



Open ERP, a modern approach to integrated business management

Release 7.0.0

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Part I

Foreword

Information Systems have played an increasingly visible role over the past several years in improving the competitiveness of business. More than just tools for handling repetitive tasks, they are used to guide and advance all of a company's daily activities. Integrated management software is today very often a key source of significant competitive advantage.

The standard response to a need for responsiveness, reliability, and rapidly increasing expectations is to create an organization based on departments with a clear linear structure, integrated around your operating processes. To increase efficiency amongst salespeople, accountants, logistics staff and everyone else you should have a common understanding of your problems.

For this you need a common language for shared references, policies and communication. An ERP (Enterprise Resource Planning) system provides the ideal platform for this common reference point.

OPEN SOURCE SOFTWARE AT THE SERVICE OF MANAGEMENT

Risks and integration costs are important barriers to all the advantages you gain from such systems. That's why, today, few small- and medium-sized companies use ERP. In addition, the larger ERP vendors such as SAP, Microsoft and Oracle have not been able to reconcile the power and comprehensive cover of an ERP system with the simplicity and flexibility wanted by the users. But this is exactly what small and medium enterprises are looking for.

The development processes of Open Source Software, and the new business models adopted by their developers, provide a new way of resolving such cost and quality issues for this kind of enterprise software.

To make an ERP system fully available to small and medium enterprises, cost reduction is the first priority. Open source software makes it possible to greatly reduce development costs by aggressive reuse of open source software libraries; to eliminate intermediaries (the distributors), with all of their expensive sales overhead; to cut out selling costs by free publication of the software; and to considerably reduce the marketing overhead.

Since there is open interaction among thousands of contributors and partners working on the same project, the quality of the resulting software greatly benefits from the scrutiny. And you cannot be everything at once: accountant, software developer, salesperson, ISO 9001 quality professional, specialist in agricultural products, expert in the customs and habits of pharmaceutical vendors, just as a start.

Faced with these wide-ranging requirements, what could be better than a worldwide network of partners and contributors? Every single person adds own contributions according to his or her professional competence. Throughout this book you will see that the results exceed any reasonable expectations when such work is well organized.

But the real challenge of development is to make this solution simple and flexible, as well as complete. And to reach this level of quality you need a leader and co-ordinator who can organize all of these activities. So the development team of Tiny ERP, today called OpenERP, is responsible for most of the organization, synchronization and coherence of the software.

And OpenERP offers great performance in all these areas!

THE OPENERP SOLUTION

Because of its modularity, collaborative developments in OpenERP have been cleanly integrated, enabling any company to choose from a large list of available functions. As with most open source software, accessibility, flexibility and ease of use are important keywords for development. Experience has shown that there is no need to train users for several months on the system, because they can just download it and use it directly.

So you will find modules to suit all kinds of needs, allowing your company to build its customized system by simply grouping and configuring the most suitable modules. Hundreds of modules are available.

They range from specific modules like the EDI interface for agricultural products, which has been used to interface with Match and Leclerc stores, up to the generic demonstration automation module for ordering sandwiches, which can take care of the eating preferences of your staff.

The results are rather impressive. OpenERP (originally called Tiny ERP) is a Management Software that is downloaded more than any other in the world, with over 600 downloads per day. Today it is available in 18 languages and has a worldwide network of partners and contributors. Over 800 developers participate in the projects on the collaborative development system.

To our knowledge, OpenERP is the only management system which is routinely used not only by big companies but also by very small companies and independent companies. This diversity is an illustration of the software's flexibility: a rather elegant coordination between people's functional expectations of the software and great ease of use.

And this diversity is also found in the various sectors and trades which use the software, including agricultural products, textiles, public auctions, IT, and trade associations.

Last but not least, such software has arisen from the blend of high code quality, well-judged architecture and use of free technologies. In fact, you may be surprised (if you are an IT person) to find that the download size of OpenERP is only around 6 MB. When that is expanded during installation its size is mostly attributable to all the official translations that are packaged with it, not the operating code. We've moved a long way from the days when the only people who could be expected to benefit from ERP were the owners of a widget factory on some remote industrial estate.

2.1 Why this book?

Many books set out to tell readers about the management of enterprise, and equally many aim to instruct the reader in the use of a piece of specialized software. We are not aiming to add to those lists because our approach is intended to be different.

Having restructured and reorganized many businesses, we wanted our management experience to generate a work that is both instructive and practical. It was important for us not to write a manual about OpenERP, but instead a work that deals with advanced management techniques realized through these IT tools. You will see what management practices might be useful, what is possible, and then how you could achieve that in OpenERP.

This is what we will consider OpenERP to be: not an end in itself but just the tool you use to put an advanced management system into place.

2.2 Who is it for?

Written by two CEOs who have been successful with new technologies, this book is aimed at directors and managers who have an ambition to improve the performance of their whole company's management team. They are likely to already have significant responsibilities and possess the influence to get things done in their company.

It is likely that most readers will come from small- and medium-sized enterprises (up to a few hundred staff), and independent companies, because of the breadth of functions that need to be analyzed and involved in change. The same principles also apply to larger companies, however.

STRUCTURE OF THIS BOOK

Part One, *First steps with OpenERP*, starts with the installation of OpenERP. If you have already installed OpenERP you can directly take your first steps on a guided tour in the *Guided Tour* chapter. If you are already familiar with OpenERP or Tiny ERP you can use the *How does it apply to your Business?* chapter to find out how to create a new workflow from scratch in an empty database with nothing to distract you. Or you can skip directly to the, *Managing your Leads*, chapter in the, *Managing Customer Relationships*, to start with details of OpenERP's functional modules.

Part Two, *Managing Customer Relationships*, deals with Customer Relationship Management (CRM). You will find the elements necessary for managing an efficient sales department there, and automating tasks to monitor performance.

Part Three, *Manage your Books*, is devoted to general accounting and its key role in the management of the whole enterprise.

Part Four, *Effective Management of Operations*, handles all the operational functions of enterprise management: Human Resources for managing projects, through financial analyses supplied by analytic (or cost) accounts. You will see how using OpenERP can help you optimize your leadership of an enterprise.

Part Five, *Manage your Warehouse and Get your Manufacturing Done*, describes the physical movement of Stocks and their Manufacturing (the transformation or products and services into other products).

Part Six, *Manage your Business*, deals with Purchasing and Selling goods and services.

Part Seven, *Process and Document Management*, is focused on the Process description and Documentation & Knowledge handling that OpenERP manages.

Finally Part Eight, *System Administration and Implementation*, structured in two chapters, explains first how to administer and configure OpenERP, then provides a methodology for implementing OpenERP in your enterprise.

Note:

About the authors

Fabien Pinckaers

Fabien Pinckaers was only eighteen years old when he started his first company. Today, over ten years later, he has founded and managed several new technology companies, all based on Free / Open Source software.

He originated Tiny ERP, now OpenERP, and is the director of two companies including Tiny sprl, the editor of OpenERP. In three years he has grown the Tiny group from one to sixty-five employees without loans or external fund-raising, and while making a profit.

He has also developed several large scale projects, such as Auction-in-Europe.com, which became the leader in the art market in Belgium. Even today people sell more art works there than on ebay.be.

He is also the founder of the LUG (Linux User Group) of Louvain-la-Neuve, and of several free projects like OpenReport, OpenStuff and Tiny Report. Educated as a civil engineer (polytechnic), he has won several IT prizes in Europe such as Wired and l'Insène.

A fierce defender of free software in the enterprise, he is in constant demand as a conference speaker and he is the author of numerous articles dealing with free software in the management of the enterprise.

Follow Fabien on his blog <http://fptiny.blogspot.com/> or on twitter fpopenerp.

Geoff Gardiner

Geoff has held posts as director of services and of IT systems for international companies and in manufacturing. He was Senior Industrial Research Fellow at Cambridge University's Institute for Manufacturing where he focused on innovation processes.

He founded Seath Solutions Ltd (<http://www.seathsolutions.com/>) to provide services in the use of Open Source software, particularly OpenERP, for business management.

Author of articles and books focusing on the processes and technology of innovation, Geoff is also an active contributor to the OpenERP project. He holds an MBA from Cranfield School of Management and an MA in Engineering and Electrical Sciences from Trinity Hall, Cambridge. He is a member of the Institution of Engineering and Technology and of the Society of Authors.

Having observed, suffered, and led process implementation projects in various organizations, he has many thoughts to share on the successful adoption of an effective management automation tool.

Els Van Vossel

Els Van Vossel always had a dedication to both written and spoken word. Clear and explicit communication is crucial.

Educated as a Professional Translator in Antwerp, she worked as an independent translator on the localization of major ERP software. Els acquired ERP knowledge and decided to start working as a functional ERP consultant and a Technical Communicator for ERP software.

As such, the world of OpenSource software became more and more attractive. She started working with OpenERP software in her free time and doing so, Els really wanted to meet Fabien Pinckaers to share thoughts about documentation and training strategy. At a Partner Meeting she heard Fabien was looking for someone to manage training & documentation. This was absolutely an opportunity to be qualified, and now Els is the OpenERP Training Program Manager and responsible for the worldwide training and certification program of OpenERP. Being an author of several Software Manuals, it is a great challenge to work on the OpenERP documentation and continuously take it to a higher level. Please note that this is a hell of a job, but Els finds great pleasure in doing it!

Follow Els on her blog <http://training-openerp.blogspot.com/> or on twitter elsvanvossel.

**CHAPTER
FOUR**

DEDICATION

From Geoff Gardiner

My gratitude goes to my co-author, Fabien Pinckaers, for his vision and tenacity in developing Tiny ERP and OpenERP, and the team at OpenERP for its excellent work on this.

OpenERP relies on a philosophy of Open Source and on the technologies that have been developed and tuned over the years by numerous talented people. Their efforts are greatly appreciated.

Thanks also to my family for their encouragement, their tolerance and their constant presence.

From Els Van Vossel

Thank you Fabien, for offering me the opportunity to work with OpenERP. Thanks to my documentation team for helping me to get a first V6.0.0 version of the documentation! In the near future, I dedicate myself to restructuring the documentation completely and manage to get a real Business-oriented version. For that, already in advance I thank the OpenERP team for their support.

From Fabien Pinckaers

I address my thanks to all of the team at OpenERP for their hard work in preparing, translating and re-reading the book in its various forms. My particular thanks to Laurence Henrion and my family for supporting me throughout all this effort.

Part II

First steps with OpenERP

OpenERP is an impressive software system, being easy to use and yet providing great benefits in helping you manage your company. It is easy to install under both Windows and Linux compared to other enterprise-scale systems, and offers unmatched functionality.

The objective of this first part of the book is to help you start discovering OpenERP in practice.

The first chapter, *Installation and Initial Setup*, gives detailed guidance for installing it. If you are not a system administrator, or if you have already installed OpenERP, or if you are planning to use an online SaaS provider, then you can skip this chapter and move straight to the next chapter, *Guided Tour*. There we take you on a step-by-step guided tour using the information in the demonstration database.

If you have already used OpenERP (or Tiny ERP) a bit then you can move to the third chapter in this part of the book. In *How does it apply to your Business?* you can try out a real case, from scratch in a new database, by developing a complete business workflow that runs from purchase to sale of goods.

