

openCRX Activity Management and Issue Tracking

Version 1.6.0

www.opencrx.org



openCRX Activity Management and Issue Tracking: Version 1.6.0

by www.opencrx.org

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Chapter 1. About this Book

This book describes the *openCRX* features **activity management** and **issue tracking** and how you can work effectively by using these features.

Who this book is for

The intended audience are *openCRX* administrators and *openCRX* users.

What do you need to understand this book

It helps if the reader is somewhat familiar with *openCRX* even though this is not a requirement.

Chapter 2. Prerequisites

There are no prerequisites. However, if you are an administrator you might want to consult some of the technical *openCRX* guides for information on how to install, configure and customize openCRX:

- *openCRX Quick Start* (<http://www.opencrx.org/documents.htm#Docopencrx>)
- *openCRX Security Guide* (<http://www.opencrx.org/documents.htm#Docopencrx>)
- *openCRX Customization Guide* (<http://www.opencrx.org/documents.htm#Docopencrx>)

Chapter 3. Activity Management with openCRX

openCRX features powerful enterprise-class tools that enable you to

- **structure and group activities in many useful ways**; the concepts available – *Activity Tracker*, a whole set of *Activity Types*, *Activity Links*, *Category*, *Milestone* – allow you to capture virtually any constellation as it may occur in reality
- **easily locate and retrieve information about activities and related objects** – *openCRX* supports filtering (incl. user-defined filters), sorting, searching, drill-down navigation, back-navigation, etc.
- **professionally manage activities** – *openCRX* supports important management objectives like assignment of activities to real people (because real people get the work done, not anonymous groups...); *openCRX* helps you focus on activities that are urgent and important because *openCRX* allows you to separate important and urgent jobs from the many time-consuming trivial ones (see *Personal To-Do List*) and differentiate between severe issues and trivial issues (see *Bug Tracking*); with *openCRX Work Records* you can easily keep track of effort exerted by individuals and effort aggregated at different levels (activity, milestone, category, activity tracker) on a real-time basis and suitable for billing
- **Monitoring progress, controlling, and reporting** – convenient subscribe/notify services enable you to keep an eye on what is going on without manually monitoring progress, real-time charts provide aggregated information on all important issues, and project controlling is a breeze with all the different views on your data
- **Multi-entity enabled** – all concepts implemented by *openCRX* are multi-entity enabled, i.e. even the most complex deployment scenarios (e.g. Application Service Provider environment) can be handled virtually out of the box
- **Audit trail** – in various settings (e.g. financial institutions, healthcare, call centers, ...) it is absolutely crucial that every change to any data object is protocolled. *openCRX* takes care of all these requirements with a system-wide audit trail enabling the auditor (or other authorized/interested people) to inspect the complete history of any *openCRX* object
- **Security** – *openCRX* features enterprise-class role-based security which enables administrators to effectively manage principals, roles, and permissions; the powerful role-based approach to managing permissions enables you to control access to information with the appropriate granularity (e.g. access to team-information can be strictly limited to team members)

In the following chapter of this guide we look at the various *Concepts* that are available in *openCRX*. The chapter *General Activity Management* contains a discussion of all the *Activity Types* supported by *openCRX* and how you get a handle on them. *Incident Management* is an important topic in various contexts, e.g. customer service, call centers, *Bug Tracking*, etc. Reporting capabilities of *openCRX* are discussed in the section *Reports*. We also look at some *Use Cases* and how you can change the look and feel of *openCRX* by way of *Customizing* it.

Chapter 4. Concepts

In this chapter we look at all the important concepts of managing activities with *openCRX* from a user's perspective (if you are interested in the UML models of these concepts, please refer to the *openCRX UML models* (<http://www.openctx.org/documents.htm#Doctestuml>)). In particular, we will look at the following concepts:

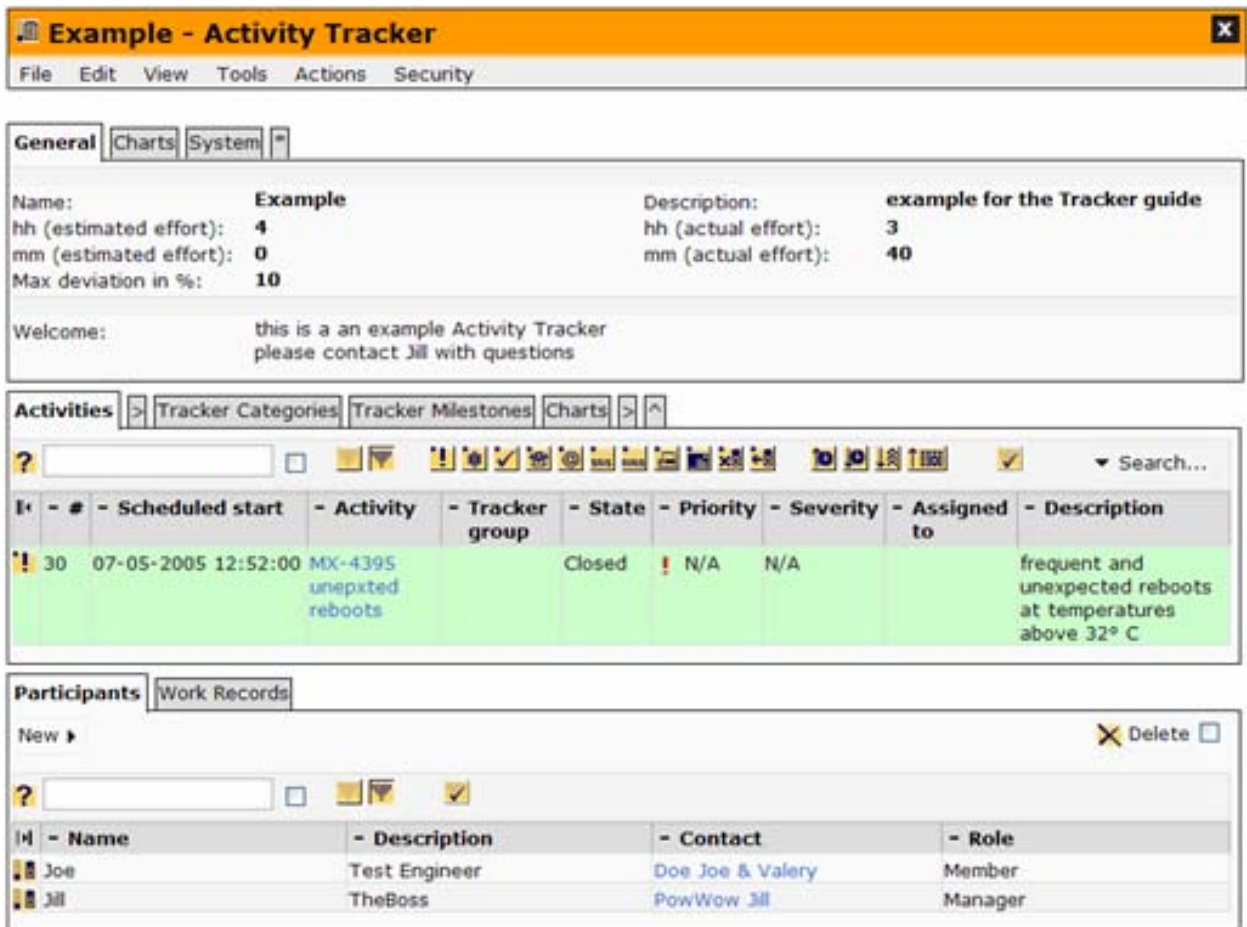
- Activity Tracker (used to group and categorize sets of activities and people related to them)
- Activity (used to describe something that needs to get done)
- Category (used to group activities that belong together)
- Milestone (group activities that belong together because they relate to the same intermediate result/deliverable)
- Participant (a person involved with an activity tracker)
- Votes (people use votes to indicate support for an activity)
- Work Records (describes an effort made in connection with an activity, e.g. to resolve an incident, prepare a meeting, etc.)
- Activity Links (allows one to link activities)
- Security (explains the difference between public and private activity trackers and provides other security-related information – administrators and other parties interested in the technical details of security should refer to the *openCRX Security Guide* (<http://www.openctx.org/documents.htm#Docopenctx>)) for an in-depth discussion of the security concepts implemented by *openCRX*)
- Notes, Documents, and other Attachments (short introduction in different attachment types – notes, documents, and other media objects)

Activity Tracker

Activity Trackers are a powerful concept to add some structure to activities and people related to these activities, i.e. you can use them to **group and categorize sets of activities, people related to these activities** (we call them "participants"), **work records, etc.** For example, you could use an **Activity Tracker** to keep track of a product design project (i.e. all the project activities, milestones, project members, work records related to the project, etc.), a software development project (look at the use case *Bug Tracking*, a support contract with one of your customers, to manage your personal *Personal To-Do List*, etc.

In addition to activities and participants you can also attach categories, milestones, and work records to an **Activity Tracker** (all of these concepts are explained subsequently if you read on):

Figure 4-1. Activity Tracker with linked Activities and Participants



Example - Activity Tracker

File Edit View Tools Actions Security

General Charts System

Name: **Example** Description: **example for the Tracker guide**

hh (estimated effort): **4** hh (actual effort): **3**

mm (estimated effort): **0** mm (actual effort): **40**

Max deviation in %: **10**

Welcome: this is a an example Activity Tracker
please contact Jill with questions

Activities Tracker Categories Tracker Milestones Charts

Search...

#	Scheduled start	Activity	Tracker group	State	Priority	Severity	Assigned to	Description
30	07-05-2005 12:52:00	MX-4395 unepxtd reboots		Closed	N/A	N/A	Jill	frequent and unexpected reboots at temperatures above 32° C

Participants Work Records

New Delete

Name	Description	Contact	Role
Joe	Test Engineer	Doe Joe & Valery	Member
Jill	TheBoss	PowWow Jill	Manager

Anatomy of an Activity Tracker:

- **Name** of the Activity Tracker
- a short **Description** of the Activity Tracker
- **Welcome** usually contains detailed information about the Activity Tracker, typically provided by the manager of the Activity Tracker to the other participants; participants new to an Activity Tracker should always read the Welcome before they start doing any work related to the Activity Tracker; if appropriate, make use of the HTML feature to add explicit structure (you can start the HTML editor by clicking on the small icon [HTML] located just above the input field)

- **hh (estimated effort)** and **mm (estimated effort)** is information that is typically provided by the manager of the Activity Tracker – a guess on how many hours and minutes it takes to work through all the linked activities
- **Max deviation in %** contains the maximum (expected) deviation of the actual effort from the estimated effort in % of the estimated effort – high values indicate the manager's low confidence in the accuracy of the estimated effort numbers
- **hh (actual effort)** and **mm (actual effort)** are derived from the information contained in the linked work records; use the operation *View > Calculate and Refresh...* to update this information
- various **Charts** are provided that summarize/aggregate information contained in objects related to the Activity Tracker at hand; a list of all the charts available is contained in the Grid tab Charts (see also section Reports for a discussion of charts); the manager of the Activity Tracker can select some of the charts to be displayed in the Inspector tab Charts of an Activity Tracker, every participant can select favorite charts to be displayed on the personal User Home.

To find out what is going on in the ecosystem of a tracker, explore the information that is available in the many Grids, e.g.

- **Activities** contains a list of all the linked activities; various pre-defined filters allow you to organize this list to your liking, e.g. sorted by due date, sorted by priority, etc.
- **Tracker Categories** contains a list of all the categories defined for this Activity Tracker (see *Category* for additional information)
- **Tracker Milestones** contains a list of all the milestones defined for this Activity Tracker (see *Milestone* for additional information)
- **Participants** contains a list of all the tracker participants (see *Participant* for additional information)
- **Work Records** contains a list of all the work records submitted for activities linked to this Activity Tracker (see *Work Records* for additional information)

Please note that use of certain operations on Activity Trackers is restricted to *Managers* (see *Participant*)

Activity

An **Activity** is used to collect information about a set of actions, an event, something that needs to get done, etc. *openCRX* supports various *Activity Types*, e.g. Incidents, Meetings, Sales Visits, Phone Calls, E-mails, etc. The figure below shows a Meeting as an example of an activity:

Figure 4-2. Activity with assigned Activity Trackers

Ice Breaker - Meeting			
File Edit View Tools Actions Security			
General Details System			
Name:	Ice Breaker	State of meeting:	Open / Scheduled
#:	37	Priority:	^ [3] High
Description:	Kick off meeting	Scheduled start:	20-04-2005 16:00:00
Assigned to:	PowWow Jill	Scheduled end:	20-04-2005 17:30:00
Miscellaneous #1:		Due by:	
Miscellaneous #2:		Actual start:	
Miscellaneous #3:		Actual end:	
Contract:		% complete:	0
Additional Information			
Location:	Meeting Room #A4	is all day event:	<input type="checkbox"/>
Detailed description:			
<ul style="list-style-type: none"> • get to know everybody in the team • project goals / deliverables • project planning /. time line • ressources 			
Assigned Trackers Linked Activities Inbound Activity Links Work Records Votes > ^			
<input type="text"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>			
- Activity tracker		- Tracker group	
Example			

Some activity types feature type-specific attributes (see section *Activity Types* for a detailed discussion), but all Activities share a common set of attributes:

Anatomy of an Activity:

- **Name** of the Activity
- **#** contains the number of the Activity (it's actually a string to make integration with third-party systems easier...) – if you create an Activity with the operation "New Activity", *openCRX* will automatically generate an activity number for you by incrementing the highest existing activity number by 1
- use **Description** for a short summary (approximately 60 or fewer characters) of the Activity, and **Detailed Description** to provide detailed information about the Activity; if appropriate, make use of the HTML feature to add explicit structure; this makes your **Detailed Description** easy to skim (you can start the HTML editor by clicking on the small icon [HTML] located just above the input field)
- **Assigned to** contains a reference to the contact whom this Activity is assigned to – some operations (e.g. "Assign to me") change the value of this field
- use **Miscellaneous #1** to **#3** to provide additional information
- **Contract** can contain a reference to a contract (e.g. Sales Order, Service Contract, etc.); this information is helpful as a reminder or useful for billing purposes

- the current state of an Activity is reflected by the value of **State of Activity** (where *Activity* is usually replaced by the type of the Activity); the set of valid states depends on the type of Activity – some operations (e.g. "Mark as complete") change the value of this field; typically, various *Open* states and various *Closed* states are supported
- **Priority** indicates whether an Activity must be treated/processed with high or low priority (by default, *openCRX* supports the following values: *low, normal, high, urgent, immediate*)
- the fields **Scheduled start** and **Scheduled end** contain date/time information reflecting the planned scheduling of the Activity
- use **Due by** to indicate by when (date/time) an Activity must be completed
- the fields **Actual start** and **Actual end** contain actual date/time information
- use **% complete** to indicate what percentage of the total required effort has been made so far – some operations (e.g. "Mark as complete") change the value of this field
- **hh (estimated effort)** and **mm (estimated effort)** is information that is typically provided by a person who is responsible for the Activity – a guess on how many hours and minutes of effort it takes to complete the Activity
- **Max deviation in %** contains the maximum (expected) deviation of the actual effort from the estimated effort in % of the estimated effort – high values indicate a low confidence in the accuracy of the estimated effort numbers
- **hh (actual effort)** and **mm (actual effort)** are derived from the information contained in the linked Work Records
- **Total votes** contains the number of votes that have been cast for this Activity

To find out about other *openCRX* objects related to the Activity at hand, explore the information that is available in the many Grids, e.g.

