select **E-mail** from the context menu. A list of the available workflows is displayed.
3. Select a workflow. Enter the first few letters of the workflow's name in the **Name** field to quickly navigate within the list.
4. Confirm with **OK**. Your e-mail client is opened. The workflow you selected is included as an attachment.
5. Enter a recipient.
6. If you wish, enter body text.
7. Send the e-mail.

### Importing the workflow from an e-mail

To import a workflow received in an e-mail:

1. Open the **Workflow** info area.
2. Select **Sync. Mail** from the context menu. Aurea CRM searches your inbox for e-mails containing workflows. To reduce the length of the search, make sure your inbox contains only a limited number of e-mails. If the sender included any text in the e-mail, the text is displayed.
3. A log of the formats that were imported are displayed.



4. Click **OK** to confirm.



# 5

## Documenting workflows

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Workflows and their processes should be documented, as with any other database application that affects several info areas.

This topic focuses on the information that should be included in your documentation.

### Documenting workflow goal

You should include a brief description of the workflow's purpose in general terms.

The goals should be formulated so that non-technical staff members can understand them. Technical details concerning the execution of processes should be dealt with later.

### Documenting workflow processes

Learn how to document workflow processes.

Every workflow consists of at least one process. Each process displays certain data and allows user interaction. Processes can be linked with one another and parameters can be transferred between processes.

For each process, you should include the following information:

- A brief description of the general purpose of the process, including the modes available to the user.
- An overview of the info areas and data included in the process including the indexes used to select and sort data.
- An overview of the process hierarchy and a description of how the info areas in the process are linked to one another; e.g. using which index.
- An overview of how processes are linked to and interact with each other.
- An overview of the commands available to the user.
- Any restrictions that apply to the process.
- The masks used by the process. In the case of custom masks designed in the mask generator, include details on any custom buttons or entries in the context menu that allow the user to interact with the workflow.

You can display several info areas in the same level. You should pay particular attention to the following:

- Only one info area per level should include a 1:n link. (e.g. a person, all contacts for this person (1:n) and the activity for which the contact was added).
- New records should be added from the same level as the parent info area or from a child of the level containing the parent info area. Otherwise, keys need to be either entered manually, using parameters or by a trigger.
- If you want to add data to several records in a level, you should prevent access to the **New** button for adding data, and define a dedicated button instead.
- The parent-child hierarchies in the workflow should reflect the hierarchy in the datamodel.
- If you want to link an info area to several other info areas, define a level for each type of link.

---

**Note:** Aurea CRM ignores the first two limitations in the **Company+Person** level. You therefore need to specify whether you wish to add a new person or company when adding a new record.

---

You can also use Aurea CRM cockpit to manage and document formats, which include workflows. Furthermore, you can document any changes to the data model. in Aurea CRM cockpit and publish your documentation to PDF, HTML and Word formats. For more information, contact your update representative.

## Documenting data model

Each process includes information from one or several info areas. You should document which info areas are displayed in which processes, the index used to sort and select records and any restrictions that apply.

Remember to consider how the info areas are related to one another in Aurea CRM; i.e. which info areas are parents and which are children. An overview of the data model for each version is available as a separate PDF document.

You can display existing data in a new form; e.g. displaying the top ten companies by revenue. However, some applications may require you to configure the data model to meet the requirements of the workflow. For example, if you add a problem resolution record and want to associate any number of contact records with it, you need to save the problem resolution record in the database. Furthermore, you need to enter its key in the associated contact records.

If you edit the data model itself, you should document any such changes and provide a description of the new data model.

## Types of links

### 1. 1:1links

Occur rarely, as it generally makes more sense to integrate this type of information in a single info area.

Example: Offer and Order

### 2. 1:n links

Examples: Company - Persons; Activity - Contacts; Questionnaire - Surveys; etc.

### 3. n:m links

n:m links can only be implemented by using a third info area. For example, using the **Contact** info area, you could associate a person with several activities and an activity with several persons. This is possible because contacts are linked to both persons and activities, and both persons and activities can be linked to several contacts. In this sense, an n:n link is a 'double' 1:n link.

If required, you can add an info area to the data model to establish an n:m link between two info areas.

---

**Note:** Not all links in Aurea CRM are used in both directions. There is no function used to display the activities to which a person or contact is assigned, for example, or the contact linked to a survey. The first case is technically feasible, in the second case, the contact record does not include a suitable index.

---

## Searching in the datamodel

Aurea CRM allows you to search according to those fields for which there are indexes (e.g. the company name, synonym, address and group from the company search). If you want to search within your data model:

- **either** use indexes,
- **or** limit the volume of data that is searched.

## Commands and actions

You should provide information on the commands and associated actions in a process.