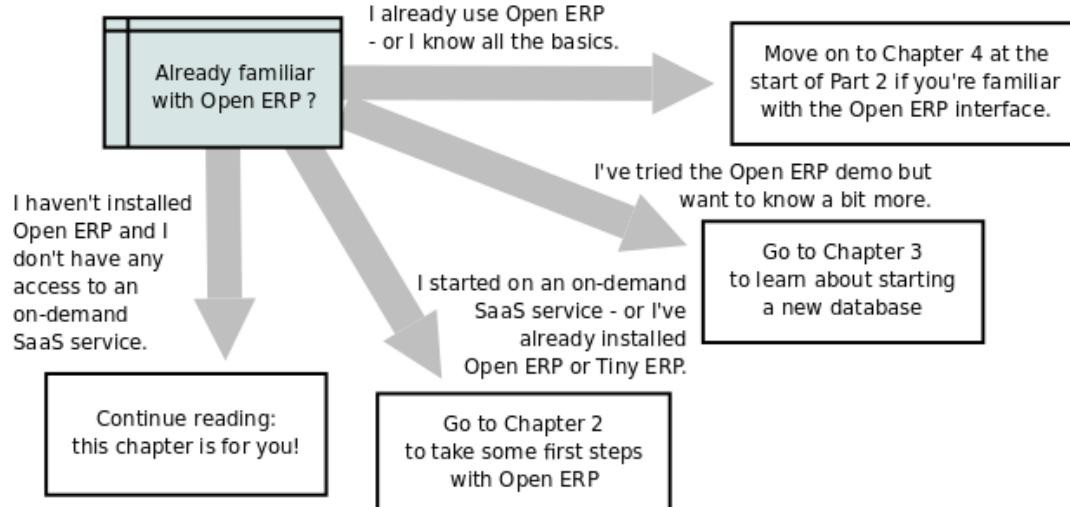


Figure 4.1: Options for reading this part of the book

SUBSCRIBE & START

Whether you want to test OpenERP or put it into full production, you have at least two possible starting points:

- you can use OpenERP Online by subscribing to <http://www.openerp.com/>;
- you can install the solution on your own computers to test it in your company's system environment.

In this chapter, the easy-to-use *OpenERP Online* solution will be briefly explained. For more information about installing OpenERP on your computer, please refer to the chapter *part5-crm-install*.

Note:

Some Interesting Websites from OpenERP

- Main Site: <http://www.openerp.com>,
- OpenERP Online Site: <http://www.openerp.com/>,
- Documentation site: <http://doc.openerp.com/>,
- Community discussion forum where you can often receive assistance: <http://help.openerp.com/questions/>.

Tip:

Current documentation

The procedure for installing OpenERP and its web server are likely to change and improve with each new version, so you should always check each release's documentation on the website for the latest installation procedures.

5.1 Use OpenERP Online

Nothing is easier for you to discover OpenERP than subscribing to the OpenERP Online offer. You just need a web browser to get started.

The Online service can be particularly useful to small companies, that just want to get going quickly at low cost. You have immediate access to OpenERP's Integrated Management System built on the type of enterprise architecture used in many organizations.

OpenERP's Online offer includes several services: hosting at high bandwidth, database management, stable security update, backups, maintenance (24/7 server monitoring), bug fixing and migrations.

OpenERP guarantees that the software running on OpenERP Online is exactly the same as the Open Source official version of OpenERP. Any improvement made on OpenERP will be available online. This allows you to easily switch from the online version to the local version anytime.

So even if the OpenERP Online solution might be the best solution to suit your needs today, you can easily switch to an installation on your own servers according to your company's changing requirements or growth. You are also able to change your service provider anytime, while continuing to use the exact same system. Hence, you do not depend on your host. In addition, OpenERP works with standard and open formats and programming languages which allow you to export your data and use them in any other software.

These advantages give you total control over your data, your software, your platform.

The screenshot shows the 'Sign up' page for OpenERP Online. At the top right, the 'OpenERP' logo is displayed with a '7.0' badge. On the left, a large white rectangular form contains fields for 'Your Email Address', 'Your Name', 'Choose a Password', and 'Confirm Your Password'. Below these fields is a red 'Sign up' button. To the right of the form, a grey sidebar contains the text 'Already have an account? [Sign in](#)'. The background of the page is light blue.

Figure 5.1: *Subscribe and Start with OpenERP Online*

If you want to start working with the online platform, you can navigate to <http://www.openerp.com/>. After successful registration, you will be able to configure and use OpenERP online. To log in to your OpenERP Online account, you will receive a username and password. You can build the software to fit your needs, at your own pace!

OpenERP Online - Software as a Service - is hosted by OpenERP and paid in the form of a monthly subscription. The pricing model is extremely simple. OpenERP charges a fixed fee per month per user. You will get an invoice each month according to the number of users registered in the system at that time. If you add new users during the next 30 days, they will only be charged with the next invoice. You can find the details of current pricing and payment options at <http://www.openerp.com/online>.

Tip:

Free Trial

For a month's free trial, check out OpenERP's <http://www.openerp.com/online>, which enables you to get started quickly without incurring costs for integration or for buying computer systems. After the free trial expires, you can easily continue using OpenERP Online.

INSTALLATION AND INITIAL SETUP

Installing OpenERP under Windows or Linux to get familiar with the software should take you only half an hour or so and needs only a couple of operations.

The first operation is to install the application and database server on a server PC (that is a Windows or Linux or Macintosh computer).

You have a choice of approaches for the second operation: either install a web server (most probably on the original server PC) to use with standard web clients that can be found on anybody's PC, or install application clients on each intended user's PC.

When you first install OpenERP, you will set up a database containing a little functionality and some demonstration data to test the installation.

Note:

Renaming from Tiny ERP to OpenERP

Tiny ERP was renamed to OpenERP early in 2008, so anyone who has used Tiny ERP should be equally at home with OpenERP. The two names refer to the same software, so there is no functional difference between versions 4.2.X of OpenERP and 4.2.X of Tiny ERP. This book applies to versions of OpenERP from 7 onwards, with references to earlier versions from time to time.

Note:

The SaaS, or “on-demand”, offer

SaaS (Software as a Service) is delivered by a hosting supplier and paid in the form of a monthly subscription that includes hardware (servers), system maintenance, provision of hosting services, and support.

You can get a month's free trial on OpenERP's <http://www.openerp.com/>, which enables you to get started quickly without incurring costs for integration or for buying computer systems. Many of OpenERP's partner companies will access this, and some may offer their own similar service.

This service should be particularly useful to small companies that just want to get going quickly and at low cost. It gives you immediate access to an integrated management system that has been built on the type of enterprise architecture used in banks and other large organizations. OpenERP is that system, and is described in detail throughout this book.

Whether you want to test OpenERP or to put it into full production, you have at least three starting points:

- no need to install OpenERP, you can test it through <http://www.openerp.com/>,
- evaluate it on line at <http://www.openerp.com> and ask OpenERP for a SaaS trial hosted at <http://ondemand.openerp.com>, or the equivalent service at any of OpenERP's partner companies,
- install it on your own computers to test it in your company's system environment.

There are some differences between installing OpenERP on Windows and on Linux systems, but once installed, both systems offer the same functionality so you will not generally be able to tell which type of server you are using.

Note:

Linux, Windows, Mac

Although this book deals only with installation on Windows and Linux systems, the same versions are also available for Macintosh on the official website of OpenERP.

Note:

Websites for OpenERP

- *Main Site: <http://www.openerp.com>,*
- *SaaS or OpenERP OnLine Site: <http://www.openerp.com/>,*
- *Documentation Site: <http://doc.openerp.com/>,*
- *Community discussion forum where you can often receive informed assistance: <http://www.openobject.com/forum>.*

Tip:

Current documentation

The procedure for installing OpenERP and its web server are sure to change and improve with each new version, so you should always check each release's documentation – both packaged with the release and on the website – for exact installation procedures.

Once you have completed this installation, create and set up a database to confirm that your OpenERP installation is working. You can follow earlier chapters in this part of the book to achieve this.

6.1 The Architecture of OpenERP

To access OpenERP V7 you can:

- use only a web browser pointed at the OpenERP client-web server.

It is best to use the web browser if the OpenERP server is some distance away (such as on another continent) because it is more tolerant of time delays. The web client is also easier to maintain, because it is generally already installed on users' computers.

An OpenERP system is formed from three main components:

- the PostgreSQL database server, which contains all of the databases, each of which contains all data and most elements of the OpenERP system configuration,
- the OpenERP application server, which contains all of the enterprise logic and ensures that OpenERP runs optimally,
- the web server, a separate application called the Open Object client-web, which enables you to connect to OpenERP from standard web browsers.

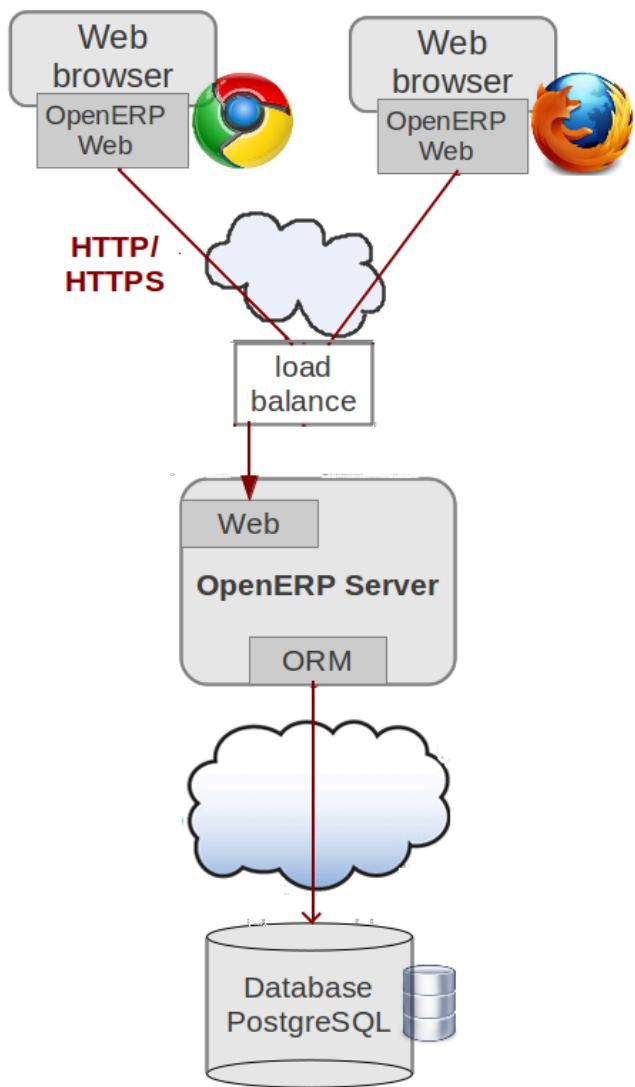


Figure 6.1: The architecture of OpenERP

Note:

Terminology: Client-web – Server or Client?

The client-web component can be thought of as a server or a client depending on your viewpoint.

It acts as a web server to an end user connecting from a web browser, but it also acts as a client to the OpenERP application server.

So in this book its context will determine whether the client-web component is referred to as a server or a client.

Note:

PostgreSQL, the relational and object database management system.

It is a free and open-source high-performance system that compares well with other database management systems such as MySQL and FirebirdSQL (both free), Sybase, DB2 and Microsoft SQL Server (all proprietary). It runs on all types of Operating System, from Unix/Linux to the various releases of Windows, via Mac OS X, Solaris, SunOS and BSD.

These three components can be installed on the same server or can be distributed onto separate computer servers, if performance considerations require it.

6.2 The Installation of OpenERP

Whether you are from a small company investigating how OpenERP works, or you are part of the IT staff of a larger organization and have been asked to assess OpenERP's capabilities, your first requirement is to install it or to find a working installation.

The table below summarizes the various installation methods that will be described in the following sections.

Table 6.1: Comparison of the different methods of installation on Windows or Linux

Method	Average Time	Level of Complexity	Notes
OpenERP Demo	No installation	Simple	Very useful for quick evaluations because no need to install anything.
All-in-one Windows Installer	A few minutes	Simple	Very useful for quick evaluations because it installs all of the components pre-configured on one computer (using the client).
Independent installation on Windows	Half an hour	Medium	Enables you to install the components on different computers. Can be put into production use.
Ubuntu Linux packages	A few minutes	Simple	Simple and quick but the Ubuntu packages are not always up to date.
From source, for all Linux systems	More than half an hour	Medium to slightly difficult	This is the method recommended for production environments because it is easy to keep it up to date.