- **Assigned Trackers** contains a list of all the activity trackers this Activity is assigned to (because an individual activity can be assigned to multiple activity trackers – see *Activity Tracker* for additional information)
- **Linked Activities** contains a list of all the linked activities, i.e. **other Activities referenced by this Activity** (see *Activity Links* for additional information)
- **Inbound Activity Links** contains a list of all the activities with links to this Activity, i.e. **other Activities referencing this Activity** (see *Activity Links* for additional information)
- **Involved Contacts** (or **Involved Accounts**, depending on the *Activity Types*) contains a list of all the contacts (accounts) playing an important role with relation to this Activity
- **Work Records** contains a list of all the work records submitted for this Activity (see *Work Records* for additional information)
- **Votes** contains a list of all the votes cast for this Activity (see *Votes* for additional information)
- **Notes** are particularly important in the context of *Incident Management*, but typically they play an important role in managing other activities too

Category

With the help of **Categories** you can group activities that belong together. For example, you might want to put all activities that are related to a particular product defect into a **Category Defect XYZ**, or you might want to assign all activities related to a new product version into a **Category V1** (for Version 1):

Figure 4-3. Category with linked Activities



Anatomy of a Category:

- **Name** of the Category
- a short **Description** of the Category

You can define as many **Categories** as you like and you can assign the same activity to multiple **Categories** if required. All the activities assigned to a Category are shown in the Grid **Activities**.



Tip If an activity is assigned to multiple **Categories**, this linked activity will show up multiple times in the Grid **Activities** of the respective activity tracker, once for every Category it is assigned to; this is useful if you filter activities based on Category assignments.

Milestone

With the help of **Milestones** you can group activities that belong together because they relate to the same intermediate result/deliverable (which is commonly called a milestone). For example, you might want to assign all activities that are related to the first release candidate of a software product to **Milestone RCI**, or you might want to assign all activities related to passing a chemistry field exam to **Milestone Field Exam Chemistry**:

Figure 4-4. Milestone with linked Activities

The screenshot shows a window titled "M1 - Tracker Milestone" with a menu bar (File, Edit, View, Actions, Security). Below the menu bar is a "General" tab and a "System" dropdown. The "Name" field contains "M1" and the "Description" field contains "Milestone 1". Below this is an "Activities" section with a search bar and a toolbar. A table of activities is displayed below the toolbar.

#	Scheduled start	Activity	Tracker group	State	Priority	Severity	Assigned to	Description
37	20-04-2005 16:00:00	Ice Breaker	M1	Open / Scheduled	[3] High		PowWow Jill	Kick off meeting

Anatomy of a Milestone:

- **Name** of the Category
- a short **Description** of the Category

You can define as many **Milestones** as you like and you can assign the same activity to multiple **Milestones** if required. All the activities assigned to a Milestone are shown in the Grid **Activities**.



Tip If an activity is assigned to multiple **Milestones**, this linked activity will show up multiple times in the Grid **Activities** of the respective activity tracker, once for every Milestone it is assigned to; this is useful if you filter activities based on Milestone assignments..

Participant

A contact that belongs the "ecosystem" of an activity tracker is called a **Participant**. (short for **Tracker Participant**). Typically, the manager of an activity tracker adds *openCRX* contacts to the list of Participants to indicate that the people they represent play a role with respect to the activity tracker at hand. Supported Participant roles are *Manager*, *Member*, *Viewer*. In the context of an activity tracker for a project, for example, you would add all project members to the list of Participants of the respective activity tracker. *openCRX* automatically displays linked activities as well as votes and work records of a Participant:

Figure 4-5. Participant with linked Activities, Votes, and Work Records

The screenshot shows a window titled "Jill - Tracker Participant" with a menu bar (File, Edit, View, Actions, Security). It is divided into three main sections:

- General**: Shows Name: Jill, Description: TheBoss, Contact: PowWow Jill, and Role: Manager.
- Activities**: Contains a search bar, a toolbar with various icons, and a table of activities.

#	Scheduled start	Activity	Tracker group	State	Priority	Severity	Assigned to	Description
37	20-04-2005 16:00:00	Ice Breaker		Open / Scheduled	[3] High		PowWow Jill	Kick off meeting
- Work Records**: Contains a search bar, a toolbar, and a table of work records.

Based on work record	Activity	Tracker group	Description	hh (duration)	mm (duration)	Contact
Prepare Meeting	Ice Breaker			2	15	PowWow Jill

Anatomy of a Tracker Participant (or just Participant):

- **Name** of the Participant (e.g. a participant's nick name)
- use **Description** for a short summary of the typical roles/tasks/etc. of the Participant
- **Contact** contains a reference to an *openCRX* Contact
- pick the appropriate (high-level) **Role** for the Participant at hand: *Manager*, *Member*, and *Viewer* are currently supported

To find out about other *openCRX* objects related to the Tracker Participant at hand, explore the information that is available in the many Grids, e.g.

- **Activities** contains a list of all the assigned activities; various pre-defined filters allow you to organize this list to your liking, e.g. sorted by due date, sorted by priority, etc.
- **Work Records** contains a list of all the work records submitted by this Participant (see *Work Records* for additional information)
- **Votes** contains a list of all the votes cast by this Participant (see *Votes* for additional information)

Votes

Voting allows users to indicate that they would like certain activities to be accelerated, treated with a higher priority, incidents/bugs to get fixed, etc. Users of the system can help high-priority issues to garner attention so that they do not sit for a long time awaiting review/triage. A **Vote** is therefore useful feedback to managers of activity trackers and people responsible for individual activities:

Figure 4-6. Vote

Important Meeting - Vote			
Edit View Actions Security			
General		System	
Name:	Important Meeting	Voter:	PowWow Jill
Description:	this is important		

Anatomy of a Vote:

- **Name** of the Vote (e.g. a participant's nick name)
- use **Description** for a short summary of the typical roles/tasks/etc. of the Participant
- **Voter** contains a reference to the *openCRX* Contact who voted

To vote for an activity, execute the operation *Tools > Vote for Activity* on the respective activity. The total number of votes for an activity is always displayed if you inspect the respective activity:

Figure 4-7. Total number of votes for an activity

Ice Breaker - Meeting					
File Edit View Tools Actions Security					
General		Details		System	
Effort					
hh (estimated effort):	1	hh (actual effort):	3		
mm (estimated effort):	30	mm (actual effort):	15		
Max deviation in %:	25				
Voting					
Total votes:	2				

Work Records

The concept of **Work Records** enables you to keep track of who devoted how much time to an individual activity. Powerful reporting features enable you to not only aggregate such information at various levels, you can also analyze actual effort information and compare it to effort estimates (see *Figure 7-3*, for example). Furthermore, **Work Records** can serve as a basis for billing and controlling:

Figure 4-8. Work Record

review reported issue - Work Record			
Edit View Actions Security			
General		System	
Name:	review reported issue	Started at:	05-05-2005 05:15:00
Description:	simulate environment	Ended at:	05-05-2005 09:45:00
hh (pause duration):	1	hh (duration):	3
mm (pause duration):	0	mm (duration):	30
		Contact:	Mueller Christoph
Billing			
Is billable:	<input checked="" type="checkbox"/>	Currency:	EUR [Euro]
Hourly rate:	80.00	Amount:	280.00
Invoice:			

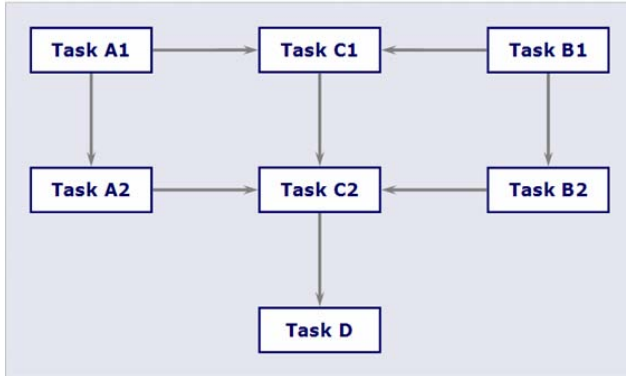
Anatomy of a Work Record:

- **Name** of the Work Record
- use **Description** for a short summary (approximately 60 or fewer characters) of the Work Record
- the fields **Started at** and **Ended at** contain date/time information, reflecting when work on an activity started and when it stopped; depending on your billing system you may have to submit at least one Work Record for each day worked on an activity (it is possible to submit multiple Work Records for the same activity)
- **hh (pause duration)** and **mm (pause duration)** reflect the total duration in hours and minutes you did not work on the activity at hand between *Started at* and *Ended at* (i.e. duration should reflect the *cumulative pause* if there were multiple interruptions). Example: if you worked from 8am to 5pm on an activity and took breaks from 9.30am to 10am and from 2pm to 2.15pm and had lunch from 11.30am to 12.15pm the cumulative pause amounts to 1 hour and 30 minutes, i.e. hh=1 mm=30)
- **hh (duration)** and **mm (duration)** are calculated by *openCRX* and reflect the total duration in hours and minutes you did actually work on the activity at hand based on the information contained in *Started at*, *Ended at*, *hh (pause duration)* and *mm (pause duration)*. Example: if you worked from 8am to 5pm on an activity and took breaks from 9.30am to 10am and from 2pm to 2.15pm and had lunch from 11.30am to 12.15pm the *net working time* amounts to 7 hours and 30 minutes, i.e. hh=7 mm=30)
- **Contact** is a reference to the *openCRX* contact who spent time on the activity (i.e. the worker) – by default this reference is set to the logged in user upon creation of a new Work Record, i.e. usually you will not have to set this reference manually
- check **Billable** to indicate that the billing system should process this Work Record
- **Hourly rate** contains the hourly rate applicable to this Work Record
- select the appropriate **Currency** applicable to the *Hourly rate* and the *Amount*
- **Amount** is calculated by *openCRX* based on the net working time (*hh duration* and *mm duration*) and the *Hourly rate*
- **Invoice** can contain a reference to an invoice (adding these types of references is typically done by the billing system once a Work Record is processed)

Activity Links

The concept of **Activity Links** enables you to establish links between activities (each Activity Link establishes a link between exactly 2 activities). This concept is very powerful and allows you to capture any set of dependencies you might experience in reality. The following chart shows an example of task dependencies (each arrow represents an Activity Link):

Figure 4-9. Tasks linked with Activity Links



Defining Activity Links is done by creating an (outbound) Activity Link, i.e. a link from the source to the destination (e.g. from Task A1 to Task A2). Once an Activity Link is established, *openCRX* also supports "back navigation" (e.g. from Task A2 to Task A1). If you qualify (outbound) Activity Links, the corresponding Inbound Activity Link mirrors the dependency as shown in the figure below – based on the manually created Activity Link "**Task A1 blocks Task A2**" *openCRX* automatically creates an Inbound Activity Link "**Task A2 is blocked by Task A1**" :

Figure 4-10. Outbound and Inbound Activity Link

➔ A1 -> A2 - Outbound Activity Link
✕

Edit View Security

General
System

Name:	A1 -> A2	Type:	blocks
Description:		Linked activity:	A2

⬅ A1 -> A2 - Inbound Activity Link
✕

Edit View Security

General
System

Name:	A1 -> A2	Type:	is blocked by
Description:		Linked from activity:	A1

Anatomy of an Activity Link:

- **Name** of the Activity Link
- a short **Description** of the Activity Link
- qualify an Activity Link with **Type** – many different values are supported enabling you to precisely describe the dependency, e.g. *blocks, is blocked by, duplicates, is duplicated by, incorporates, is part of, is child of, is parent of*, etc.
- **Linked activity** is a reference to the destination activity

To find out about links between Activities, explore the information that is available in the following Grids of the respective Activity, e.g.