The following should be documented:

- The name of the command in Aurea CRM; e.g. **Double-click inList**
- Any conditions and restrictions that affect the execution of the command
- The associated action(s); e.g. create child process 2. Remember that the order in which commands are executed can affect the behavior of the workflow.
- Any parameters used by the command and/or action.

- User prompts and how the responses influence the course of actions.
- Any changes to the database carried out by the action. You should list both the info area and field that are affected.

## Documentation for the end user

For complex workflows, you should provide documentation for the end users.

Include the following information in your documentation:

- Introduction (detailing the workflow's functionality)
- Levels and info areas involved
- How to access the workflow
- Links to other areas or workflows of relevance

You should document the following information for each level:

- How levels are embedded in the workflow
- How the level is accessed
- What information is displayed on the screen
- The functions of fields in the level
- Actions and how they are triggered

In contrast to the documentation for workflow designers, the end user documentation should not be concerned with the internal workings of the workflow (parameters, indexes, etc.).

# 6

## Parameters

---

Parameters are used to effectively handle data within a workflow.

You can use parameters to store data within a workflow to:

- Transfer data between fields
- Define criteria for opening processes or carrying out actions
- Select records
- Sort records

For example, you can use parameters to:

- Integrate the record from which the workflow is started into the workflow (e.g. start the workflow from a person and display all the activities for which contacts with this person exist).
- Use system information, such as the date or current rep as a starting point.
- Display data in a process depending on the parent process.
- Define sort criteria and limits, e.g. to show the top 10 companies by revenue.

## Defining parameters

Learn how to define parameters and where.

Parameters are defined in the **Parameters** table. Click on **Parameters** in the overview to open the **Parameters** table.

You need to specify the parameter type and where the data stored in the parameter is taken from. You can also initialize a parameter with a specific value, if necessary.

Parameters either store a single value, such as the contents of a specific field, or they can be used to store an entire record.

There are two types of parameters: **Field** or **Record**. Field parameters store data from a field. Record parameters store an entire record.

The following columns are included in the table:

### Source

You can determine the source of the parameter: **External** sources (i.e. from outside the workflow) or **Internal** sources (i.e. from within the workflow). External sources also include system data, such as the current date or time.

## Name

Enter a name used to identify the parameter within the workflow. Whenever you can select a parameter, Aurea CRM provides a list of the available parameters for you to choose from.

## Type

You need to determine the type of parameter.

If the parameter is a record, choose the info area that the record comes from. Enter the first letter of the info area's name to quickly navigate in the list.

Field parameters can be numeric (integers, positive integers and floating point numbers) or contain strings, Boolean values, dates and times.

---

**Note:** A field parameter with the type set to **Time** and **Max** set to '1' always stores the current time.

---

## Mandatory

This column is used for external parameters. If you enable the **Mandatory** option, the workflow can only be started if a suitable record is found.

For example, if you define a person as a mandatory parameter, you can access the workflow from the **Company + Person** info area, provided a person is stored for the current company. You can also start the workflow from all child info areas, irrespective of whether they are company or person-related. If an external parameter is defined as mandatory, you cannot start the workflow from independent info areas.

## Content

You can initialize a field parameter with the contents of this field.

## Variable

Use this column to define variable parameters, such as the current rep or date, as well as variables defined in the **Configuration** info area for fields in the **Station, Rep** and **RepAddnl Info** info areas, see [General Settings](#) in the *Configuration* topic in the *Core Administrator Guide*.

The "Variables" entry provides access to variables defined in the **Variables** info area in the **Rights** module. For more information, see [Variables](#) in the *Core Administrator Guide*. To initialize a parameter with one of these variables:

1. Select "Data Field" in the **Parameters** column.
2. Select "Extern" in the **Source** column.
3. Select "Variables" in the **Variable** column.
4. Double-click in the **Content** column to select the desired variable from a list.

Alternatively, you can enter the variable's station and record number ("ID = <station no.>, <record no.>") or the record ID ("ID = <record ID>") in the **Content** field.

## Sort

You can determine the sort criteria used to sort parameters on the stack. When performing recursive operations on data, use the sort order to determine the order in which data is processed and output. As you cannot sort lists in workflows, use the parameter sort order to output data in a specific order.

You can either sort record parameters by ascending or descending order according to their value.

## Max.

Use the **Max.** column to limit the maximum number of parameters that are stored. If this value is exceeded whilst executing the workflow, the first values (according to the sort order) are retained.

If you do not enter a value, no limit is set (i.e. you can use as many parameters as your system allows).

# Key formation using parameters

Learn how to reuse parameters.

You can add parameters to the parameter stack, allowing you to use the same parameter to store several items of data. The last parameter added to the stack is used to form the key. You should therefore ensure that parameters used to generate keys only contain a single value or that the order of parameters on the stack is clear. For more details, see [Keys](#).