Each time a new release of OpenERP is made, OpenERP supplies a complete Windows auto-installer for it. This contains all of the components you need – the PostgreSQL database server, the OpenERP application server and the web application client.

This auto-installer enables you to install the whole system in just a few mouse clicks. The initial configuration is set up during installation, making it possible to start using it very quickly as long as you do not want to change the underlying code. It is aimed at the installation of everything on a single PC, but you can later connect clients from other PCs, Macs and Linux boxes to it as well.

The first step is to download the OpenERP installer. At this stage you must choose which version to install – the stable version or the development version. If you are planning to put it straight into production we strongly advise you to choose the stable version.

Note:

Stable Versions and Development Versions

OpenERP development proceeds in two parallel tracks: stable versions and development versions.

New functionality is integrated into the development branch. This branch is more advanced than the stable branch, but it can contain undiscovered and unfixed faults. A new development release is made every month or so, and OpenERP has made the code repository available so you can download the very latest revisions if you want. The stable branch is designed for production environments. Releases of new functionality there are made only about once a year after a long period of testing and validation. Only bug fixes are released through the year on the stable branch.

To download the version of OpenERP for Windows, follow these steps:

1. Navigate to the site <http://openerp.com>.
2. Click the *Pricing & Download* Link at the bottom, then, under *Windows*, sign up/sign in and download *All-in-One*.
3. This brings up the demonstration version Windows installer, currently **openerp-allinone-setup-7.0**.
4. Save the file on your PC - it is quite a substantial size because it downloads everything including the PostgreSQL database system, so it will take some time.

To install OpenERP and its database, you must be signed in as an Administrator on your PC. Double-click the installer file to install it and accept the default parameters on each dialog box as you go.

If you had previously tried to install the all-in-one version of OpenERP, you will have to uninstall that first, because various elements of a previous installation could interfere with your new installation. Make sure that all Tiny ERP, OpenERP and PostgreSQL applications are removed: you are likely to have to restart your PC to finish removing all traces of them.

The OpenERP client can be opened, ready to use the OpenERP system, once you have completed the all-in-one installation. The next step consists of setting up the database, and is covered in the final section of this chapter *Creating the Database*.

6.2.1 Independent Installation on Windows

System administrators can have very good reasons for wanting to install the various components of a Windows installation separately. For example, your company may not support the version of PostgreSQL or Python that is installed automatically, or you may already have PostgreSQL installed on the server you are using, or you may want to install the database server, application server and web server on separate hardware units.

For this situation, you can get separate installers for the OpenERP server and client from the same location as the all-in-one auto-installer. You will also have to download and install a suitable version of PostgreSQL independently.

You must install PostgreSQL before the OpenERP server, and you must also set it up with a user and password so that the OpenERP server can connect to it. OpenERP's web-based documentation gives full and current details.

Connecting Users on Other PCs to the OpenERP Server

To connect other computers to the OpenERP server, you must set the server up so that it is visible to the other PCs, and install a client on each of those PCs:

1. Make your OpenERP server visible to other PCs by opening the Windows Firewall in the Control Panel, then ask the firewall to make an exception of the OpenERP server. In the *Exceptions* tab of Windows Firewall click *Add a program...* and choose *OpenERP Server* in the list provided. This step enables other computers to see the OpenERP application on this server.
2. Install the OpenERP client (**openerp-allinone-setup-7.0-latest.exe**), which you can download in the same way as you downloaded the other OpenERP software, onto the other PCs.

Tip:

Version Matching

You must make sure that the version of the client matches that of the server. The version number is given as part of the name of the downloaded file. Although it is possible that some different revisions of client and server will function together, there is no certainty about that.

To run the client installer on every other PC you will need to know the IP address of main machine. The installation is automated, so you just need follow the different installation steps.

When your installation finished the client start on your machine's default browser.

Note:

Why sign in as a PC Administrator?

You would not usually be signed in as a PC administrator when you are just running the OpenERP client, but if there have been problems in the installation it is easier to remain as an administrator after the installation so that you can make any necessary fixes than to switch users as you alternate between roles as a tester and a software installer.

To Start web client, Open any browser and just write `http://localhost:8069/` or `http://0.0.0.0:8069/` If you want to access it on different machine just need to set your machin's IP address instead of `localhost` like : `192.168.1.1:8069` There is *No database found, you must create one* then you have **successfully connected** to an OpenERP server containing, as yet, no databases.

Note:

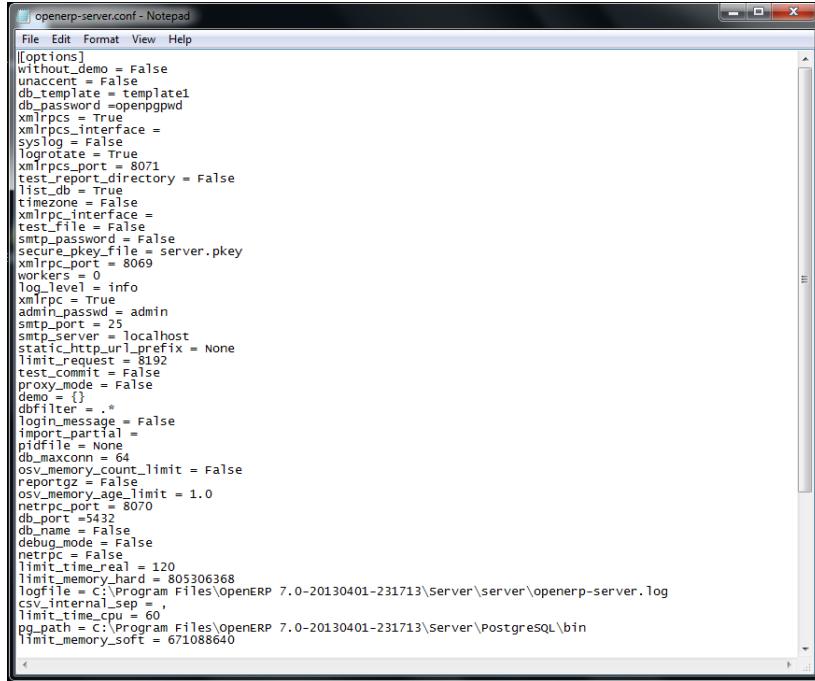
Connection Modes

In its default configuration at the time of writing, the OpenERP client connects to port 8069 on the server using the XML-RPC protocol (from Linux) or port 8070 using the NET-RPC protocol instead (from Windows). You can use any protocol from either operating system. NET-RPC is quite a bit quicker. OpenERP can run XML-RPC, but not NET-RPC, as a secure connection.

Resolving Errors with a Windows Installation

If you cannot get OpenERP to work after installing your Windows system you will find some ideas for resolving this below:

1. Is the OpenERP Server working? Signed in to the server as an administrator, stop and restart the service using *Stop Service* and *Start Service* from the menu *Start → Programs → OpenERP Server*.
2. Is the OpenERP Server set up correctly? Signed in to the server as Administrator, open the file `openerp-server.conf` in `C:\Program Files\OpenERP AllInOne` and check its content. This file is generated during installation with information derived from the database. If you see something strange it is best to entirely reinstall the server from the demonstration installer rather than try to work out what is happening.



```
[options]
without_demo = False
unaccent = False
db_template = template1
db_password = openpgpwd
xmlrpcs = True
xmlrpcs_interface =
syslog = False
logrotate = True
xmlrpc_port = 8071
test_demo_directory = False
list_db = True
timezone = False
xmlrpc_interface =
test_file = False
smtp_password = False
server_pkey_file = server.pkey
xmlrpc_port = 8069
workers = 0
log_level = info
xmlrpc = True
admin_passwd = admin
smtp_port = 25
smtp_server = localhost
xmlrpcs_interface = None
limit_request = 8192
test_commit = False
proxy_mode = False
demo = {}
dbfilter = .*
login_message = False
image_max_width =
pidfile = None
db_maxconn = 64
osv_memory_count_limit = False
reportgz = False
osv_memory_age_limit = 1.0
netrpc_port = 8070
db_port = 5432
dbname = False
debug_mode = False
netrpc = False
limit_time_real = 120
limit_memory_hard = 805306368
logfile = C:\Program Files\OpenERP 7.0-20130401-231713\Server\server\openerp-server.log
csv_internal_sep = ,
limit_time_cpu = 60,
pg_path = C:\Program Files\OpenERP 7.0-20130401-231713\Server\PostgreSQL\bin
limit_memory_soft = 671088640
```

Figure 6.2: Typical OpenERP configuration file

3. Is your PostgreSQL running? Signed in as administrator, select *Stop Service* from the menu *Start → Programs → PostgreSQL*. If after a couple of seconds, you read *The PostgreSQL4OpenERP service has stopped* then you can be reasonably sure that the database server was working. Restart PostgreSQL.
4. Is the database accessible? Still in the PostgreSQL menu, start the pgAdmin III application which you can use to explore the database. Double-click the PostgreSQL4OpenERP connection. You can find the password in the OpenERP server configuration file. If the database server is accessible you will be able to see some information about the empty database. If it is not, an error message will appear.

5. Are your client programs correctly installed? If your OpenERP clients have not started, the swiftest approach is to reinstall them.
6. Can remote client computers see the server computer at all? Check this by opening a command prompt window (enter cmd in the window *Start → Run...*) and enter ping <address of server> there (where <address of server> represents the IP address of the server). The server should respond with a reply.
7. Have you changed any of the server's parameters? At this point in the installation the port number of the server must be 8069 using the protocol XML-RPC.
8. Is there anything else in the server's history that can help you identify the problem? Open the file *openerp-server.log* in C:\Program Files\OpenERP AllInOne(which you can only do when the server is stopped) and scan through the history for ideas. If something looks strange there, contributors to the OpenERP forums can often help identify the reason.

6.2.2 Installation on Linux (Ubuntu)

This section guides you through installing the OpenERP server and client on Ubuntu, one of the most popular Linux distributions. It assumes that you are using a recent release of Desktop Ubuntu with its graphical user interface on a desktop or laptop PC.

Note:

Other Linux Distributions

Installation on other distributions of Linux is fairly similar to installation on Ubuntu. Read this section of the book so that you understand the principles, then use the online documentation and the forums for your specific needs on another distribution.

For information about installation on other distributions, visit the documentation section by following *Services → Documentation* on <http://www.openerp.com>. Detailed instructions are given there for different distributions and releases, and you should also check if there are more up to date instructions for the Ubuntu distribution as well.