- **Linked Activities** contains a list of all the (outbound) Activity Links and allows you to navigate to **other Activities referenced by this Activity**
- **Inbound Activity Links** contains a list of all the (inbound) Activity Links reflecting links to this Activity and allows you to navigate to **other Activities referencing this Activity**

Security

For a detailed explanation of the **security concepts** implemented by *openCRX* you should consult the *openCRX Security Guide* (<http://www.openctx.org/documents.htm#Docopenctx>). One of the basic security decisions you typically have to make is whether you want an activity tracker and all its related objects to be accessible by all users or whether you want to restrict access to the participants of an activity tracker. The former are called **public activity trackers** (i.e. all *openCRX* users have access), the latter are called **private activity trackers** (i.e. only participants have access).

- **Public Activity Trackers**

If you create a new activity tracker it is public by default so that all *openCRX* users have access to the activity tracker and its related objects; the list of *Owning Groups* of a public activity tracker contains the *User Group* <SegmentName>\Users, e.g. Standard\Users, as shown in the figure below:~

Figure 4-11. Owning Group of a public Activity Tracker

Description	Modified at	Modified by	Created at	Created by	Identity
Standard\Users	31-10-2004 03:38:29	root	31-10-2004 03:38:29	root	Standard\Users

- **Private Activity Trackers**

To make an activity tracker private, you simply add the appropriate *User Group* to the list of *Owning Groups* and then remove the *Owning Group* <SegmentName>\Users. Please note that only administrators have permission to create *User Groups* and assign *Users* to *User Groups*. The figure below shows the list of *Owning Groups* of a private activity tracker.

Figure 4-12. Owning Group of a private Activity Tracker

Description	Modified at	Modified by	Created at	Created by	Identity
Standard\User Group Tracker A	05-05-2005 14:03:52	admin-Standard	05-05-2005 13:55:35	admin-Standard	Standard\User Group Tracker A



Important If you work with private activity trackers it is **strongly advised that you make use of the provided operations** to create new activities, to assign activities to activity trackers, etc. because these operations ensure that all the permissions on all the created objects are set correctly.

Notes, Documents, and other Attachments

You can attach various types of objects to every *openCRX* object to provide additional information:

- **Notes** can contain formatted (HTML) or unformatted text (if appropriate, make use of the HTML feature to add explicit structure and formatting – you can start the HTML editor by clicking on the small icon [HTML] located just above the input field) – do not forget to give your notes a meaningful title. Predefined filters allow you to quickly sort your notes based on the creation date or the last modification date.
- **Documents** will be fully supported in a future version of *openCRX* (full-blown document management is on the *openCRX Roadmap* (<http://www.opencrx.org/project.htm#roadmap>)) – current versions of *openCRX* allow you to manage references to documents stored in external systems (e.g. your company's document management system, a WebDAV server, etc.) or in the tab [Media] of *openCRX*
- The **Media** tab holds binary objects (e.g. image files, PDFs, etc.) attached to an *openCRX* object.
- **Ratings** can be quite useful, not just for contacts.

In order to work with attached objects, it is usually necessary to unhide the respective Grid tabs so that you can look at the contents or create new objects. Click on the tab [>] to unhide hidden tabs (clicking on [<] causes them to collapse again):

Figure 4-13. Unhiding/Hiding collapsable Tabs



enlarge (../images/Concept-NotesEtc_enlarged.png.htm)

As notes play a major role in activity management in general (and in incident management in particular), the **Notes** tab is usually shown in a pane of its own to enable skimming and quick creation of new notes.

Chapter 5. General Activity Management

Activity Types

openCRX supports various activity types. They all share a common set of attributes and operations (see section *Activity* for a detailed discussion), but some activity types feature additional attributes and/or specialized operations, depending on their main use:

Figure 5-1. *openCRX* Activity Types



- **Absence** – use this activity type for vacation, sick leave, etc.
- **E-Mail** – to keep track of all your inbound/outbound e-mails
- **External Activity** – use this activity type for activity information provided by third-party systems
- **Fax** – to keep track of all your inbound/outbound fax transmissions
- **Incident** – this is the most important activity type in the area of *Incident Management*; it features many additional attributes and advanced operations supporting the *Life Cycle of an Incident* – use this activity type to report bugs in a bug tracking system
- **Mailing** – to keep track of all your mailings, letters, etc.
- **Meeting** – use this activity type to plan/schedule meetings, lists of participants, etc.
- **MMS** – to keep track of your picture messages (mobile phone)
- **Phone Call** – to keep track of all your inbound/outbound phone calls, conference calls, etc.
- **Sales Visit** – use this activity type to plan/schedule sales visits, parties to meet, etc.
- **SMS** – to keep track of your short text messages (mobile phone)
- **Task** – to keep track of tasks, things to do, etc.

Grouping and Linking Activities

Organizing your activities in a good way is a precondition to effectively manage activities. If you look at a flat list of thousands of tasks it is simply impossible to make any sense of that information. *openCRX* provides a key concept to organize your activities: the *openCRX Activity Tracker* can be used to **group and categorize sets of activities, people related to these activities** (we call them "participants"), **work records, etc.** For example, you could use an **Activity Tracker** to keep track of a product design project (i.e. all the project activities, milestones, project members, work records related to the project, etc.), a software development project (look at the use case *Bug Tracking*, a support contract with one of your customers, to manage your personal *Personal To-Do List*, etc.

In addition to activities and participants you can also attach **categories** and **milestones**, allowing you to further structure/segment activities. Both of these concepts are explained in detail in the sections *Category* and *Milestone*.

A lot of useful information is aggregated at the level of Activity Trackers (see Reports), but they also constitute a good starting point to explore the "ecosystem" of activities belonging to a project, etc. The following figure shows a screen shot of the Activity Tracker used to group the Tasks shown in *Figure 4-9*:

Work Records

Work Records enable you to keep track of who devoted how much time to an individual activity. Powerful reporting features enable you to not only aggregate such information at various levels, you can also analyze actual effort information and compare it to effort estimates (see *Figure 7-3*, for example). Furthermore, **Work Records** can serve as a basis for billing and controlling:

Figure 5-4. Individual Work Record

review reported issue - Work Record			
Edit View Actions Security			
General		System	
Name:	review reported issue	Started at:	05-05-2005 05:15:00
Description:	simulate environment	Ended at:	05-05-2005 09:45:00
hh (pause duration):	1	hh (duration):	3
mm (pause duration):	0	mm (duration):	30
		Contact:	Mueller Christoph
Billing			
Is billable:	<input checked="" type="checkbox"/>	Currency:	EUR [Euro]
Hourly rate:	80.00	Amount:	280.00
Invoice:			

(see also *Work Records* for additional information)

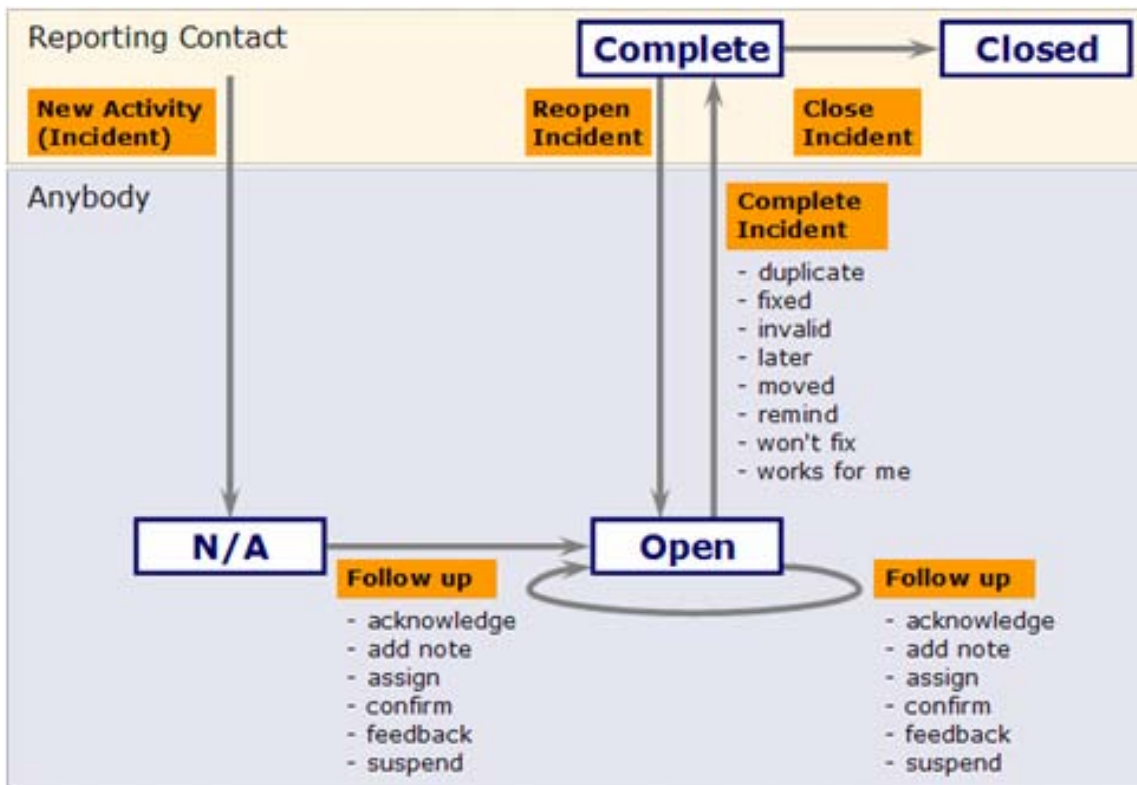
Chapter 6. Incident Management

To facilitate a common understanding of incident management we start out with the *Life Cycle of an Incident* as it is implemented by *openCRX*. The discussion of the various operations available to manage state transitions also covers the state transition types used to further specify state transitions. Examples given in the chapter *Use Cases* should be helpful to understand the concepts.

Life Cycle of an Incident

With *openCRX* you can describe, qualify, group and categorize incidents in many different ways, empowering you to effectively manage incidents. Before diving into the details it is important to understand the **life cycle** of an incident (also known as work flow) as shown in the figure below:

Figure 6-1. Life Cycle of an Incident



An incident is always in one of the following states:

- **N/A**
newly created incidents are in the N/A state until they are followed up for the first time
- **Open**
incidents are Open as long as they are not Complete, i.e. the Open state indicates that the respective incident requires attention/work
- **Complete**
the Complete state indicates that incident handlers have completed work on this incident
- **Close**
the Close state indicates that the Reporting Contact closed the incident

Even though it's possible to manually change the state of incidents, we strongly encourage you to use the available operations to change states because this allows you to pick an appropriate state transition type. The following **predefined operations** and **state transition types** are built into *openCRX*:

- **New Activity (Incident)**: the operation **New Activity** is used by the *Reporting Contact* to create a new incident (set activity type to Incident); newly created incidents are put into the **N/A** state
- **Follow up**: use this operation to put an incident into the **Open** state; state transition types include **acknowledge**, **add note**, **assign**, **confirm**, **feedback**, and **suspend**
- **Complete Incident**: incident handlers use this operation to put an incident into the **Complete** state; state transition types include **duplicate**, **fixed**, **invalid**, **later**, **moved**, **remind**, **won't fix**, **works for me**
- **Reopen Incident**: if the *Reporting Contact* is not satisfied with the resolution of an incident use of this operation puts the incident back into the **Open** state
- **Close Incident**: if the *Reporting Contact* is fully satisfied with the resolution of an incident use of this operation closes the respective incident, i.e. the incident is put into the **Closed** state

The following sections discuss these operations and the respective state transition types in more detail.

New Activity (Incident)

Assuming you have appropriate permissions you can create new incidents by executing the operation **New Activity** on the appropriate *Activity Tracker*:

Figure 6-2. Operation New Activity



Using this operation instead of manually creating a new incident, e.g. with the creator *Activity Management > Activities > Incident*, has the advantage of properly linking the new incident with the respective Activity Tracker and assigning an appropriate value to Reporting Contact.



Tip You can link any existing activity (including incidents) with an Activity Tracker by executing the operation *Actions > Assign Activity* on that particular activity (incident).



Tip You can remove an activity from an Activity Tracker by deleting the corresponding linked activity (make sure that you do not delete the underlying activity!)

If you create a new incident with the operation **New Activity** you can enter the following information:

Figure 6-3. Parameters of New Activity

The screenshot shows a window titled "Example - Activity Tracker" with a menu bar (File, Edit, View, Tools, Actions, Security). The main area is titled "New Activity" and contains the following fields:

- Activity type:** A dropdown menu set to "Incident".
- Name:** A text box containing "MX-4395 unexpected reboots".
- Description:** A text box containing "frequent and unexpected reboots at temperatures above 32° C".
- Detailed description:** A rich text editor with a toolbar. The content includes:
 - customer reports frequent and unexpected reboots of MX-4395
 - based on his observations we are probably looking at a broken fan:
 - no reboots at temperatures below 30° C
 - frequent/unexpected reboots at temperatures above 32° C
 - absolutely no problems until 2005/05/03
 - strange high-pitched noise during the last few days.
- Scheduled start:** A date/time field set to "07-05-2005 12:52:00".
- Scheduled end:** A date/time field set to "09-05-2005 12:52:00".
- Due by:** A date/time field set to "09-05-2005 12:52:00".

At the bottom left, there are "OK" and "Cancel" buttons. A path indicator at the bottom of the detailed description field shows "Path: body > ul > li".

- **Activity type:** set this to **Incident** if you want to create a new incident
- **Name:** give your incident a name that helps you (and all the incident handlers) to easily locate your incident later on
- **Description:** enter a short description or a summary that identifies your incident quickly and uniquely
- **Detailed description:** provide a detailed problem report in this field; incident handlers typically expect information like a detailed expansion of the summary, steps to reproduce/avoid, expected/actual results, useful/related observations, etc. If appropriate, make use of the HTML feature to add explicit structure; this makes your incident report easy to skim (you can start the HTML editor by clicking on the small icon [HTML] located just above the input field)
- **Scheduled start:** enter a scheduled start date/time if appropriate (clicking on the calendar icon will open the pop-up calendar for easy selection of a date/time)
- **Scheduled end:** enter a scheduled end date/time if appropriate
- **Due by:** enter a due by date/time if appropriate

Complete the creation of a new incident by clicking the button [OK] (click the button [Cancel] to dismiss your entries).