Technical Procedure: Initial Installation and Configuration

Upgrade of Ubuntu packages and installation of OpenERP and pgadmin:

```
$ sudo apt-get update
$ sudo apt-get upgrade
$ sudo apt-get install openerp-server openerp-client pgadmin3
```

To avoid having some of the labels untranslated in the client, install the language-pack-gnome-YOURLANG-base package. The following command installs the Spanish language pack:

```
$ sudo apt-get install language-pack-gnome-es-base
```

PostgreSQL version 8.4 has been used at the time of writing. You may have to replace the version number in the commands below with your own PostgreSQL version number if it differs. Postgres Database configuration:

```
$ sudo vi /etc/postgresql/8.4/main/pg_hba.conf
```

Replace the following line:

```
# "local" is for Unix domain socket connections only
local all all ident
```

with:

```
#"local" is for Unix domain socket connections only
local all all md5
```

Restart Postgres:

```
$ sudo /etc/init.d/postgresql-8.4 restart
* Restarting PostgreSQL 8.4 database server [ OK ]
```

The following two commands will avoid problems with /etc/init.d/openerp-web INIT script:

```
$ sudo mkdir /home/openerp
$ sudo chown openerp.nogroup /home/openerp
```

Create a user account called openerp with password “openerp” and with privileges to create Postgres databases:

```
$ sudo su postgres
$ createuser openerp -P
```

Enter password for new role: (openerp)

Enter it again:

Shall the new role be a superuser? (y/n) n

Shall the new role be allowed to create databases? (y/n) y

Shall the new role be allowed to create more new roles? (y/n) n

Quit from user postgres:

```
$ exit
exit
```

Edit OpenERP configuration file:

```
$ sudo vi /etc/openerp-server.conf
```

Replace the following two lines (we don't force to use a specific database and we add the required password to gain access to postgres):

```
db_name =
db_user = openerp
db_password = openerp
```

We can now restart openerp-server:

```
$ sudo /etc/init.d/openerp-server restart
```

Restarting openerp-server: openerp-server.

Check out the logs:

```
$ sudo cat /var/log/openerp.log
```

OpenERP is now up and running, connected to Postgres database on port 5432 and listening on ports 8069 and 8070

```

$ ps uaxww | grep -i openerp
openerp      5686  0.0  1.2  84688 26584 pts/7      S1+  12:36   0:03 /usr/bin/python ./openerp-server

$ sudo lsof -i :8069
COMMAND  PID USER      FD      TYPE DEVICE SIZE/OFF NODE NAME
python  5686 openerp  3u    IPv4  116555          0t0    TCP *:8069 (LISTEN)

$ sudo lsof -i :8070
COMMAND  PID USER      FD      TYPE DEVICE SIZE/OFF NODE NAME
python  5686 openerp  5u    IPv4  116563          0t0    TCP *:8070 (LISTEN)

```

Start the OpenERP client from the browser. The OpenERP login dialog box open but No database found you must create one!.

Although this installation method is simple and therefore an attractive option, it is better to install OpenERP using a version downloaded from <http://openerp.com>. The downloaded revision is likely to be far more up to date than that available from a Linux distribution.

Note:

Package Versions

Maintaining packages is a process of development, testing and publication that takes time. The releases in OpenERP packages are therefore not always the latest available. Check the version number from the information on the website before installing a package. If group differs (for example 7.0) then you may decide to install it because the differences may be minor – bug fixes rather than functionality changes between the package and the latest version.

Manual Installation of the OpenERP Server

In this section you will see how to install OpenERP by downloading it from the site <http://openerp.com>, and how to install the libraries and packages that OpenERP depends on, onto a desktop version of Ubuntu. Here is a summary of the procedure:

1. Navigate to the page <http://openerp.com> with your web browser,
2. Click the *Pricing & Download* link on bottom side,
3. Download the client and server files from the *Sources* section into your home directory (or some other location if you have defined a different download area).

To download the PostgreSQL database and all of the other dependencies for OpenERP from packages:

1. Start Synaptic Package Manager, and enter the root password as required.
2. Check that the repositories `main`, `universe` and `restricted` are enabled.
3. Search for a recent version of PostgreSQL (such as `postgresql-8.4` then select it for installation along with its dependencies.
4. Select all of OpenERP's dependencies, an up-to-date list of which should be found in the installation documents on OpenERP's website, then click *Apply* to install them.

Note:

Python Programming Language

Python is the programming language that has been used to develop OpenERP. It is a dynamic, non-typed language that is object-oriented, procedural and functional. It comes with numerous libraries that provide interfaces to other languages and has the great advantage that it can be learnt in only a few days. It is the language of choice for large parts of NASA's, Google's and many other enterprises' code.

For more information on Python, explore <http://www.python.org>.

Once all these dependencies and the database are installed, install the server itself using the instructions on the website.

Open a terminal window to start the server with the command **openerp-server** as well as need to mention web client path, On terminal go to server source path, and give the command **./openerp-server --addons=../addons/7.0/..//web/7.0/addons** which should result in a series of log messages as the server starts up. If the server is correctly installed, the message [...] waiting for connections... should show within 30 seconds or so, which indicates that the server is waiting for a client to connect to it.

```
devishree@devishree-laptop: ~$ ./openerp-server --addons=/home/devishree/workspace/openerp-tools.old/addons/7.0/addons
2013-04-09 10:19:07,876 12375 INFO openerp: OpenERP version 7.0
2013-04-09 10:19:07,876 12375 INFO openerp: addons path: /home/devishree/workspace/openerp-tools.old/addons/7.0,/home/devishree/workspace/openerp-tools.old/web/7.0/addons
2013-04-09 10:19:07,876 12375 INFO openerp: database hostaddr: localhost
2013-04-09 10:19:07,876 12375 INFO openerp: database port: 5432
2013-04-09 10:19:07,876 12375 INFO openerp: database user: devishree
2013-04-09 10:19:07,876 12375 INFO openerp: http://localhost:8069
2013-04-09 10:19:07,876 12375 INFO openerp: services隐隐约约象: Gdata Python/2.6.17' detected
2013-04-09 10:19:07,876 12375 INFO openerp: OpenERP server is running, waiting for connections...
```

Figure 6.3: OpenERP startup log in the console

GTK

GTK Clients is deprecated for Openerp v7.0

Installation of an OpenERP Web Server

You can install it from sources after installing its dependencies from packages as you did with the OpenERP server, but OpenERP has provided a simpler way to do this for the web client.

To install client-web follow the up-to-date instructions in the installation document on the website.

Its default setup corresponds to that of the OpenERP server you have just installed, so should connect directly at startup.

1. At a terminal window type **openerp-web** to start the OpenERP Web server as mention above.



Figure 6.4: OpenERP web client at startup

You can verify the installation by opening a web browser on the server and navigating to <http://localhost:8069> to connect to the OpenERP web version as shown in the figure [OpenERP web client at startup](#). You can also test this from another computer connected to the same network if you know the name or IP address of the server over the network – your browser should be set to http://<server_address>:8069 for this.

Creating the Database

You can connect other clients over the network to your Linux server. Before you leave your server, make sure you know its network address – either by its name (such as `mycomputer.mycompany.net`) or its IP address (such as `192.168.0.123`).

Note:

Different Networks

Communications between an OpenERP client and server are based on standard protocols. You can connect Windows clients to a Linux server, or vice versa, without problems. It is the same for Mac versions of OpenERP – you can connect Windows and Linux clients and servers to them.

To install an OpenERP client on a computer under Linux, repeat the procedure shown earlier in this section. You can connect different clients to the OpenERP server by modifying the connection parameters on each client. To do that, click the *Change* button in the connection dialog and set the following fields as needed:

- *Server* : name or IP address of the server over the network,
- *Port* : the port, whose default is 8069,
- *Connection protocol* : XML-RPC.

It is possible to connect the server to the client using a secure protocol to prevent other network users from listening in, but the installation described here is for direct unencrypted connection.

If your Linux server is protected by a firewall you will have to provide access to port 8069 for users on other computers with OpenERP clients.

Verifying your Linux Installation

You have used default parameters so far during the installation of the various components. If you have had problems, or you just want to set this up differently, the following points provide some indicators about how you can set up your installation.

Tip:

psql and pgAdmin tools

psql is a simple client, executed from the command line, that is delivered with PostgreSQL. It enables you to execute SQL commands on your OpenERP database.

If you prefer a graphical utility to manipulate your database directly you can install pgAdmin III (it is commonly installed automatically with PostgreSQL on a windowing system, but can also be found at <http://www.pgadmin.org/>).

1. The PostgreSQL database starts automatically and listens locally on port 5432 as standard: check this by entering `sudo netstat -anpt` at a terminal to see if port 5432 is visible there.
2. The database system has a default role of `postgres` accessible by running under the Linux `postgres` user: check this by entering `sudo su postgres -c psql` at a terminal to see the `psql` startup message – then type `\q` to quit the program.
3. If you try to start the OpenERP server from a terminal but get the message `socket.error: (98, 'Address already in use')` then you might be trying to start OpenERP while an instance of OpenERP is already running and using the sockets that you have defined (by default 8069 and 8070). If that is a surprise to you then you may be coming up against a previous installation of OpenERP or Tiny ERP, or something else using one or both of those ports.

Type `sudo netstat -anpt` to discover what is running there, and record the PID. You can check that the PID corresponds to a program you can dispense with by typing `ps aux | grep <PID>` and you can then stop the program from running by typing `sudo kill <PID>`. You need additional measures to stop it from restarting when you restart the server.

4. The OpenERP server has a large number of configuration options. You can see what they are by starting the server with the argument `-help`. By default the server configuration is stored in the file `.terp_serverrc` in the user's home directory (and for the `postgres` user that directory is `/var/lib/postgresql`).
5. You can delete the configuration file to be quite sure that the OpenERP server is starting with just the default options. It is quite common for an upgraded system to behave badly because a new version server cannot work with options from a previous version. When the server starts without a configuration file it will write a new one once there is something non-default to write to it – it will operate using defaults until then.
6. To verify that the system works, without becoming entangled in firewall problems, you can start the OpenERP client from a second terminal window on the server computer (which does not pass through the firewall). Connect using the XML-RPC protocol on port 8069 or NET-RPC on port 8070. The server can use both ports simultaneously. The window displays the log file when the client is started this way.
7. The client setup is stored in the file `.terprc` in the user's home directory. Since a client can be started by any user, each user would have their setup defined in a configuration file in their own home directory.
8. You can delete the configuration file to be quite sure that the OpenERP client is starting with just the default options. When the client starts without a configuration file it will write a new one for itself.

Hint:

One Server for Several Companies

You can start several OpenERP application servers on one physical computer server by using different ports. If you have defined multiple database roles in PostgreSQL, each connected through an OpenERP instance to a different port, you can simultaneously serve many companies from one physical server at one time.

6.3 Database Creation

Use the Manage databases link in this section to create a new database, `openerp_ch01`. This database will contain the demonstration data provided with OpenERP and a large proportion of the core OpenERP functionality. You will need to know your super administrator password for this – or you will have to find somebody who does have it to create this database.

Note:

The Super-administrator Password

Anyone who knows the super-administrator password has complete access to the data on the server – able to read, change and delete any of the data in any of the databases there.

After first installation, the password is `admin`. This is the hard-coded default, and is used if there is no accessible server configuration file. If your system has been set up so that the server configuration file can be written to by the server, then you can change the password through the client. Or you could deliberately make the configuration file read-only so that there is no prospect of changing it from the client. Either way, a server systems administrator can change it if you forget it.

So if your system is set to allow it, you can change the superadmin password through the client by using the Send reset password link by email button of user form

The location of the server configuration file is typically defined by starting the server with the `--config` command line option.



Figure 6.5: Changing the super-administrator password through the web client

6.3.1 Creating the Database

Use the *Manage databases* link , *Databases* → *Create* in the menu. Enter the super-administrator password, then the name of the new database you are creating.

The screenshot shows the 'Create a New Database' form in the OpenERP Database Management interface. The 'Create' option is selected in the sidebar. The main form has the following fields:

- Master password: [redacted]
- Select a database name: `openerp_ch01`
- Load demonstration data: (unchecked)
- Default language: English (US)
- Choose a password: [redacted]
- Confirm password: [redacted]

A red 'Create Database' button is at the bottom right. The sidebar also lists 'Duplicate', 'Drop', 'Backup', 'Restore', and 'Password' options.

Figure 6.6: *Creating a new database*

At the time of creation database you can see the checkbox that determines whether you load demonstration data or not. The consequences of checking this box or not affect the **whole use** of this database.

You will also see that you can choose the Administrator password. This makes your database quite secure because you can ensure that it is unique from the outset. (In fact many people find it hard to resist admin as their password!)

6.3.2 Database `openerp_ch01`

Wait for the message showing that the database has been successfully created, along with the user accounts and passwords (admin/XXXX and demo/demo). Now that you have created this database, you can extend it without having to know the super-administrator password.

Tip:

User Access

The combination of username/password is specific to a single database. If you have administrative rights to a database you can modify all users.

Alternatively, you can install the `users_ldap` module, which manages the authentication of users in LDAP (the Lightweight Directory Access Protocol, a standard system), and connect it to several OpenERP databases. Using this, many databases can share the same user account details.

Note:

Failure to Create a Database

How do you know if you have successfully created your new database? You are told if the database creation has been unsuccessful. If you have entered a database name using prohibited characters (or no name, or too short a name), you will be alerted by the dialog box Bad database name! explaining how to correct the error. If you have entered the wrong super-administrator password or a name already in use (some names can be reserved without your knowledge), you will be alerted by the dialog box Error during database creation!.

6.3.3 Managing Databases

As a super-administrator, you do not only have rights to create new databases, but also to:

- backup databases,
- delete databases,

- restore databases.

All of these operations can be carried out from the `Manage Database Login` screen.

Tip:

Backup (copy) a Database

To make a copy of a database, go to the web Login screen and click the `Manage Databases` button. Then click the `Backup` button, select the database you want to copy and enter the super-administrator password. Click the `Backup` button to confirm that you want to copy the database.

Tip:

Drop (delete) a Database

To delete a database, go to the web Login screen and click the `Databases` button. Then click the `Drop` button, select the database you want to delete and enter the super-administrator password. Click the `Drop` button to confirm that you want to delete the database.

Tip:

Restore a Database

To restore a database, go to the web Login screen and click the `Manage Databases` button. Then click the `Restore` button, click the `Choose File` button to select the database you want to restore. Give the database a name and enter the super-administrator password. Click the `Restore` button to confirm that you want to install a new copy of the selected database. To restore a database, you need to have an existing copy, of course.

Tip:

Duplicating a Database

To duplicate a database, you can:

1. make a backup file on your PC from this database.
2. restore this database from the backup file on your PC, and give it a new name.

This can be a useful way of making a test database from a production database. You can try out the operation of a new configuration, new modules, or just the import of new data.

A system administrator can configure OpenERP to restrict access to some of these database functions so that your security is enhanced in normal production use.

You are now ready to use databases from your installation to familiarize yourself with the administration and use of OpenERP.

6.4 New OpenERP Functionality

The database you have created and managed so far is based on the core OpenERP functionality that you installed. The core system is installed in the file system of your OpenERP application server, but only installed into an OpenERP database as you require it, as is described in the next chapter, [Guided Tour](#).

What if you want to update what is there, or extend what is there with additional modules?

- To update what you have, you would install a new instance of OpenERP using the same techniques as described earlier in this section, [Database Creation](#).
- To extend what you have, you would install new modules in the `addons` directory of your current OpenERP installation. There are several ways of doing that.

In both cases you will need to be a `root` user or `Administrator` of your OpenERP application server.

6.4.1 Extending OpenERP

To extend OpenERP you will need to copy modules into the `addons` directory. That is in your server's `openerp-server` directory (which differs between Windows, Mac and some of the various Linux distributions and not available at all in the Windows all-in-one installer).

If you look there you will see existing modules such as `product` and `purchase`. A module can be provided in the form of files within a directory or a zip-format file containing that same directory structure.

You can add modules in two main ways – through the server, or through the client.

To add new modules through the server is a conventional system administration task. As `root` user or another suitable user, you would put the module in the `addons` directory and change its permissions to match those of the other modules.

To add new modules through the client you must first change the permissions of the `addons` directory of the server, so that it is writeable by the server. That will enable you to install OpenERP modules using the OpenERP client (a task ultimately carried out on the application server by the server software).

Tip:

Changing Permissions

A very simple way of changing permissions on the Linux system you are using to develop an OpenERP application is to execute the command `sudo chmod 777 <path_to_addons>` (where `<path_to_addons>` is the full path to the `addons` directory, a location like `/usr/lib/python2.5/site-packages/openerp-server/addons`).

Any user of OpenERP who has access to the relevant administration menus can then upload any new functionality, so you would certainly disable this capability for production use. You will see examples of this uploading as you make your way through this book.

GUIDED TOUR

Starting to discover OpenERP, using demonstration data supplied with the system, is a good way to familiarize yourself with the user interface. This guided tour provides you with an introduction to many of the available system features.

You would be forgiven a flicker of apprehension when you first sit at your computer to connect to OpenERP, since ERP systems are renowned for their complexity and for the time it takes to learn how to use them. These are, after all, Enterprise Resource Planning systems, capable of managing most elements of global enterprises, so they should be complicated, should not they? But even if this is often the case for proprietary software, OpenERP is a bit of an exception in the class of management software.

Even though OpenERP is a comprehensive software, the user interface and workflow management facilities are quite simple and intuitive to use. For this reason, OpenERP is one of the few software packages with reference customers in both very small businesses (typically requiring simplicity) and large accounts (typically requiring wide functional coverage).

A two-phase approach provides a good guide for your first steps with OpenERP:

1. Using a database containing demonstration data to get an overview of OpenERP's functionality (described in this chapter, *Guided Tour*)
2. Setting up a clean database to configure and populate a limited system for yourself (described in the next chapter, *How does it apply to your Business?*).

To read this chapter effectively, make sure that you have access to an OpenERP server. The description in this chapter assumes that you are using the OpenERP web client unless it states otherwise. The general functionality differs little from one client to the other.

7.1 Database Creation

Use the technique outlined in *Installation and Initial Setup* to create a new database, `openerp_ch02`. This database will contain the demonstration data provided with OpenERP and a large proportion of the core OpenERP functionality. You will need to know your super administrator password for this – or you will have to find somebody who does have it to create this seed database.

Start the database creation process from the *Login* page by clicking *Databases* and then completing the following fields on the *Create Database* form:

- *Super admin password* : by default it is `admin`, if you or your system administrator have not changed it,
- *New database name* : `openerp_ch02`,
- *Load Demonstration data checkbox*: `checked`,
- *Default Language* : `English (US)`,
- *Administrator password* : `admin` (because it is easiest to remember at this stage, but obviously completely insecure),
- *Confirm password* : `admin`.

7.2 To Connect to OpenERP

Since this is the first time you have connected to OpenERP, you will be given the opportunity to select openERP's featured application

You first screen show you different Applications of openerp you can install any from it as per your requirement. Hardly anything is installed, so this is a very simple process at the moment.

Once you are displaying the main menu, you are able to see the following screen items, as shown in screenshot *The Main Menu of the openerp_ch02 database*:

- The name of current user,
- the *Preferences* toolbar to the top right, showing the links to the *Change password* page, *Receiving Email* from for system, *EDIT PREFERENCES* page, *About OpenERP*, *Help* and *Logout* button,
- a collection of interesting and useful widgets are available on the left of the main page.

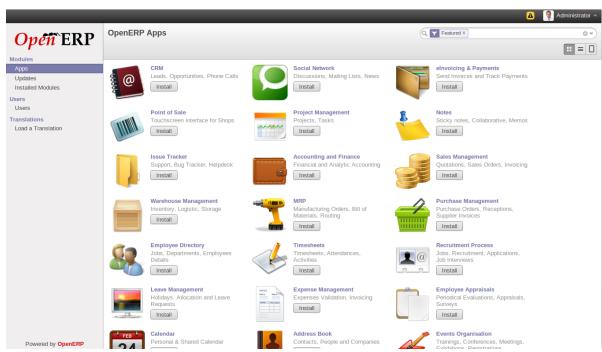


Figure 7.1: *The Main Menu of the openerp_ch02 database*

7.2.1 Preferences Toolbar

When you are connected to OpenERP, the topmost toolbar indicates which user you are connected as. So it should currently be showing *Administrator* (unless you logged in as another user and it is reflecting the name of that user instead).

You will find the Preferences when you click on current user name, its containing a set of useful links. First, you will find a field to the *Receive Messages by Email* page.

Tip:

Multi-nationals and Time Zones

If you have users in different countries, they can configure their own timezone. Timestamp displays are then adjusted by reference to the user's own localization setting.

So if you have a team in India and a team in England, the times will automatically be converted. If an Indian employee sets her working hours from 9 to 6, that will be converted and saved in the server's timezone. When the English users want to set up a meeting with an Indian user, the Indian user's available time will be converted to English time.

The *Compose new Message* Icon is found beside the *User name* link. It is only visible if you are logged into a database. You can click on that and compose a new mail at any time.

The next element in the toolbar is a link to *Timezone mismatch*. By clicking that Icon, you get a dialog box where you find a link which forward on preference changes.

- The *Interface* field in the *Current Activity* tab allows the user to switch between the Simplified and Extended interfaces.

- The *Language* field enables the user's working language to be changed. But first, the system must be loaded with other languages for the user to be able to choose an alternative, which is described in the next subsection of this chapter. This is a mandatory field.
- The *Timezone* setting indicates the user's location to OpenERP. This can be different from that of the server. All of the dates in the system are converted to the user's timezone automatically.
- The *Menu Tips* checkbox gives the user the choice to have tips displayed on each menu action.
- The *Change Password* button gives users the opportunity to change their own password. It opens a new dialog box where users may change the password and must logout and login again after the change. You should take steps (perhaps written policies) to prevent users making these too trivial.
- The *Email* field is for storing the current user's default e-mail address.
- The *Signature* field gives the user a place for the signature attached to messages sent from within OpenERP.

The *ABOUT* link gives information about the development of the OpenERP software and various links to other information.

The *HELP* link directs the user to the online documentation of OpenERP, where extensive help is available on a host of topics.

The *LOGOUT* link enables you to logout and return to the original login page. You can then login to another database, or to the same database as another user. This page also gives you access to the super-administrator functions for managing databases on this server.

Installing a New Language

Each user of the system can work in his or her own language. More than twenty languages are currently available besides English. Users select their working language using the Preferences link. You can also assign a language to a partner (customer or supplier), in which case all the documents sent to that partner will be automatically translated into that language.

Attention:

More about Languages

The base version of OpenERP is translated into the following languages: English, German, Chinese, Spanish, Italian, Hungarian, Dutch, Portuguese, Romanian, Swedish and Czech.

But other languages are also available: Arabic, Afghan, Austrian, Bulgarian, Indonesian, Finnish, Thai, Turkish and Vietnamese..

As administrator, you can install a new main working language into the system.

1. Select *Settings* in the Menu Toolbar and click *Translations* → *Load a Translation* in the main menu window,
2. Select the language to install, French for example, and click *Load*,
3. The system will intimate you when the selected language has been successfully installed. Click *Close* to return to the menu.

To see the effects of this installation, change the preferences of your user to change the working language (you may first need to ensure that you have explicitly selected English as your language, rather than keep the default, before you are given the French option). You may have to reload the page to see the effects. The main menu is immediately translated in the selected language.

Messaging as a Mechanism for Internal Communication

- Facilitates conversations with internal users or external ones (customers, suppliers,...), joining the power of instant messaging with standard emails ;
- Organize groups of discussions, an alternative to traditional mailing lists ;
- Extends the breadth of these conversations to incorporate discussions around and about business documents ;

- Incorporates a subscription system to any business event, generating notifications ;
- Displays all the messages and notifications in a threaded manner on the user's unified feeds page.

7.2.2 Configuring Users

The database you created contains minimal functionality but can be extended to include all of the potential functionality available to OpenERP. About the only functions actually available in this minimal database are Customers and Currencies – and these only because the definition of your main company required this. And because you chose to include demonstration data, both Customers and Currencies were installed with some samples.