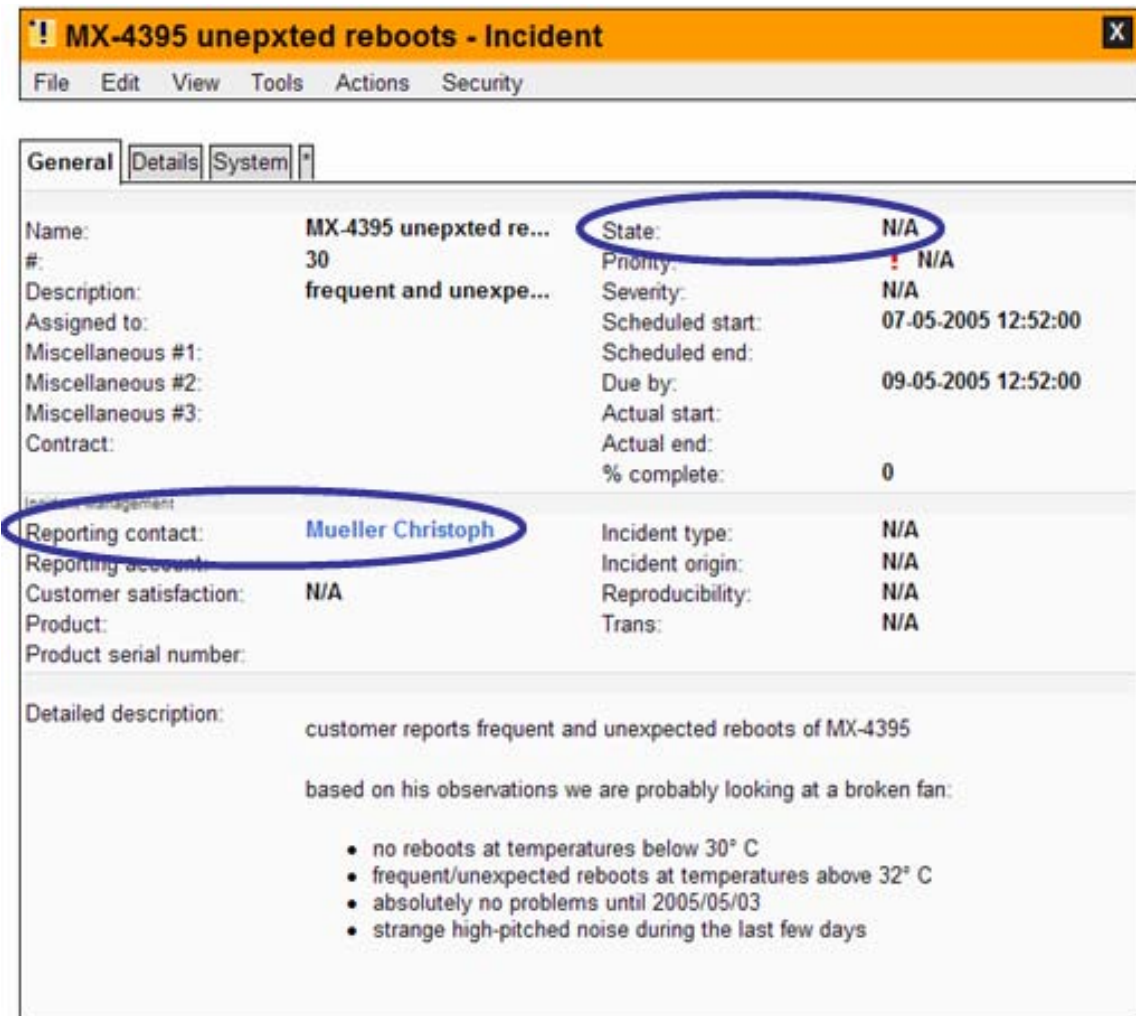
The result of the operation **New Activity** contains 2 links; one allows you to quickly *navigate* to the newly created incident, the other enables you to load the newly created incident in *edit* mode so that you can enter additional information.

Figure 6-4. Result of New Activity



Navigate to the newly created incident (by clicking the appropriate link contained in the result of the operation New Activity) so that you can inspect the incident. Verify that the *State* of the incident is *N/A* as it should be for newly created incidents and that you are listed as *Reporting Contact*:

Figure 6-5. Inspecting newly created Incident



If you wish you can edit the incident to change settings like priority, severity, add product-related information, link the incident to a support contract, etc. In the tab **Details** you can enter additional information regarding expected effort and related to billing:

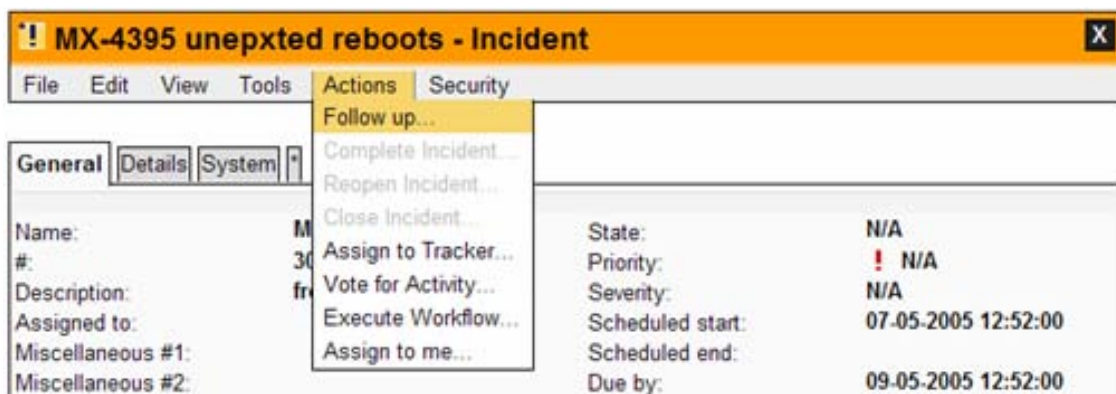
Figure 6-6. Additional Information in the Tab Details



Follow up

Assuming you have appropriate permissions you can follow up on new or open incidents (states **N/A** or **Open** → state **Complete**)) by executing the operation **Follow up**:

Figure 6-7. Operation Follow up



The **Follow up** operation takes several parameters:

Figure 6-8. Parameters of operation Follow up

- **Follow up type:** select the appropriate state transition type (see below for an explanation of the meaning of the various types)
- **Title:** give your follow up action a title that summarizes/identifies your action
- **Text:** provide additional information in this field at a level of detail that is appropriate for the action; make use of the HTML feature to add explicit structure as this makes your note easy to skim (you can start the HTML editor by clicking on the small icon [HTML] located just above the input field)

You can optionally provide information to create an **Activity Links** (see section Grouping and Linking Activities for information on linking activities):

- **Activity link:** activity to link to / to be linked from
- **Activity link type:** choose an appropriate link type
- **Activity link name:** provide a name for the Activity Link to be created
- **Activity link description:** provide a short description for the Activity Link to be created

You can choose from the following state transition types:

- **acknowledge**
to indicate that you acknowledge the incident as submitted
- **add note**
choose this state transition type if you add a note
- **assign**
to assign the incident to yourself and submit a note at the same time – please note that there is a shortcut operation available – Assign to me – to assign an incident to yourself without adding any notes
- **confirm**
to confirm the incident as it was submitted (e.g. to confirm a bug if the incident is a bug report)
- **feedback**
this follow up type assigns the incident back to the Reporting Contact who is then able to provide feedback (e.g. provide additional information regarding the incident or answer a question to clarify an issue)
- **suspend**
choose this state transition type to remove the assigned contact (indicating, that the incident is suspended until it is assigned again)

Submit your follow up action by clicking the button [OK] (click the button [Cancel] to dismiss your entries).

The result of the operation **Follow up** of the type **assign** is show in the figure below (note that the field *Assigned to* was updated and the *State* was changed to **Open**):

Figure 6-9. Result of operation Follow up

MX-4395 unepxtd reboots - Incident

File Edit View Tools Actions Security

General Details System

Name:	MX-4395 unepxtd re...	State:	Open
#:	30	Priority:	N/A
Description:	frequent and unexpe...	Severity:	N/A
Assigned to:	Froidevaux Werner	Scheduled start:	07-05-2005 12:52:00
Miscellaneous #1:		Scheduled end:	
Miscellaneous #2:		Due by:	09-05-2005 12:52:00
Miscellaneous #3:		Actual start:	
Contract:		Actual end:	
		% complete:	0

Incident Management

Reporting contact:	Mueller Christoph	Incident type:	N/A
Reporting account:		Incident origin:	N/A
Customer satisfaction:	N/A	Reproducibility:	N/A
Product:		Trans:	assign
Product serial number:			

Detailed description:

customer reports frequent and unexpected reboots of MX-4395

based on his observations we are probably looking at a broken fan:

- no reboots at temperatures below 30° C
- frequent/unexpected reboots at temperatures above 32° C
- absolutely no problems until 2005/05/03
- strange high-pitched noise during the last few days

The following figure shows the updated grid Notes containing the entry representing the note created by the operation **Follow up** (assign):

Figure 6-10. Note added by operation Follow up

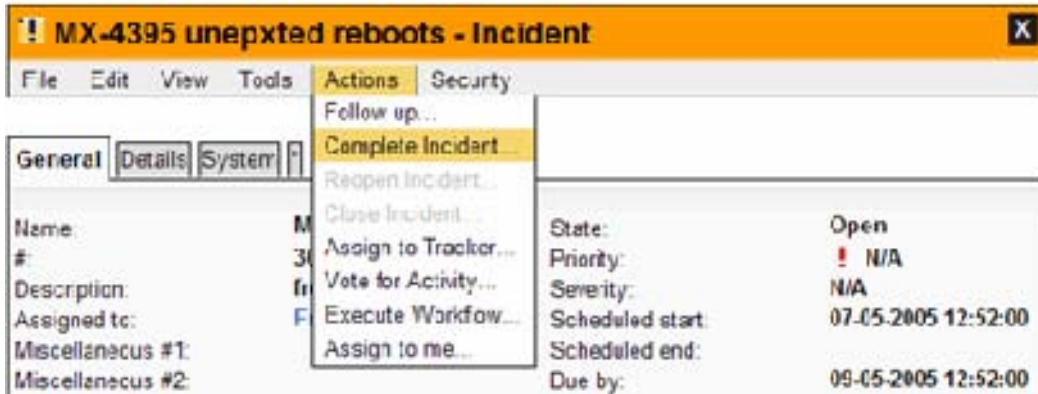
Notes

Title / Author	Assigned to	Transition type	Text
I will look at this later today wfro 5/1/05 5:27 PM wfro 5/1/05 5:27 PM	Froidevaux Werner	assign	

Complete Incident

Assuming you have appropriate permissions you can complete open incidents (state **Open** → **Complete**) by executing the operation **Complete**:

Figure 6-11. Operation Complete



The **Complete** operation takes several parameters:

Figure 6-12. Parameters of operation Complete



- **Complete type:** select the appropriate state transition type (see below for an explanation of the meaning of the various types)
- **Title:** give your complete action a title that summarizes/identifies your action

- **Text:** provide additional information in this field at a level of detail that is appropriate for the action; make use of the HTML feature to add explicit structure as this makes your note easy to skim (you can start the HTML editor by clicking on the small icon [HTML] located just above the input field)

You can optionally provide information to create an **Activity Links** (see section Grouping and Linking Activities for information on linking activities):

- **Activity link:** activity to link to / to be linked from
- **Activity link type:** choose an appropriate link type
- **Activity link name:** provide a name for the Activity Link to be created
- **Activity link description:** provide a short description for the Activity Link to be created

You can choose from the following state transition types:

- **duplicate**
to indicate that this incident is a duplicate of an already reported/existing incident (if possible, you should create an Activity Links pointing to the respective incident)
- **fixed**
choose this state transition type if you resolved the incident (e.g. fixed the bug)
- **invalid**
to indicate that this incident is invalid (you should probably provide details in the field Text supporting your reasoning)
- **later**
to indicate that the incident will not be fixed now, but at a later date (the Reporting Contact can Reopen the incident at an appropriate date/time)
- **moved**
choose this transition type to indicate that the incident was "moved" to another Activity Tracker
- **remind**
choose this state transition type to indicate to the Reporting Contact that you would like to be reminded of this incident at a later point in time (provide guidance to the Reporting Contact in the field Text)
- **won't fix**
choose this state transition type to indicate that the incident will not be fixed (you should probably provide details in the field Text supporting your reasoning)
- **works for me**
choose this state transition type to indicate to the Reporting Contact that – in your opinion – there is no issue (you should probably provide details in the field Text supporting your reasoning)

Submit your complete action by clicking the button [OK] (click the button [Cancel] to dismiss your entries). On successful execution of the **Complete** operation, the incident is assigned to the *Reporting Contact*.