Because you logged in as Administrator, you have all the access you need to configure users. Click *Settings → Users → Users* to display the list of users defined in the system. A second user, *Demo User*, is also present in the system as part of the demonstration data. Click the *Demo User* name to open a non-editable form on that user.

Click the *Access Rights* tab to see that the demo user is a member of only the *Employee* group, and is subject to no specialized rules. The user *Administrator* is different, as you can see if you follow the same sequence to review its definition. It is a member of the *Administration / Settings* and the *Administration / Access Rights* groups, which gives it more advanced rights to configure new users.

Tip:

Groups and Users

Users and groups provide the structure for specifying access rights to different documents. Their setup answers the question “Who has access to what?”

Click *Settings → Users → Groups* to open the list of groups defined in the system. If you open the form view of the *Administration / Settings* group by clicking its name in the list, the first tab *Users* gives you the list of all the users who belong to this group.

You can also see in the *Menus* tab, the list of menus reserved for this group. By convention, the *Administration / Settings* in OpenERP has rights of access to the *Configuration* menu in each section. So *Sales / Configuration* is found in the list of access rights but *Sales* is not found there because it is accessible to all users. Click the *Access Rights* tab and it gives you details of the access rights for that group. These are detailed later in *Configuration & Administration*.

You can create some new users to integrate them into the system. Assign them to predefined groups to grant them certain access rights. Then try their access rights when you login as these users. Management defines these access rights as described in *Configuration & Administration*.

Note:

Changes to Default Access Rights

New versions of OpenERP differ from earlier versions of OpenERP and Tiny ERP in this area: many groups have been predefined and access to many of the menus and objects are keyed to these groups by default. This is quite a contrast to the rather liberal approach in 4.2.2 and before, where access rights could be defined but were not activated by default.

7.2.3 Managing Partners

In OpenERP, a partner represents an entity that you do business with. That can be a prospect, a customer, a supplier, or even an employee of your company.

List of Partners

Click *Sales* → *Sales* → *Customers* in the main menu to open the list of partners who are customers. Then click the name of the first partner to get hold of the details – a form appears with information about the company, such as its corporate name, its primary language, its reference and whether it is a *Customer* and/or a *Supplier*. You will also find several other tabs on it:

- The Customer form contains information about different contacts at that partner, postal information, communication information and the categories it belongs to.
- the *Sales & Purchases* tab contains information that is slightly less immediate.
- the *History* tab (visible if you install other modules like *crm*) contains the history of all the events that the partner has been involved in. These events are created automatically by different system documents: invoices, orders, support requests and so on, from a list that can be configured in the system. These give you a rapid view of the partner's history on a single screen.
- the *Internal Notes* is an area for free text notes.

To the Top of the form There is a button name *More* is a list of Actions, Links and related to a partner. Click some of them to get a feel for their use. The print button contain the list of report and the Attachment button for attachment (Attachment button visible if you install modules Document).

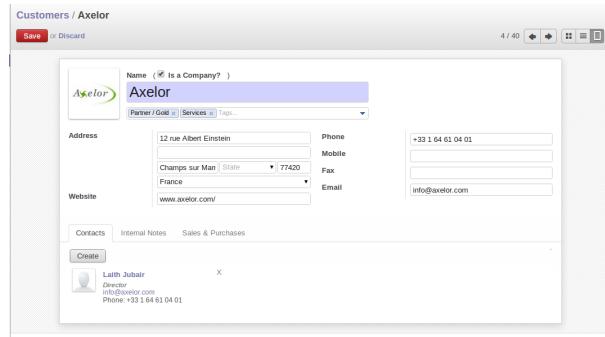


Figure 7.2: Partner form

Tip:

Partner Categories

Partner Categories enable you to segment different partners according to their relation with you (client, prospect, supplier, and so on). A partner can belong to several categories – for example it may be both a customer and supplier at the same time.

But there are also *Customer* and *Supplier* checkboxes on the partner form, which are different. These checkboxes are designed to enable OpenERP to quickly select what should appear on some of the system drop-down selection boxes. They, too, need to be set correctly.

Partner Categories

You can list your partners by category or you can say by tags using the menu *Sales → Configuration → Address Book → Partners Tags*. Click a tag to obtain a list of partners in that category.

Partner Categories	
Create	<input type="text"/>
<input type="checkbox"/> Full Name	1-17 of 17
<input type="checkbox"/> Company Contact	
<input type="checkbox"/> Components Buyer	
<input type="checkbox"/> Consultancy Services	
<input type="checkbox"/> Distributor	
<input type="checkbox"/> Employee	
<input type="checkbox"/> Manufacturer	
<input type="checkbox"/> Office Supplies	
<input type="checkbox"/> Partner	
<input type="checkbox"/> Partner / Bronze	
<input type="checkbox"/> Partner / Gold	
<input type="checkbox"/> Partner / IT Services	
<input type="checkbox"/> Partner / Silver	
<input type="checkbox"/> Prospect	
<input type="checkbox"/> Retailer	
<input type="checkbox"/> Services	
<input type="checkbox"/> Supplier	
<input type="checkbox"/> Wholesaler	

Figure 7.3: Categories of partner

The administrator can define new categories. So you will create a new category and link it to a partner:

1. Use *Sales → Configuration → Address Book → Partners Categories* to reach the list of categories in a list view.
2. Click *Create* to open an empty form for creating a new category
3. Enter **Gold** in the field *Name*. Then click on the *Search* icon to the right of the *Parent Category* field and select **Partner** in the list that appears.
4. Then save your new category using the *Save* button.

You may add exiting partners to this new category in the *Partners* section.

Tip:

Required Fields

Fields colored blue are required. If you try to save the form while any of these fields are empty, the field turns red to indicate that there is a problem. It is impossible to save the form until you have completed every required field.

You can review your new category structure using the list view. You should see the new structure of **Partner / Gold** there.

Partner Cate... / Partner / Gold	
Save or Discard	10 / 17
Category Name	<input type="text" value="Gold"/> Active <input checked="" type="checkbox"/>
Parent Category	<input type="text" value="Partner"/>

Figure 7.4: Creating a new partner category

Tip:

Searching for Documents

If you need to search through a long list of partners, it is best to use the available search criteria rather than scroll through the whole partner list. It is a habit that will save you a lot of time in the long run as you search for all kinds of documents.

Note:*Example Categories of Partners*

A partner can be assigned to several categories. These enable you to create alternative classifications as necessary, usually in a hierarchical form.

Here are some structures that are often used:

- geographical locations,
- interest in certain product lines,
- subscriptions to newsletters,
- type of industry.

7.3 Installing New Functionality

All of OpenERP's functionality is contained in its many and various modules. Many of these, the core modules, are automatically loaded during the initial installation of the system and can be updated online later. Although they are mostly not installed in your database at the outset, they are available on your computer for immediate installation. Additional modules can also be loaded online from the official OpenERP site <http://openerp.com>. These modules are inactive when they are loaded into the system, and can then be installed in a separate step.

You will start by checking if there are any updates available online that apply to your initial installation. Then you will install a CRM module to complete your existing database.

7.3.1 Updating the Modules list

Click *Settings* → *Modules* → *Update Modules List* to start the updating tool. The *Module Update* window opens notifying the user that OpenERP will look at the server side for adding new modules and updating existing ones.

Click *Update* to start the update on the server side. When it is complete, you will see a *Module update result* section indicating how many new modules were added and how many existing modules were updated. Click *Open Modules* to return to the updated list.

Note:*Modules*

All the modules available on your computer can be found in the *addons* directory of your OpenERP server. Each module there is represented by a directory carrying the name of the module or by a file with the module name and *.zip* appended to it. The file is in ZIP archive format and replicates the directory structure of unzipped modules.

7.3.2 The Configuration

One of the new features of OpenERP is the *Configuration*. This provides an easy way to install modules, thanks to its user-friendly and easy-to-use interface. After installing any featured openERP application you will find out the Configuration Menu. The user may invoke this form at his own convenience using the menu *Settings* → *Configuration* →

Why did we call it the *Configuration*? Indeed, because it allows the user to review installed applications and install related additional features or simply to install new applications on the fly.

When you go through the various steps in the Configuration, you will come across some options that are checked. These are applications already installed. In the *openerp_ch02* database configuration. Install extra

applications simply by checking the corresponding options and clicking *Apply*.

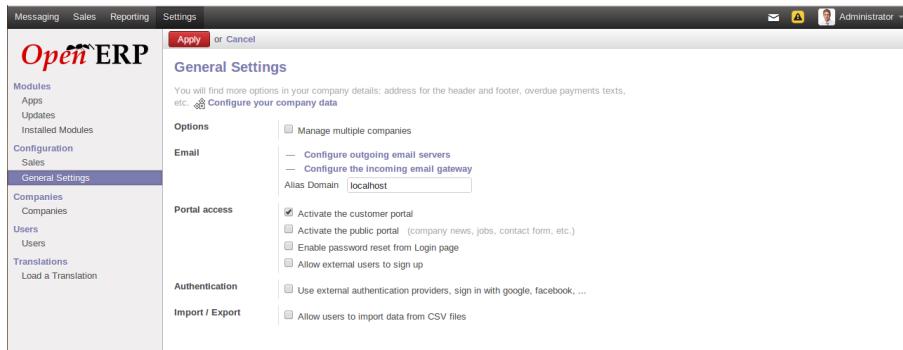


Figure 7.5: Configuration

You may continue adding features this way, skip configuration steps or simply exit from this configuration. When you feel the need to load your system with additional features, you may invoke at *Configure* again at any point.

7.3.3 Installing an Application / Module from the Modules list

You will now install a module named `google_doc`, Google Docs integration: using spreadsheets and text files. In general, many users have a multitude of tools and files to conduct their daily business. Besides using your ERP, many amongst us still use separate text and spreadsheet files to cover specific business needs. We now offer you to integrate text and spreadsheet files with OpenERP 7.0. This offers to the end user the possibility to take these files into account whilst using OpenERP 7.0. Its purpose is to offer a quick fix solution for those users, where the creation of a custom module to cover that particular user need would take some more time to obtain. Take a job opening in the Recruitment Process App as an example of an OpenERP object: you can attach an interview evaluation form you maintain in Google Docs, and dynamically link it to the said job application. Then, you can share this Google Docs file with the persons you wish. Taking this example a step further, you can link a document template, say your interview evaluation template, and link them to all your job openings. And every time you have a need to hire, you can mobilize the Google Doc-based evaluation template. Upon the one click installation of the Google Docs module, its configuration section allows you to specify models or templates. Prior to this, don't forget to specify your personal Google Docs credentials in your User configuration menu.

Open the list of modules from *Settings* → *Modules* → *Modules*. Search for the module by entering the name `google_doc` in search text in the list that appears to open it. The form that describes the module gives you useful information such as its version number, its status and a review of its functionality. Click *Install* and the status of the module changes to *Installed*.

Tip:

From now you can schedule and install modules from kanban view using Install button.

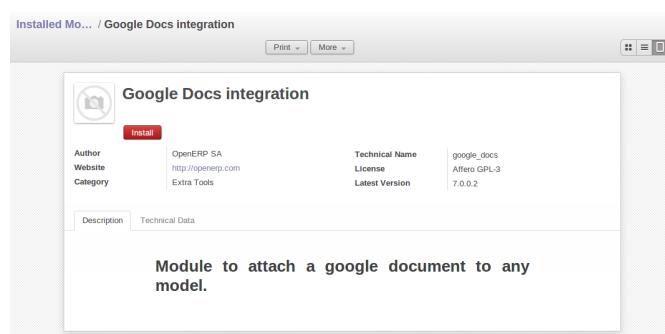


Figure 7.6: Installation of the Google Docs module

Tip:*Technical Guide*

If you select a module in any of the module lists by clicking on a module line and then on Technical Guide from the top Print button, OpenERP produces a technical report on that module. It is helpful only if the module is installed. This report comprises a list of all the objects and all the fields along with their descriptions. The report adapts to your system and reflects any modifications you have made and all the other modules you have installed.

Then, either use the menu *Settings → Modules → Apply Scheduled Upgrades*, or from the *Actions* section click *Apply Scheduled Upgrades*, then *Start update* on the *Module Upgrade* form that appears. Close the window when the operation has completed. Return to the *Sales* menu; you will see the new menu *Products* has become available.

7.3.4 Installing a Module with its Dependencies

Now install the Warehouse Management module using the same process as before. Start from *Settings → Modules → Modules*.

1. Get the Kanban view of modules, and search for the *stock* module in that view.
2. Schedule the module for installation by clicking *Install*.
3. Do the same for *account*.
4. After a few seconds, installation is completed.
5. You will see details of all the features installed by the modules on a new *Features* tab on the module form.

When you return to the *Warehouse* menu, you will find the new menu items under it like *Warehouse → Warehouse Management → Incoming Shipments*, *Warehouse → Products Moves*, which are a part of the Warehouse management system. You will also see all the accounting functions that are now available in the *Accounting* menu.

There is no particular relationship between the modules installed and the menus added. Most of the core modules add complete menus but some also add sub-menus to menus already in the system. Other modules add menus and sub-menus as they need. Modules can also add additional fields to existing forms, or simply additional demonstration data or some settings specific to a given requirement.

Note:*Dependencies Between Modules*

The module form shows two tabs before it is installed. The first tab gives basic information about the module, and the second gives a list of modules that this module depends on. So when you install a module, OpenERP automatically selects all the necessary dependencies to install this module.

That is also how you develop the profile modules: they simply define a list of modules that you want in your profile as a set of dependencies.

Although you can install a module and all its dependencies at once, you cannot remove them in one fell swoop – you would have to uninstall module by module. Uninstalling is more complex than installing because you have to handle existing system data.

Note:***Uninstalling Modules***

Although it works quite well, uninstalling modules is not perfect in OpenERP. It is not guaranteed to return the system exactly to the state it was in before installation.

So it is recommended that you make a backup of the database before installing your new modules so that you can test the new modules and decide whether they are suitable or not. If they are not, then you can return to your backup. If they are, then you will probably still reinstall the modules on your backup so that you do not have to delete all your test data.

If you wanted to uninstall, you would use the menu Settings → Modules → Installed Modules and then uninstall them in the inverse order of their dependencies: stock, account from the form view's Uninstall button.

7.3.5 Installing Additional Functionality

To discover the full range of OpenERP's possibilities, you can install many additional modules. Installing them with their demonstration data provides a convenient way of exploring the whole core system. When you build on the `openerp_ch02` database, you will automatically include demonstration data because you checked the *Load Demonstration Data* checkbox when you originally created the database.

Click *Settings → Modules → Modules* to give you an overview of all of the modules available for installation.

To test several modules, you will not have to install them all one by one. You can use the dependencies between modules to load several at once.

7.4 What's New in OpenERP

- OpenERP has been structured as Business Applications and its menu has been changed to match this,
- Major improvements in usability, especially in the Web version,
- Simplified versus Extended view,
- When you search for a record, e.g. a customer / supplier, the web version will propose to create the new partner when no existing partner is found,
- When you click a Business Application in the Web version, the related kanban view will be opened,
- To display the process view, click the Question Mark next to the title in the web version,
- Views appear now like real documents and Sleeker Kanban views, tailor made, Animations also guide you to the next step, Search more easily with many advanced options, The new menu structure: rapidly getting to the point,
- “Need Action” indicators highlight what actions the user needs to undertake, Centralized configuration for all your modules, No more confusion between “Stage” and “State”, User interface content now reflects users’ access rights, Smarter system feedback,
- New and Improved Apps > Social Network : The conversation feature, Groups and mailing lists, Your inbox is a stream, Your inbox is a stream so enabling you to take actions, Conversations around business documents, Users can follow what is of interest to them.
- Getting to grips with POS: out of the box and more robust,
- Your personal productivity tools: notes, tasks and collaborative pads,
- New Applications are Events Organization, Contract Management, Project Management, Fleet Management ,
- Better Contacts Management, Better internationalization, Manage company meals,

- New and Improved Features : Categorize using tags, Lowering the barrier to import data, Sign in with Google and Facebook, Use keyboard shortcuts to navigate, Data visualization revisited: our new graph views, Google Docs integration: using spreadsheets and text files, Automated Translations: Gengo integration, Data exchange enhancements: Portal and EDI, Better module descriptions, Email aliases, Process automation through easy configuration of products, Better demo data,
- Improved Business Flows : Sale order enhancements, Purchase order improvements, Delivery enhancements, Reception improvements, Invoicing enhancements, Payments, Reconciliation,
- Your OpenERP transformed into an Apps Suite : Splitting Sales & stock management, Splitting Calendar and CRM, Splitting Project and Accounting, Splitting Expenses and Invoicing, Splitting Reception and delivery, Splitting Address Book and Sales/CRM, Splitting Timesheets and Attendances, Moving Global Attachments to the Document Management App
- The Enhanced OpenERP Services : Install any module in one click, Maintenance, Updates, Migration,
- Dynamic Filters which allow you to easily create and save your own filters, with Group by options, Extended filters, and much more,

7.5 Getting Started with OpenERP

You will now explore the database `openerp_ch02` with these profile modules installed to give you an insight into the coverage of the core OpenERP software.

Tip:

Translating New Modules

When you have installed a new module and are using additional languages to English, you have to reload the translation file. New terms introduced in these modules are not translated by default. To do this use Settings → Translations → Load an Official Translation.

Depending on the user you are connected as, the page appears differently. Using the installation sequence above, certain kanban may be assigned as various users' home pages. They show a summary of the information required to start the day effectively. A project kanban might contain:

- Display numbers of tasks,
- Display numbers of issues,
- Display numbers of phases,
- Show the team members,
- Display spend time from assign planned time.

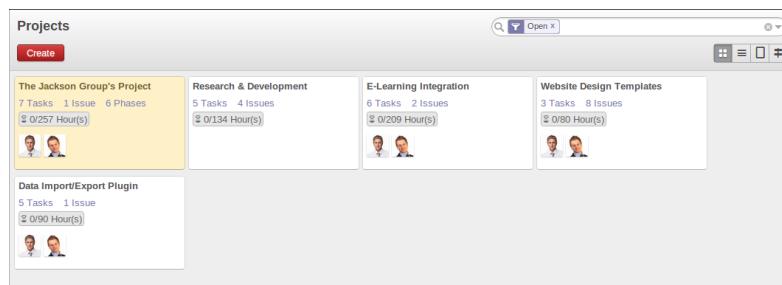


Figure 7.7: Project Kanban

Tip:

Creating Shortcuts

Each user has access to many menu items from the menu. But in general, an employee uses only a small part of the system's functions.

The following sections present an overview of the main functions of OpenERP. Some areas are covered in more detail in the following chapters of this book and you will find many other functions available in the optional modules. Functions are presented in the order that they appear on the main menu.

7.5.1 Basic Concepts

Partners & Contacts

To get familiar with the OpenERP user interface, you will start working with information about partners. Clicking *Sales* → *Address Book* → *Customers* brings up a list of partners that were automatically loaded when you created the database with *Load Demonstration Data* checked.

Search for a Partner

Above the partner list you will see a search form that enables you to quickly filter the partners.

The *Customers* filter is enabled by default showing partners who are customers. If you have applied no filter, the Kanban shows every partner in the system. For space reasons, this view shows few partners. If you want to display other records, you can search for them or show whole kanban using the *Show more...(X remaining)* Button at the end.

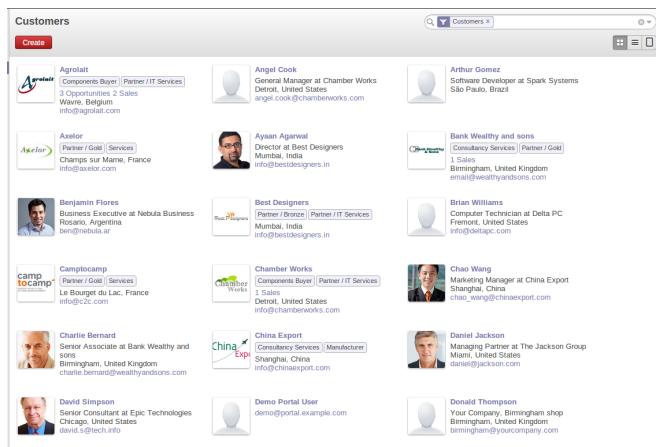


Figure 7.8: Standard partner search

In the web version, if you click the name of a partner, the form view corresponding to that partner opens in Read-Only mode. Once you have a form, you can toggle between the two modes by clicking *Save* or *Cancel* when in Edit mode and *Edit* when in Read-Only mode.

Partner Form

The partner form contains several tabs, all referring to the current record:

- *Contract*,
- *Internal Notes*,
- *Sales & Purchases*,
- *Accounting*,

- *History*.

The fields in a tab are not all of the same type – some (such as *Name*) contain free text, some (such as the *Language*) enable you to select a value from a list of options, others give you a view of another object (such as *Partner Contacts* – because a partner can have several contacts) or a list of links to another object (such as *Partner Categories*). There are checkboxes (such as the *Active* field in the *Sales & Purchases* tab), numeric fields (such as *Credit Limit* in the *Accounting* tab) and date fields (such as *Date*).

The *History* tab gives a quick overview of partner activities – an overview of useful information such as Leads and Opportunities, Meetings, Phone Calls, Emails and Tasks. Events are generated automatically by OpenERP from changes in other documents that refer to this partner.

It is possible to add events manually which directly relate to the corresponding form, such as a note recording a phone call. To add a new event click *New* in the *Phone Calls* section. That opens a new *Phone Call* pop-up form enabling a phone-call event to be created and added to the current partner.

Possible Partner Actions

To top center of the partner form is a Button named *Print* containing a list of possible *Reports*, and button named *More* containing *Actions* and quick *Links* about the partner displayed in the form.

You can generate PDF documents for the selected object (or, in list view, about one or more selected objects) using certain buttons in the *Print* button

- *Labels* : print address labels for the selected partners,
- *Overdue Payments* : print a letter to notify the selected partners of overdue payments,

Certain actions can be started by the following buttons in the *Actions* section of the *More* button

- *Mass Mailing*: enables you to send an email to a selection of partners,

Partners are used throughout the OpenERP system in other documents. For example, the menu *Sales* → *Sales Orders* brings up all the Sales Orders in list view. Open an order in form view and click the name of a partner, even when the form is read-only. The Partner form will open.

Products

In OpenERP, *product* is used to define a raw material, a stockable product, a consumable or a service. You can work with whole products or with templates that separate the definition of products and variants (*extra module*).

For example, if you sell t-shirts in different sizes and colors:

- the product template is the “T-shirt” which contains information common to all sizes and all colors,
- the variants are “Size:S” and “Color:Red”, which define the parameters for that size and color,
- the final product is thus the combination of the two – T-shirt in size S and color Red.

The value of this approach, for some sectors, is that you can just define a template in detail and all of its available variants briefly, rather than every item as an entire product.

Note:**Example Product Templates and Variants**

A product can be defined as a whole or as a product template and several variants. The variants can be in one or several dimensions, depending on the installed modules.

For example, if you work in textiles, the variants on the product template for “T-shirt” are:

- Size (S, M, L, XL, XXL),
- Colour (white, grey, black, red),
- Quality of Cloth (125g/m², 150g/m², 160g/m², 180g/m²),
- Collar (V, Round).