The result of the operation **Complete** of the type **fixed** is show in the figure below (note that the field *Assigned to* was updated and the *State* was changed to **Open**):

Figure 6-13. Result of operation Complete

MX-4395 unepxtd reboots - Incident

File Edit View Tools Actions Security

General Details System

Name:	MX-4395 unepxte...	State:	Complete
#:	30	Priority:	N/A
Description:	frequent and une...	Severity:	N/A
Assigned to:	Mueller Christoph	Scheduled start:	07-05-2005 12:52:00
Miscellaneous #1:		Scheduled end:	
Miscellaneous #2:		Due by:	09-05-2005 12:52:00
Miscellaneous #3:		Actual start:	
Contract:		Actual end:	
		% complete:	0

Incident Management

Reporting contact:	Mueller Christoph	Incident type:	N/A
Reporting account:		Incident origin:	N/A
Customer satisfaction:	N/A	Reproducibility:	N/A
Product:		Trans:	fixed
Product serial number:			

Detailed description:

customer reports frequent and unexpected reboots of MX-4395

based on his observations we are probably looking at a broken fan:

- no reboots at temperatures below 30° C
- frequent/unexpected reboots at temperatures above 32° C
- absolutely no problems until 2005/05/03
- strange high-pitched noise during the last few days

The following figure shows the updated grid Notes containing the entry representing the note created by the operation **Complete** (fixed):

Figure 6-14. Note added by operation Complete

Notes

Title / Author	Assigned to	Transition type	Text
replaced fan wfro 5/1/05 6:13 PM wfro 5/1/05 6:13 PM	Froidevaux Werner	fixed	fan was broken (axle) mounted new fan no more reboots observed
I will look at this later today wfro 5/1/05 5:27 PM wfro 5/1/05 5:27 PM	Froidevaux Werner	assign	

Reopen Incident

Assuming you have appropriate permissions you can reopen incidents (state **Complete** → **Open**) by executing the operation **Reopen**:

Figure 6-15. Operation Reopen



The **Reopen** operation takes several parameters:

Figure 6-16. Parameters of operation Reopen



- **Reopen type:** leave at N/A (there are no state transition types available for the operation **Reopen**)
- **Title:** give your reopen action a title that summarizes/identifies your action
- **Text:** provide additional information in this field at a level of detail that is appropriate for the action; make use of the HTML feature to add explicit structure as this makes your note easy to skim (you can start the HTML editor by clicking on the small icon [HTML] located just above the input field)

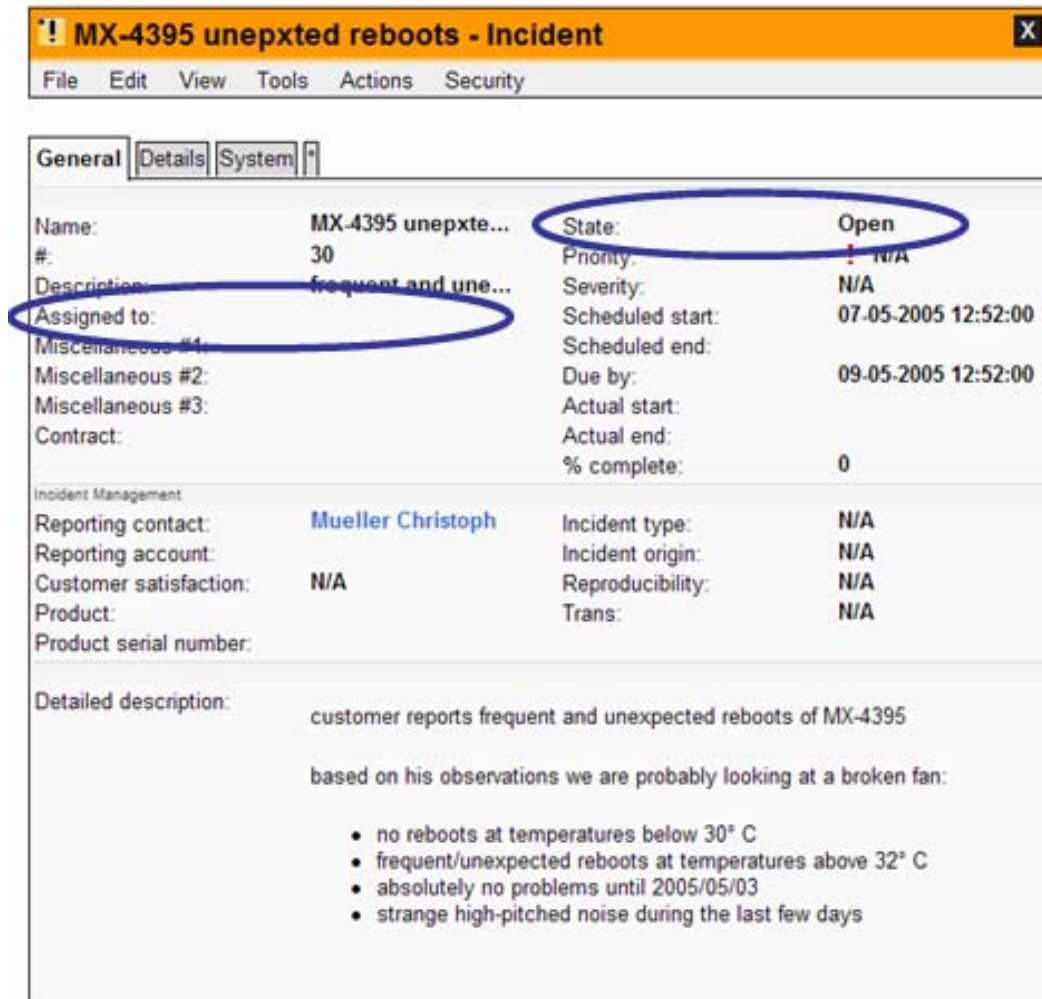
You can optionally provide information to create an **Activity Links** (see section Grouping and Linking Activities for information on linking activities):

- **Activity link:** activity to link to / to be linked from
- **Activity link type:** choose an appropriate link type
- **Activity link name:** provide a name for the Activity Link to be created
- **Activity link description:** provide a short description for the Activity Link to be created

Submit your reopen action by clicking the button [OK] (click the button [Cancel] to dismiss your entries). On successful execution of the **Reopen** operation, the incident is not assigned to anyone.

The result of the operation **Reopen** is show in the figure below (note that the field *Assigned to* was cleared and the *State* was changed to **Open**):

Figure 6-17. Result of operation Reopen



The **Close** operation takes several parameters:

Figure 6-20. Parameters of operation Close

- **Close type:** leave at N/A (there are no state transition types available for the operation **Close**)
- **Title:** give your close action a title that summarizes/identifies your action
- **Text:** provide additional information in this field at a level of detail that is appropriate for the action; make use of the HTML feature to add explicit structure as this makes your note easy to skim (you can start the HTML editor by clicking on the small icon [HTML] located just above the input field)

You can optionally provide information to create an **Activity Links** (see section Grouping and Linking Activities for information on linking activities):

- **Activity link:** activity to link to / to be linked from
- **Activity link type:** choose an appropriate link type
- **Activity link name:** provide a name for the Activity Link to be created
- **Activity link description:** provide a short description for the Activity Link to be created

Submit your close action by clicking the button [OK] (click the button [Cancel] to dismiss your entries).

Chapter 7. Reports

Real-time reports allow you to accurately track the progress of activities, compare actual effort vs. estimated effort, spot problem areas, analyze the workload of tracker participants, and much more. **Accurate and timely reporting can make the difference between managing a project successfully and losing control over what is going on.** *openCRX* enables you to easily monitor activity trackers of any size, i.e. from small projects with very few people working on a few dozen activities to **global-scale projects with thousands of people and tens of thousands of activities.**

- Graphical Reports
- Printed Reports

Graphical Reports

openCRX is distributed with various graphical reports (charts), which you can place on your User Home or on the overview page of an Activity Tracker. You can obtain a current list of all the charts available from your system by executing the operation *View > Recalculate and Refresh* on an activity tracker and then clicking on the tab [Charts]:

Figure 7-1. List of Activity Tracker Charts

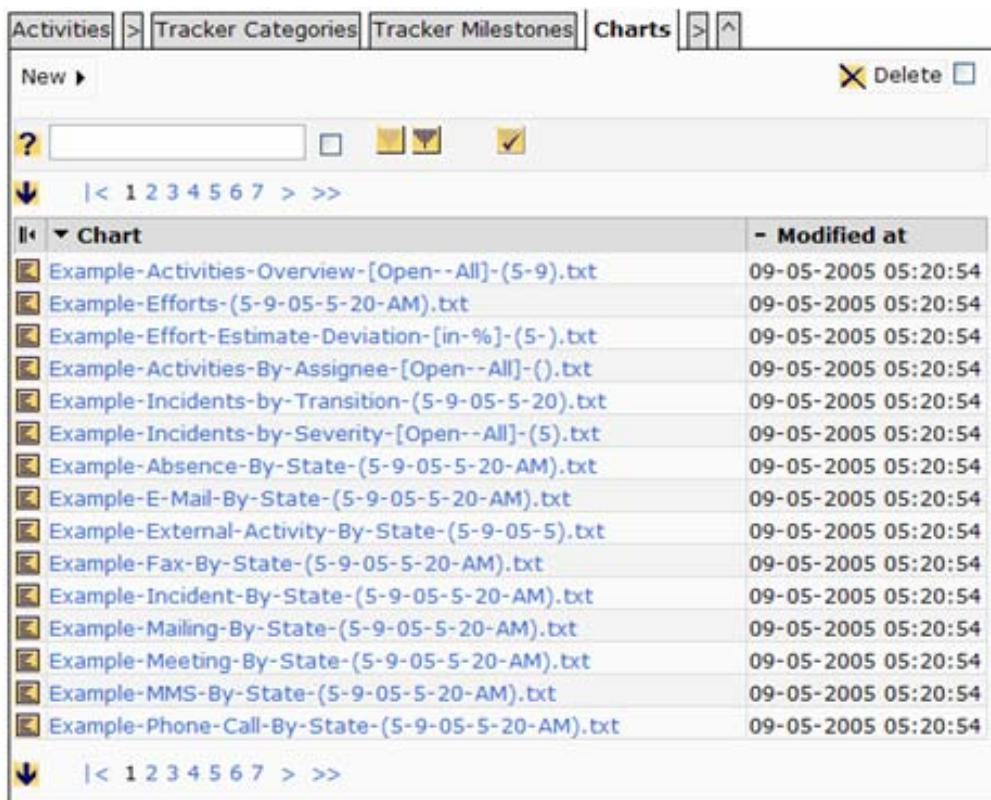


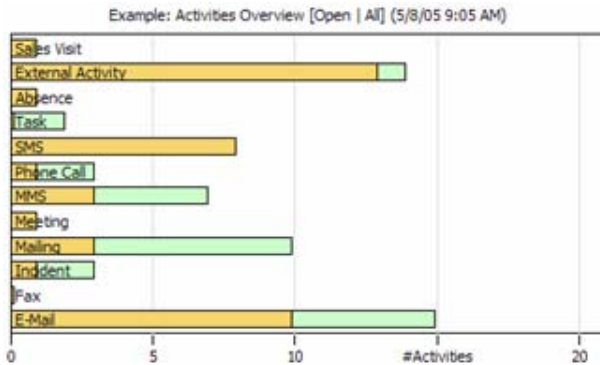
Chart	Modified at
Example-Activities-Overview-[Open--All]-(5-9).txt	09-05-2005 05:20:54
Example-Efforts-(5-9-05-5-20-AM).txt	09-05-2005 05:20:54
Example-Effort-Estimate-Deviation-[in-%]-(5-).txt	09-05-2005 05:20:54
Example-Activities-By-Assignee-[Open--All]-().txt	09-05-2005 05:20:54
Example-Incidents-by-Transition-(5-9-05-5-20).txt	09-05-2005 05:20:54
Example-Incidents-by-Severity-[Open--All]-(5).txt	09-05-2005 05:20:54
Example-Absence-By-State-(5-9-05-5-20-AM).txt	09-05-2005 05:20:54
Example-E-Mail-By-State-(5-9-05-5-20-AM).txt	09-05-2005 05:20:54
Example-External-Activity-By-State-(5-9-05-5).txt	09-05-2005 05:20:54
Example-Fax-By-State-(5-9-05-5-20-AM).txt	09-05-2005 05:20:54
Example-Incident-By-State-(5-9-05-5-20-AM).txt	09-05-2005 05:20:54
Example-Mailing-By-State-(5-9-05-5-20-AM).txt	09-05-2005 05:20:54
Example-Meeting-By-State-(5-9-05-5-20-AM).txt	09-05-2005 05:20:54
Example-MMS-By-State-(5-9-05-5-20-AM).txt	09-05-2005 05:20:54
Example-Phone-Call-By-State-(5-9-05-5-20-AM).txt	09-05-2005 05:20:54

Every chart contains a time stamp indicating date and time when the underlying data was collected. Due to the fact that the data collection process and the calculations involved to produce charts can be quite time consuming, charts are updatable "on-demand" – use the operation "Recalculate and Refresh..." to update charts.

Most of the charts speak for themselves. Nevertheless, let us look at some of them in more detail.

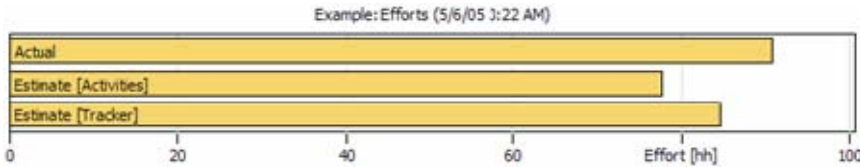
The chart **Activities Overview [Open | All]** presents a high level overview showing the number of open activities and the total number of activities for each activity type:

Figure 7-2. Activities Overview [Open | All]



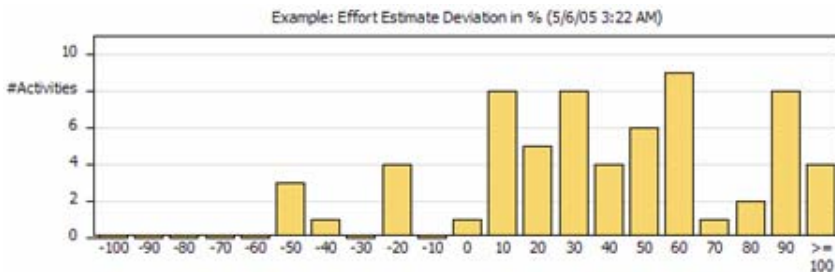
The chart **Efforts** allows you to compare the total estimated effort (as provided at the Activity Tracker level) with the sum of efforts estimated at the Activity level and the actual effort (as provided by the Work Records).

Figure 7-3. Efforts (Estimates vs. Actual)



The chart **Effort Estimate Deviation in %** offers an alternative view of the same data which allows you to analyze deviations of the actual effort from the estimated effort at the Activity level:

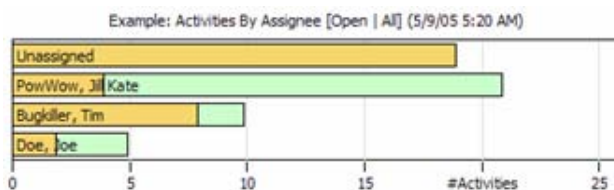
Figure 7-4. Effort Estimate Deviation in %



If the bulk of activities show positive deviations of actual efforts from estimated efforts you might conclude that estimated effort is systematically underestimated. Similarly, if the deviation bars are mostly to the left of the zero mark, the conclusion is that estimated effort tends to be overestimated.

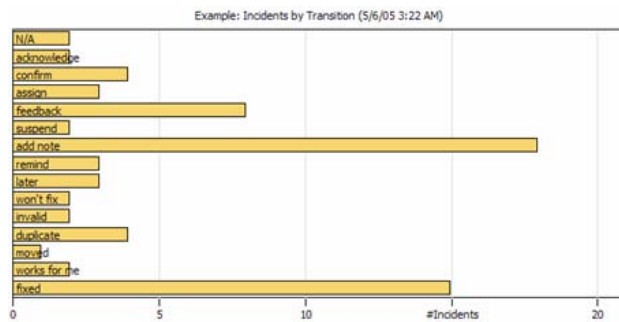
The chart **Activities By Assignee [Open | All]** gives you a quick overview of the total number of activities assigned to each person and how many of those activities are open:

Figure 7-5. Activities by Assignee [Open | All]



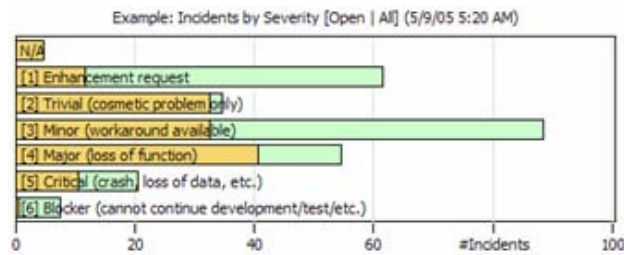
The chart **Incidents by Transition** contains information regarding that last transition of all the incidents of an Activity Tracker:

Figure 7-6. Incidents by Transition



The chart **Incidents by Severity [Open | All]** contains information regarding the severity of all the incidents of an Activity Tracker (in addition to the total number of incidents you also see the number of open/unresolved incidents per severity level):

Figure 7-7. Incidents by Severity [Open | All]



Depending on your information needs you might also want to look at some of the reports for individual *Activity Types*, e.g. *E-Mail-By-State*, *Incident-By-State*, etc.

Printed Reports

openCRX will offer printed reports in a future version. Please refer to the *openCRX Roadmap* (<http://www.opencrx.org/project.htm#roadmap>) for additional information.

Chapter 8. Use Cases

It is hard to imagine that any effective company, team, or individual gets by without activity management. Knowing what is left to be done (and quite often, knowing what has been done) constitutes vital information to move forward on an optimal path. Thanks to its careful design and virtually unlimited scalability *openCRX* delivers value to individuals, teams, and even globally distributed organizations with very complex tasks. In this chapter we will look at some use cases for *openCRX* activity management:

- *Personal To-Do List*
- *Bug Tracking*

Personal To-Do List

A 'To-Do List' is a list of all the tasks that you need to carry out. It consolidates all the jobs that you have to do into one place. You can then prioritize these tasks into order of importance and/or urgency enabling you to spend time on those tasks that matter most. Working effectively is not only a matter of getting the right tasks on your To-Do List, it's the result of **getting the right tasks done in the right order**.

To-Do Lists are essential when you need to carry out a number of different tasks or different sorts of task, or when you have made a number of commitments. If you find that you are often caught out because you have forgotten to do something, then you need to keep a To-Do List.

Whilst To-Do Lists are very simple, they are also extremely powerful, both as a method of organizing yourself and as a way of reducing stress. Often problems may seem overwhelming or you may have a seemingly huge number of demands on your time. This may leave you feeling out of control, and overburdened with work.

The solution is often simple: Write down the tasks that face you, and if they are large, break them down into their component elements. If these still seem large, break them down again. Do this until you have listed everything that you have to do. Once you have done this, run through these jobs allocating priorities from *low* to *immediate*. If too many tasks have a high priority, run through the list again and demote the less important ones. Also keep an eye on due dates and try to estimate the effort it takes to complete an activity. Managing time is just as important as managing importance if you want to succeed.

The following chart tells the obvious, once you start thinking about it:

Figure 8-1. Structuring your To-Do List based on urgency and importance

important	important	urgent and important
not important	neither urgent nor important	urgent
	not urgent	urgent

It is smart to spend your time on those tasks that are urgent *and* important. Next you work yourself through those tasks that are either urgent or important (this can take some juggling, trading off deadlines vs. high importance items), but try not to spend time on stuff that is neither urgent nor important (even though it may be fun to do so...).

As long as you are dealing with a small number of activities you can easily manage your To-Do List on a piece of paper. But even with a handful of activities to manage, a well structured To-Do List yields a precise plan that you can use to eliminate the problems you face. You will be able to tackle these in order of importance and urgency. This allows you to separate important and urgent jobs from the many time-consuming trivial ones.

Different people use To-Do Lists in different ways in different situations: if you are in a sales-type role, a good way of motivating yourself is to keep your list relatively short and aim to complete it every day.

In an operational role, or if tasks are large or dependent on too many other people, then it may be better to keep one big list and 'chip away' at it. It may be that you carry unimportant jobs from one To-Do List to the next. You may not be able to complete some very low priority jobs for several months. Only worry about this if you need to - if you are running up against a deadline for them, they will show up on your radar screen in the *urgent* box, even if they remain low priority (obviously, at some point before they are due you need to raise their priorities...).

If you have not used To-Do Lists before, try them now, as they are one of the keys to being really productive and efficient.

Managing a To-Do List with openCRX

Create a new *Activity Tracker* by clicking on *Activity Management > Activity Trackers > Activity Tracker*. Give your tracker a name, add a description, and then click the button [Save]:

Figure 8-2. Create a new Activity Tracker "To-Do"

Next you should edit the newly created tracker and change access levels for *Browse*, *Update*, and *Delete* to [1] **Private** (these settings can be found in the tab [System]) to prevent other people from tampering with your tracker. The last security measure you should take is to remove all owning groups from your tracker. Click on the grid tab [^] and remove all owning groups from your tracker by dragging the icon(s) to the add/remove box and then clicking the button [-] (repeat this procedure for each owning group if there are multiple owning groups):

Figure 8-3. Remove Owing Groups from Activity Tracker

	Description	Modified at	Modified by
	Standard\\Users	31-10-2004 03:38:29	root

Verify the security settings once again:

- **Owning User** (tab [System]): you should be owning user of your To-Do Activity Tracker
- **Browse access level** (tab [System]) should be set to [1] *Private*
- **Update access level** (tab [System]) should be set to [1] *Private*
- **Delete access level** (tab [System]) should be set to [1] *Private*
- Owning Groups (Grid tab [^]): there should not be any owning groups

If the security settings of your Activity Tracker are correct, the operation *New Activity* will create activities with the appropriate security settings so that only you have access to the tracker and the linked activities.

Additional information about *openCRX* security is available in chapter *Security* (or in the *openCRX Security Guide* (<http://www.openctx.org/documents.htm#Docopenctx>), if you really want to dive into the technical details of role-based security).

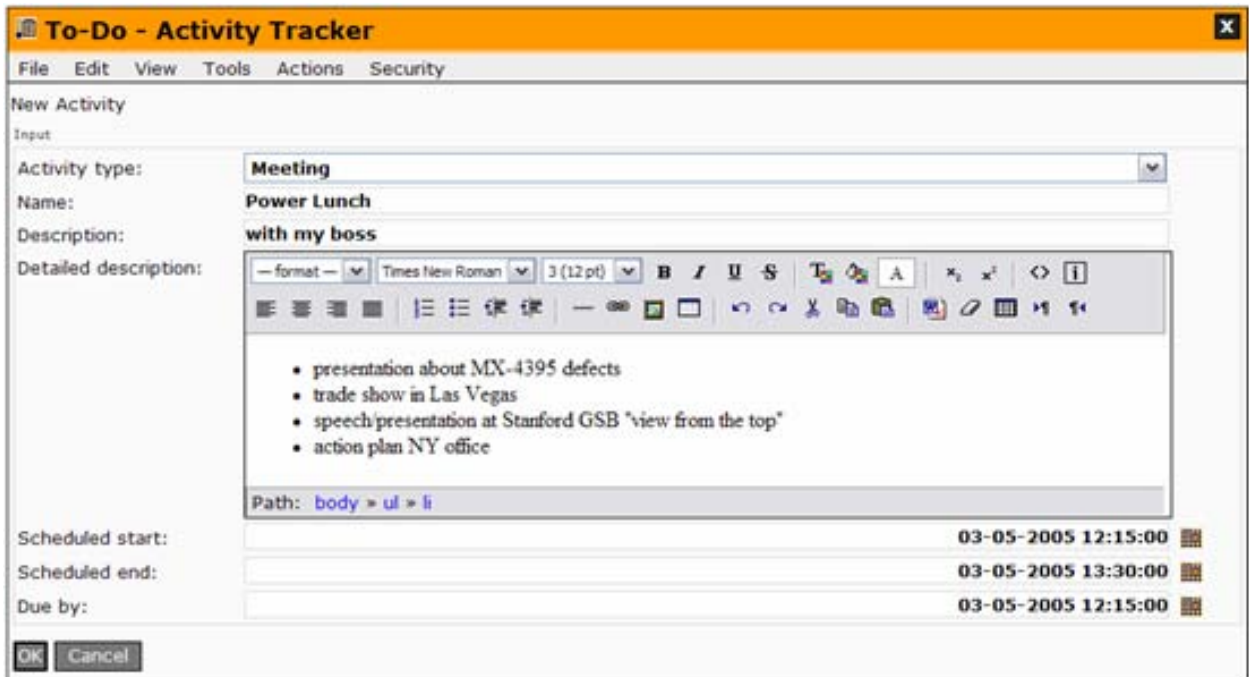
Now you can add new activities to this tracker by using the operation *Actions > New Activity...*

Figure 8-4. Adding new activities



Choose an appropriate activity type and provide information in the other fields as appropriate. Click [OK] to save your new activity:

Figure 8-5. Adding a new Meeting



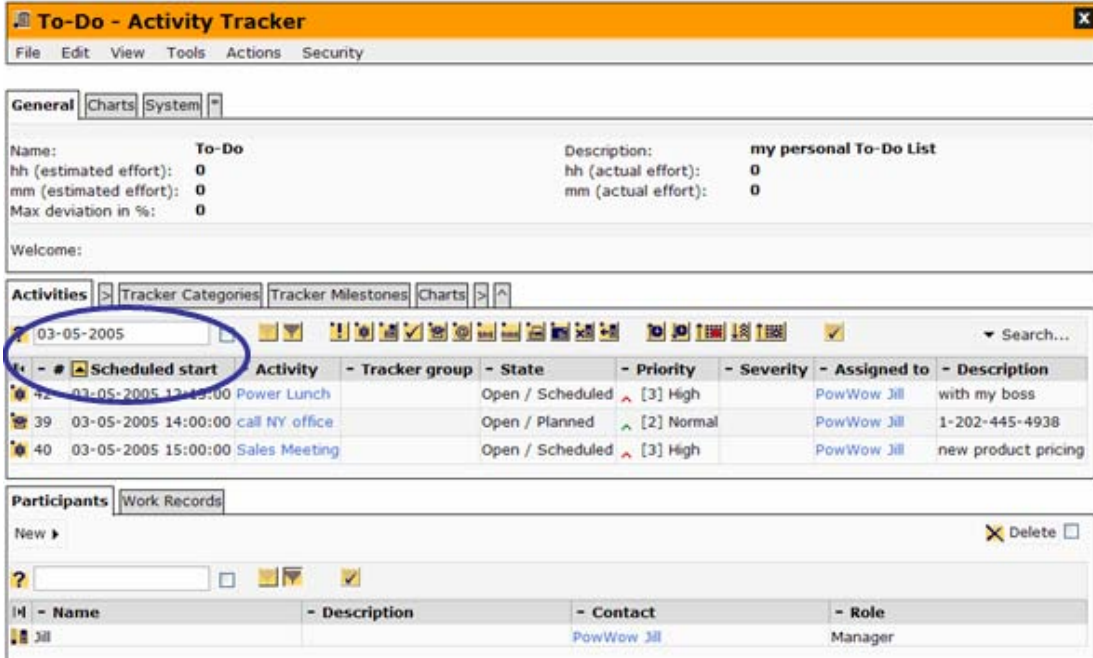
The result of the operation *New Activity* returns links that enable you to conveniently navigate to the newly created activity or continue with editing (see *Activity* for details on additional information you can provide).

Once you have created your activities you can navigate to the Activity Tracker To-Do and try some of the following:

- **Sort To-Do List by Scheduled Start**

Move your mouse over the sort button to the left of the text *Scheduled start* in the grid Activities and click it. *openCRX* will present all the activities on your To-Do List sorted (ascending) by Scheduled start. If you want to narrow down your view to a particular day, click that day in the calendar below the navigation menu (this will copy the respective date to the search box – alternatively you can manually enter the date) and then click the text *Scheduled start* to filter for that particular date:

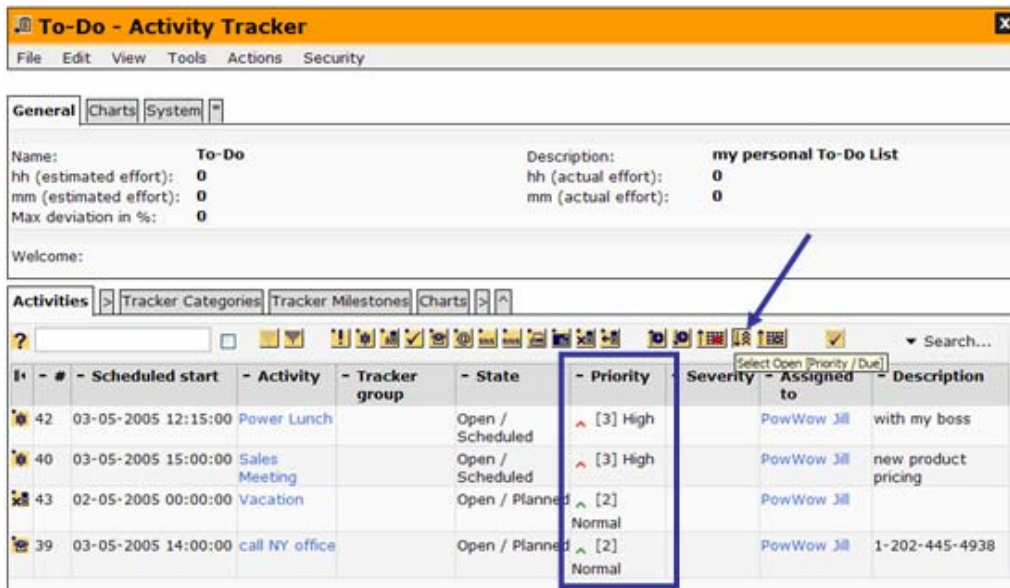
Figure 8-6. Activities filtered/sorted by Scheduled Start



- Sort To-Do List by Priority (descending)

Use the appropriate predefined filter to have *openCRX* sort all your open activities (open is equivalent to the value of %-complete not being 100) by descending priority; activities of equal priority are sorted by ascending due date:

Figure 8-7. Activities sorted by descending Priority



- Sort To-Do List by Due Date/Time (ascending)

Use the appropriate predefined filter to have *openCRX* sort all your open activities (open is equivalent to the value of %-complete not being 100) by ascending due date/time; activities with identical due date/time are sorted by descending priority:

Figure 8-8. Activities sorted by ascending Due Date

The screenshot shows the 'To-Do - Activity Tracker' application window. The title bar reads 'To-Do - Activity Tracker'. Below the title bar is a menu bar with 'File', 'Edit', 'View', 'Tools', 'Actions', and 'Security'. The main window is divided into several sections:

- General** tab: Shows 'Name: To-Do', 'Description: my personal To-Do List', and effort metrics (hh, mm) for estimated and actual effort, all set to 0. Max deviation is also 0.
- Activities** section: Contains a toolbar with various icons for filtering and sorting. A blue arrow points to the sort icon (three vertical bars with arrows) in the toolbar.
- Table**: A table listing activities. The 'Due by' column is highlighted with a blue box. The activities are sorted by ascending due date.

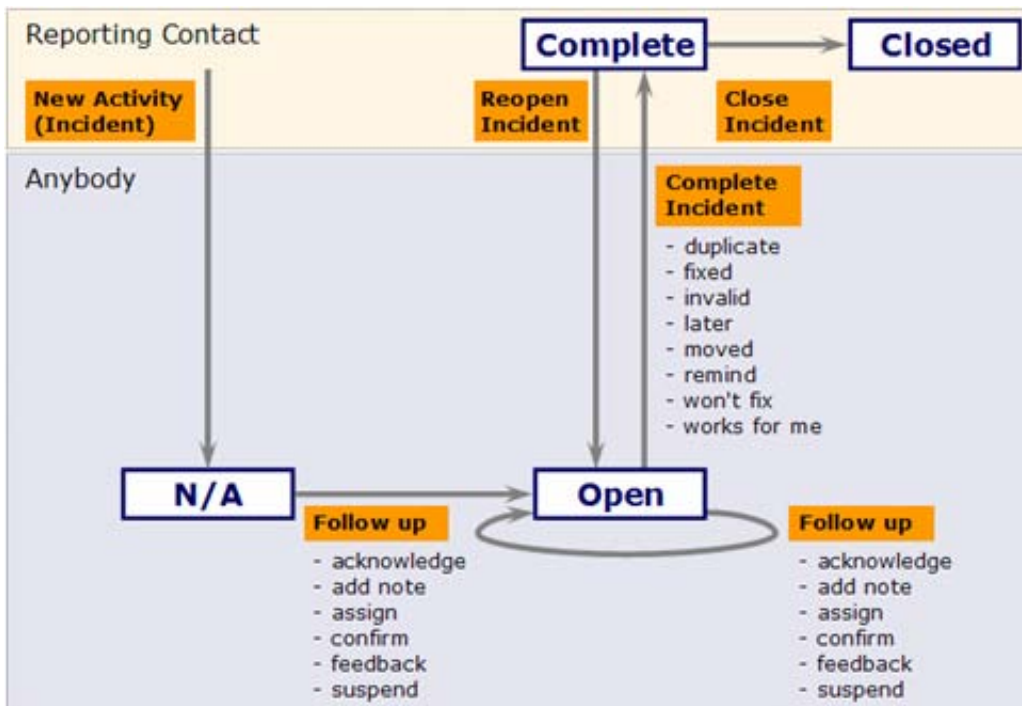
#	Scheduled start	Due by	Activity	Tracker group	State	Priority	Severity	Assigned to	Description
42	03-05-2005 12:15:00	03-05-2005 12:15:00	Power Lunch		Open / Scheduled	[3] High		PowWow Jill	with my boss
40	03-05-2005 15:00:00	03-05-2005 15:00:00	Sales Meeting		Open / Scheduled	[3] High		PowWow Jill	new product pricing
39	03-05-2005 14:00:00	10-05-2005 18:00:00	call NY office		Open / Planned	[2] Normal		PowWow Jill	1-202-445-4938

Bug Tracking

Coordinating workflow in any development project, including software and hardware development projects, involves quite a bit more than just logging bugs (or more generally, incidents) into a database. In addition to incidents, you need to track a variety of project-related issues and activities, such as feature requests, meetings, e-mails, sign-offs by quality assurance engineers or customers, change notices, etc. And beyond simply tracking bugs and monitoring progress, you want to be able to link issues that are connected, e.g. to document that one particular incident blocks the resolution of several other issues.

In terms of the tracking process itself, you need to replace manual processes with **workflow automation** so that bugs are automatically managed through their life cycle (see also *Life Cycle of an Incident* for a detailed discussion):

Figure 8-9. Life Cycle of a Bug (i.e. Incident)



openCRX automates the recording, tracking, and monitoring of software and hardware development bugs and other project-related incidents and activities. A **powerful concept to group and structure all your project-related activities** (see *Activity Tracker*), **highly flexible workflows** supporting the many possible transitions between states in the *Life Cycle of an Incident*, **advanced time-tracking** based on *Work Records* and **meaningful real-time Reports** aggregating information at several levels enable you to effectively manage your development project.

With *openCRX*, you produce higher-quality deliverables faster, reduce project costs, and improve customer satisfaction. *openCRX* connects everybody and provides a vital communications link – not only between members of your team, but between you and your customers.

To get started with bug tracking, create a new *Activity Tracker* by clicking on *Activity Management > Activity Trackers > Activity Tracker*. Give your tracker a name, add a description (optionally, you can also provide additional information like estimated effort, a welcome text, etc.) and then click the button [Save]:

Figure 8-10. Create a new Activity Tracker "Example Project"

Example Project - Activity Tracker

General | Charts | System

Name: **Example Project** Description: **example for the Tracker guide**

hh (estimated effort): **4300** hh (actual effort): **6**

mm (estimated effort): **0** mm (actual effort): **55**

Max deviation in %: **10**

Welcome:

— format — Times New Roman 3 (12 pt) B I U S T A x₂ x² < > I

this is an example Activity Tracker
please contact *Jill* with questions

Path: body

Save Cancel

If you want to restrict access to your tracker to a particular group of *openCRX* users, you (or your segment administrator, if you do not have sufficient privileges) should **consider creating a user group** for that purpose (e.g. *User Group Tracker A*) and **add the appropriate *openCRX* users to that user group** (*openCRX* security is explained in detail in the *openCRX Security Guide* (<http://www.openctx.org/documents.htm#Docopenctx>)). Next you should add the user group you created for this tracker to the list of owning groups. Click on the grid tab [^] and use the lookup inspector to add the appropriate user group (e.g. *User Group Tracker A*). Then you remove all other owning groups from your tracker by dragging their icons to the add/remove box followed by a click on the button [-] so that only the user group for this tracker is left in the list of owning groups as shown in the figure below:

Figure 8-11. Set Owing Groups of Activity Tracker

Example Project - Activity Tracker

File Edit View Tools Actions Security

General | Charts | System

Identity: xri:@openctx.org.openctx.kernel.activity1/provider/CRX/segment/Standard/activityTracker/0e6ce2b0-ba2...

Object

Created at: 01-05-2005 12:17:14 Modified at: 12-05-2005 07:57:17

Created by: cmu Modified by: cmu

Reason: Disabled:

Security

Owning user: Standard\Mueller, Christoph Update access level: [2] basic (group members)

Browse access level: [2] basic (group members) Delete access level: [2] basic (group members)

Common

Categories: Lookup Add Remove Owing Group ks:

Activities > Tracker Categories Tracker Milestones Charts > ^

Description	Modified at	Modified by	Created at	Created by	Identity
Standard\User Group Tracker A	05-05-2005 14:03:52	admin-Standard	05-05-2005 13:55:35	admin-Standard	Standard\User Group Tracker A

Participants | Work Records

New ▶ Delete

Name	Description	Contact	Role
Joe	Test Engineer	Doe Joe & Valery	Member
Jill	TheBoss	PowWow Jill	Manager
cmu	quality assurance	guest (openCRX demo)	Member

The last security measure you should take is to edit the newly created tracker and change access levels for *Browse*, *Update*, and *Delete* to [2] **Basic** (these settings can be found in the tab [System]) to prevent users not belonging to the appropriate user group from tampering with your tracker.

Verify the security settings once again:

- **Owning User** (tab [System]): you (or another project manager) should be owning user of your Activity Tracker
- **Browse access level** (tab [System]) should be set to [2] *Basic*
- **Update access level** (tab [System]) should be set to [2] *Basic*
- **Delete access level** (tab [System]) should be set to [2] *Basic*
- **Owning Groups** (Grid tab [^]): the user group created for your Activity Tracker should be the only owning group

If the security settings of your Activity Tracker are correct, the operation *New Activity* will create activities with the appropriate security settings so that only you and members of the owning group have access to the tracker and the linked activities.

Additional information about *openCRX* security is available in the chapter *Security* (or in the *openCRX Security Guide* (<http://www.openctx.org/documents.htm#Docopenctx>), if you really want to dive into the technical details of role-based security).

Now it is time to add participants to your Activity Tracker. With the menu *New > Tracker Participant* you can bring up the form that allows you to add a *Participant*:

Figure 8-12. Add New Participant

Enter the name of the participant (e.g. the participant's nick name or handle) and a short description, then use the Lookup Inspector to select an *openCRX* contact and pick an appropriate role (additional information about these attributes is available in the section *Participant*). Click the button [Save] to add this participant to the tracker:

Figure 8-13. Activity Tracker with Participants

I	Description	Modified at	Modified by	Created at	Created by	Identity
Standard\	User Group Tracker A	05-05-2005 14:03:52	admin-Standard	05-05-2005 13:55:35	admin-Standard	Standard\User Group Tracker A

I	Name	Description	Contact	Role
Joe	Joe	Test Engineer	Doe Joe & Valery	Member
Jill	Jill	TheBoss	PowWow Jill	Manager
cmu	cmu	quality assurance	guest (openCRX demo)	Member
hb	hb	Solution Design, Implementation, Test	Burger Harald	Member



Tip If you later add additional participants, do not forget to also add the corresponding contacts to the appropriate user group.



Warning Removing a contact from the list of participants of a particular tracker **does not** revoke privileges associated with the corresponding contact being member of the user group associated with this tracker! **To revoke security privileges you must remove the contact from the relevant user group(s)**. Please refer to the *openCRX Security Guide* (<http://www.opencrx.org/documents.htm#Docopencrx>) for detailed information regarding *openCRX* security.

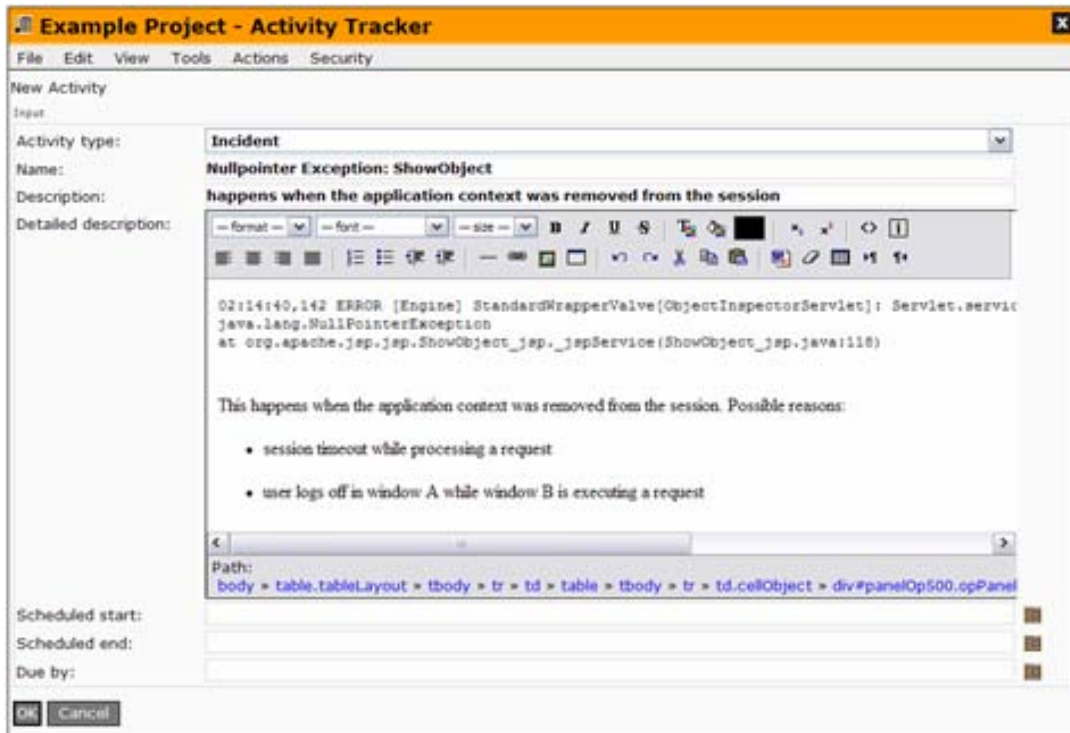
Now you can add new activities to this tracker by using the operation *Actions > New Activity...*

Figure 8-14. Adding new activities



Choose the activity type Incident to report a new bug (see *Activity Types* for more information – the operation *New Activity* is explained in detail in the section *New Activity (Incident)*):

Figure 8-15. Submit a new Bug (i.e. Add a new Incident)



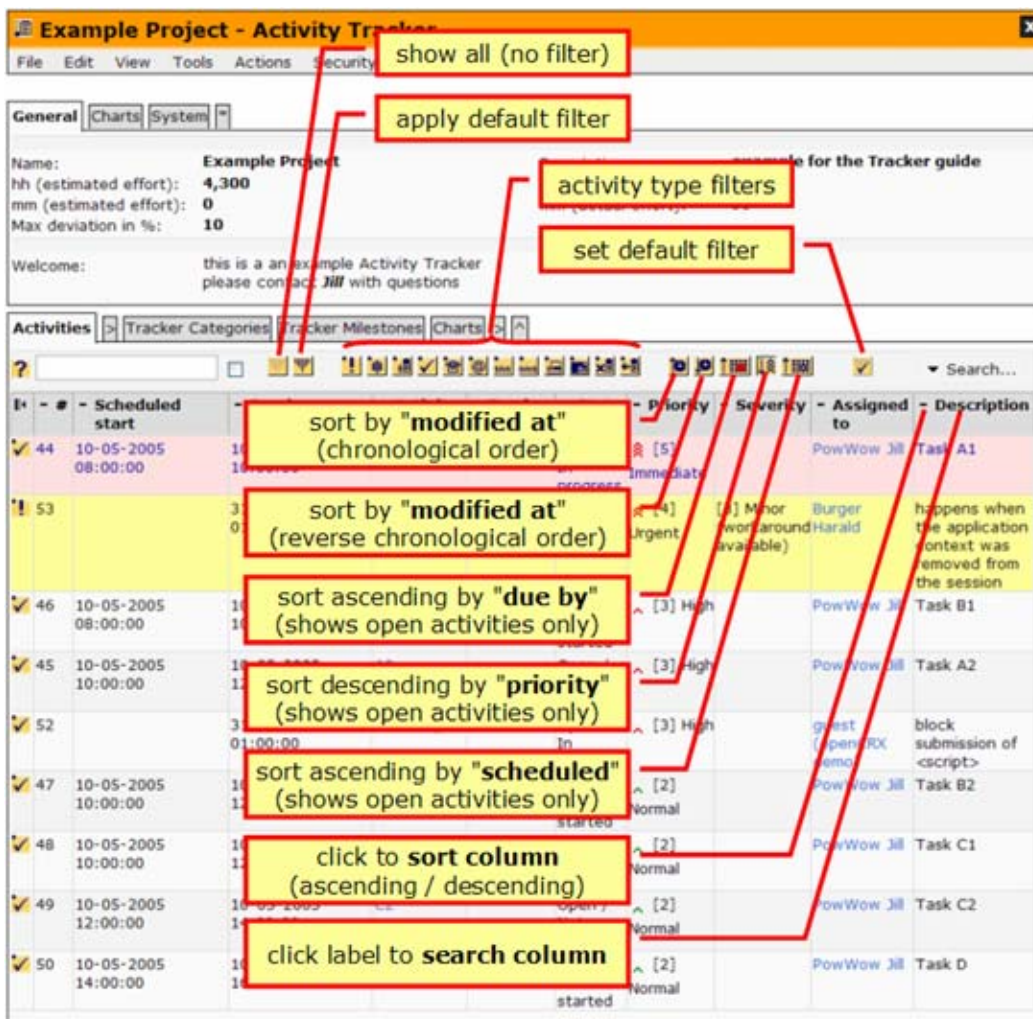
The result of the operation *New Activity* returns links that enable you to conveniently navigate to the newly created incident or continue with editing (see *Activity* for details on additional information you can provide). Submitting bugs (i.e. adding incidents) to a tracker initiates the *Life Cycle of an Incident*. Please refer to the section *Incident Management* for a detailed discussion of all the relevant topics that apply to incident management in general and bug tracking in particular.

You can use *openCRX* as a pretty lightweight bug tracking system for small teams (or even an individual developer), but *openCRX* also features tools to support very large and distributed projects with thousands of participants. You might want to read up on some of the supported concepts to make the most of using *openCRX*:

- Activity Tracker
- Activity
- Category
- Milestone
- Participant
- Votes
- Work Records
- Activity Links
- Security
- Notes, Documents, and other Attachments

The following figures shows some of the possibilities available for filtering and/or sorting:

Figure 8-16. Filtering/Sorted Activities



Let us look at some examples:

- **Sort Activities by Scheduled Start**

Move your mouse over the sort button to the left of the text *Scheduled start* in the grid Activities and click it. *openCRX* will present all the activities sorted (ascending) by Scheduled start. If you want to narrow down your view to a particular day, click that day in the calendar below the navigation menu (this will copy the respective date to the search box – alternatively you can manually enter the date) and then click the text *Scheduled start* to filter for that particular date.

- **Sort Activities by Priority (descending)**

Use the appropriate predefined filter to have *openCRX* sort all your open activities (open is equivalent to the value of %complete not being 100) by descending priority; activities of equal priority are sorted by ascending due date.

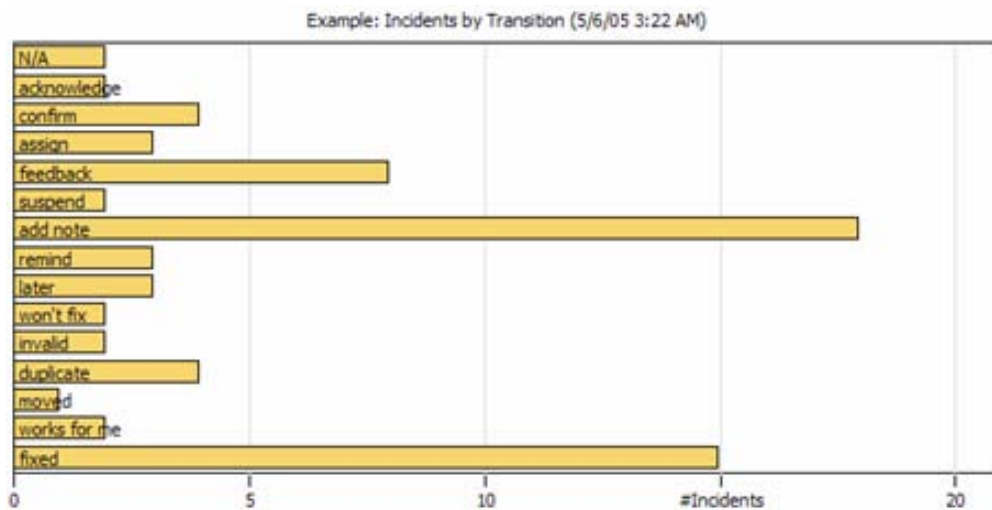
- **Sort Activities by Due Date/Time (ascending)**

Use the appropriate predefined filter to have *openCRX* sort all your open activities (open is equivalent to the value of %complete not being 100) by ascending due date/time; activities with identical due date/time are sorted by descending priority.

openCRX offers many different views on the all the data related to an Activity Tracker. For example, a participant can view a list of all the activities of a particular tracker that are assigned to her with a single click (to see **all** activities assigned to you – regardless of assigned tracker – navigate to your User Home). If the tracker manager created categories and milestones to add even more structure to the project (see *Category* and *Milestone* for more information), you can also view lists of activities assigned to particular categories or milestones.

In addition to these powerful filtering views, *openCRX* also features various real-time reports. One of the predefined charts shows you a status overview of all incidents assigned to a tracker:

Figure 8-17. Incidents by Transition



See section *Reports* for more information on reporting.

Chapter 9. Customizing

If you are just looking for a few "quick fixes" to change the look and feel of *openCRX*, this is your chapter. If you are envisioning bigger changes, please refer to the *openCRX Customization Guide* (<http://www.opencrx.org/documents.htm#Docopencrx>) for advanced customization features of *openCRX*. Furthermore, please note that customizing *openCRX* is one of those tasks not suitable for end-users – have your *openCRX* system administrator take care of your change requests.



Tip Many of the customizing changes discussed below require access to the files contained in the EARs (unless you want to change the sources and rebuild *openCRX*). You can open the file *opencrx-core-CRX-web.ear* with a ZIP utility and extract the content to get access to the file *opencrx-core-CRX.war*. This archive file can also be opened with a ZIP utility so that you can extract its content. This will give you access to the various configuration files, style sheets, image files, etc.

- the **logo** file is located at *opencrx-core-CRX-web.ear\opencrx-core-CRX.war\images\logo.gif*
- **colors, fonts** (type, size, etc.), and **basic layout** are defined in the various style sheets provided with *openCRX* – they are located in the directory *opencrx-core-CRX-web.ear\opencrx-core-CRX.war_style*
- all the **image files, icons**, etc. are located in the directory *opencrx-core-CRX-web.ear\opencrx-core-CRX.war\images*
- you can customize the *openCRX* **headers** and **footers** by changing the files *edit-footer.html*, *edit-header.html*, *show-footer.html*, and *show-header.html* located in the folder *opencrx-core-CRX-web.ear\opencrx-core-CRX.war*
- every *openCRX* object features various **user-defined fields** – they are already present in the UML model (please refer to the *openCRX UML models* (<http://www.opencrx.org/documents.htm#Doclatestuml>) and look for *LogicalView/org/opencrx/kernel/generic/CrxObject*) and in the database, but disabled/hidden in the user interface due to settings in the ui-config file *common.xml*; to make a user-defined field visible in the user interface, create a ui ElementDefinition for that particular attribute and set it to active (you will have to consult the *openCRX Customization Guide* (<http://www.opencrx.org/documents.htm#Docopencrx>) for details)
- you can **hide unused fields/attributes** by setting the <active>-tag of the corresponding ui ElementDefinition to false (please refer the *openCRX Customization Guide* (<http://www.opencrx.org/documents.htm#Docopencrx>) for details and examples)
- by editing the appropriate xml-files located in the directory *opencrx-core-CRX-web.ear\opencrx-core-CRX.war\WEB-INF\config\ui\en_US* you can change the **layout** of any *openCRX* object (please refer the *openCRX Customization Guide* (<http://www.opencrx.org/documents.htm#Docopencrx>) for details and examples)
- you can change *openCRX* **code tables** to your liking if the predefined ones do not suit you – please note that by default code tables are loaded by the Root-provider, i.e. any changes to code tables must be implemented by changing the appropriate files located in *opencrx-core-CRX-Root-web.ear\opencrx-core-CRX.war\WEB-INF\config\code\en_US* (please refer the *openCRX Customization Guide* (<http://www.opencrx.org/documents.htm#Docopencrx>) for details and examples)
- *openCRX* is distributed with many predefined filters – you can define your own **user-defined filters** and add them to the directory *opencrx-core-CRX-web.ear\opencrx-core-CRX.war\WEB-INF\config\filters* (please note that filters are loaded in the startup phase, i.e. you need to restart your application server to load new filters)

Chapter 10. Next Steps

Appendix A. Appendix

Bibliography

[01] *openCRX - the leading open source CRM solution*, [opencrx.org](http://www.opencrx.org).

@ <http://www.opencrx.org> (<http://www.opencrx.org>)

[02] *openMDX - The leading open source MDA platform*, [openmdx.org](http://www.openmdx.org).

@ <http://www.openmdx.org> (<http://www.openmdx.org>)