This separation of variant types requires the optional module `product_variant_multi`. Using it means that you can avoid an explosion in the number of products to manage in the database. If you take the example above, it is easier to manage a template with 15 variants in four different types than 160 completely different products. This module is available in extra-addons.

The *Sales → Products* menu gives you access to the definition of products and their templates and variants.

Tip:**Consumables**

In OpenERP, a consumable is a physical product which is treated like a stockable product, with the exception that stock management is not taken into account by the system. You could buy it, deliver it or produce it but OpenERP will always assume that there is enough of it in stock. It never triggers a procurement exception.

Open a product form to see the information that describes it. The demonstration data show several types of products, which gives quite a good overview of the options.

Price lists (*Sales → Configuration → Pricelists*) determine the purchase and selling prices and adjustments derived from the use of different currencies. The *Default Purchase Pricelist* uses the product’s *Cost Price* field for the Purchase price to be calculated. The *Public Pricelist* uses the product’s *Sale Price* field to calculate the Sales price in quotations.

Price lists are extremely flexible and enable you to put a complete price management policy in place. They are composed of simple rules that enable you to build up a rule set for most complex situations: multiple discounts, selling prices based on purchase prices, price reductions, promotions on product ranges and so on.

You can find many optional modules to extend product functionality, such as:

- `membership` : for managing the subscriptions of members of a company,
- `product_electronic` : for managing electronic products,
- `product_extended` : for managing production costs,
- `product_expiry` : for agro-food products where items must be retired after a certain period,
- `product_lot_foundry` : for managing forged metal products.

All of the above modules are found in `extra-addons`, except for the `membership` and the `product_expiry` module.

7.5.2 Boost your Sales

OpenERP provides many tools for managing relationships with partners. These are available through the *Sales* menu.

Tip:**CRM & SRM**

CRM stands for Customer Relationship Management, a standard term for systems that manage client and customer relations. SRM stands for Supplier Relationship Management, and is commonly used for functions that manage your communications with your suppliers.

Through Customer Relationship Management, OpenERP allows you to keep track of:

- Leads
- Opportunities
- Meetings
- Phone Calls
- Claims
- Helpdesk and Support
- Fund Raising

OpenERP ensures that each case is handled effectively by the system's users, customers and suppliers. It can automatically reassign a case, track it for the new owner, send reminders by email and raise other OpenERP documentation and processes.

All operations are archived, and an email gateway lets you update a case automatically from emails sent and received. A system of rules enables you to set up actions that can automatically improve your process quality by ensuring that open cases never escape attention.

As well as those functions, you have got tools to improve the productivity of all staff in their daily work:

- an email client plugin for Outlook and Thunderbird enabling you to automatically store your emails and their attachments in the Knowledge Management (previously Document Management System) integrated with OpenERP,
- interfaces to synchronize your Contacts and Calendars with OpenERP,
- sync your meetings on your mobile phone,
- build a 360° view on your Customer,
- integration with Google applications.

You can implement a continuous improvement policy for all of your services, by using some of the statistical tools in OpenERP to analyze the different communications with your partners. With these, you can execute a real improvement policy to manage your service quality.

The management of customer relationships is detailed in the second section of this book (see [Managing Customer Relationships](#)).

7.5.3 Manage your Books

The chapters in [Manage your Books](#) in this book are dedicated to general and analytic accounting. Following is a brief overview of the functions to introduce you to this Business Application.

Accounting is totally integrated into all of the company's functions, whether it is general, analytic, budgetary or auxiliary accounting. OpenERP's accounting function is double-entry and supports multiple company divisions and multiple companies, as well as multiple currencies and languages.

Accounting that is integrated throughout all of the company's processes greatly simplifies the work of entering accounting data, because most of the entries are generated automatically while other documents are being processed. You can avoid entering data twice in OpenERP, which is commonly a source of errors and delays.

So OpenERP's accounting is not just for financial reporting – it is also the anchor-point for many of the company's management processes. For example, if one of your accountants puts a customer on credit hold, then that will immediately block any other action related to that company's credit (such as sales or delivery).

OpenERP also provides integrated analytical accounting, which enables management by business activity or project and provides very detailed levels of analysis. You can control your operations based on business management needs, rather than on the charts of accounts that generally meet only statutory requirements.

OpenERP has added a flexible, easy **Invoicing** module allowing you to keep track of your documents and payments, even when you are not an accountant. This will allow smaller businesses to keep track of their payments without having to implement a complete accounting system.

Keep track of your Cash Moves by using the new OpenERP Cash Box.

7.5.4 Lead & Inspire your People

OpenERP's Human Resources Management Business Application provides functionality such as:

- Manage your Employees, Contracts & Staff Performance,
- Talent Acquisition,
- Keep track of Holidays and Sickness Leaves,
- Manage the Evaluation Process,
- Keep track of Attendances & Timesheets,
- Track Expenses.

Most of these functions are provided from optional modules whose name starts with `hr_` rather than the core `hr` module, but they are all loaded into the main *Human Resources* menu.

The different issues are handled in detail in the fourth part of this book *Effective Management of Operations*, dedicated to internal organization and to the management of a services business.

7.5.5 Drive your Projects

OpenERP's project management tools enable you to define tasks and specify requirements for those tasks, efficient allocation of resources to the requirements, project planning, scheduling and automatic communication with partners.

All projects are hierarchically structured. You can review all of the projects from the menu *Project → Projects*. Then select *Gantt view* to obtain a graphical representation of the project.

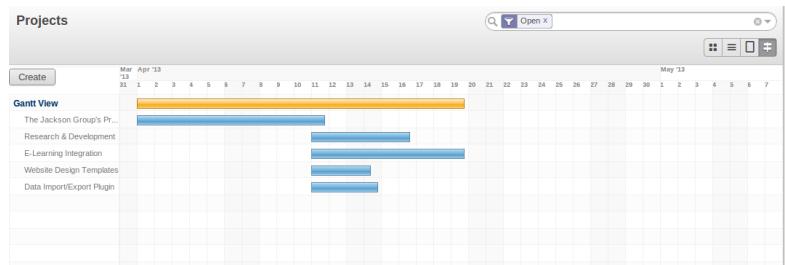


Figure 7.9: Project Planning

You can run projects related to Services or Support, Production or Development – it is a universal module for all enterprise needs.

Project management is described in *Drive your Projects*.

7.5.6 Driving your Sales

The *Sales* menu gives you roughly the same functionality as the *Purchases* menu – the ability to create new orders and to review the existing orders in their various states – but there are important differences in the workflows.

Confirmation of an order triggers the delivery of goods, and invoicing timing is defined by a setting in each individual order.

Delivery charges can be managed using a grid of tariffs for different carriers.

7.5.7 Driving your Purchases

Purchases enables you to track your suppliers' price quotations and convert them into Purchase Orders as you require. OpenERP has several methods of monitoring invoices and tracking the receipt of ordered goods.

You can handle partial deliveries in OpenERP, so you can keep track of items that are still to be delivered on your orders, and you can issue reminders automatically.

OpenERP's replenishment management rules enable the system to generate draft purchase orders automatically, or you can configure it to run a lean process, driven entirely by current production needs.

You can also manage purchase requisitions to keep track of quotations sent to a multitude of suppliers.

7.5.8 Organise your Warehouse

The various sub-menus under *Warehouse* together provide operations you need to manage stock. You can:

- define your warehouses and structure them around locations you choose,
- manage inventory rotation and stock levels,
- execute packing orders generated by the system,
- execute deliveries with delivery notes and calculate delivery charges,
- manage lots and serial numbers for traceability,
- calculate theoretical stock levels and automate stock valuation,
- create rules for automatic stock replenishment.

Packing orders and deliveries are usually defined automatically by calculating requirements based on sales. Stores staff use picking lists generated by OpenERP, produced automatically in order of priority.

Stock management is, like accounting, double-entry. So stocks do not appear and vanish magically within a warehouse, they just get moved from place to place. And, just like accounting, such a double-entry system gives you big advantages when you come to audit stock because each missing item has a counterpart somewhere.

Most stock management software is limited to generating lists of products in warehouses. Because of its double-entry system, OpenERP automatically manages customer and suppliers stocks as well, which has many advantages: complete traceability from supplier to customer, management of consigned stock, and analysis of counterpart stock moves.

Furthermore, just like accounts, stock locations are hierarchical, so you can carry out analyses at various levels of detail.

7.5.9 Get Manufacturing Done

OpenERP's production management capabilities enable companies to plan, automate and track manufacturing and product assembly. OpenERP supports multi-level bills of materials and lets you substitute sub-assemblies dynamically, at the time of sales ordering. You can create virtual sub-assemblies for re-use on several products with phantom bills of materials.

Note:*BOMs, Routing, Workcenters*

These documents describe the materials that make up a larger assembly. They are commonly called Bills of Materials or BOMs.

They are linked to routings which list the operations needed to carry out the manufacturing or assembly of the product.

Each operation is carried out at a workcenter, which can be a machine or a person.

Production orders based on your company's requirements are scheduled automatically by the system, but you can also run the schedulers manually whenever you want. Orders are worked out by calculating the requirements from sales, through bills of materials, taking current inventory into account. The production schedule is also generated from the various lead times defined throughout the system, using the same route.

The demonstration data contain a list of products and raw materials with various classifications and ranges. You can test the system using this data.

7.5.10 Share your Knowledge through Efficient Document Management and Being Mobile

OpenERP integrates a complete document management system that not only carries out the functions of a standard DMS, but also integrates with all of its system-generated documents such as Invoices and Quotations. Moreover, it keeps all of this synchronized. You can define your own directory structure and tell OpenERP to automatically store documents such as Invoices in the DMS.

OpenERP provides an FTP Interface for the Document Management System. You will not only be able to access documents from OpenERP, but you can also use a regular file system with the FTP client. FTP is just a way of getting access to files without needing to use an OpenERP client, to allow you to access files from anywhere. You can also add documents to be stored in OpenERP directly through the FTP system in the corresponding OpenERP directory. These documents will automatically be accessible from the form concerned in OpenERP.

The Knowledge system is also well-integrated with e-mail clients such as Thunderbird and Outlook. It also allows you to sync your calendars (CalDAV).

7.5.11 Measure your Business Performance

To measure your business performance OpenERP, provides two interesting features:

- Dashboards
- Statistical Reports

On a single page, Dashboards give you an overview of all the information that is important to you. In OpenERP, each application has its own dashboard which opens by default when you select the specific application. For example, *Administration Dashboard* will open when you click the *Administration* menu.

Note:*Dashboards*

Unlike most other ERP systems and classic statistic-based systems, OpenERP can provide dashboards for all system users, and not just managers and accountants.

Each user can have his own dashboard, adapted to his needs, enabling him to manage his own work effectively. For example, a developer using the Project Dashboard can see information such as a list of open tasks, tasks delegated to him and an analysis of the progress of the relevant projects.

Dashboards are dynamic, letting you navigate easily around the entire information base. Using the icons above a graph, for example, you can filter the data or zoom into the graph. You can click any element of the list to get detailed statistics on the selected element.

Dashboards can be customized to fit the needs of each user and each company.

Note:

Creating or Customizing Dashboards

OpenERP contains a Dashboard Editor. Create your own dashboard to fit your specific needs in only a few clicks. Go to the Administration → Customization → Reporting → Dashboard Definition menu to define your own dashboard.

The *Statistical Analysis* is one of the crucial thing for decision making process in any business. OpenERP provides Statistical Reports for each application. For example, you can access the statistical analysis of Sales-related information from the menu *Sales → Reporting → Sales Analysis*. You can search and group the data using this *Statistical Report*.

7.5.12 Track your Process Flows

Many documents have a workflow of their own, and also take part in cross-functional processes. Take a document that could be expected to have a workflow, such as a Sales Order, and then click the ? button above its form to see the full process.

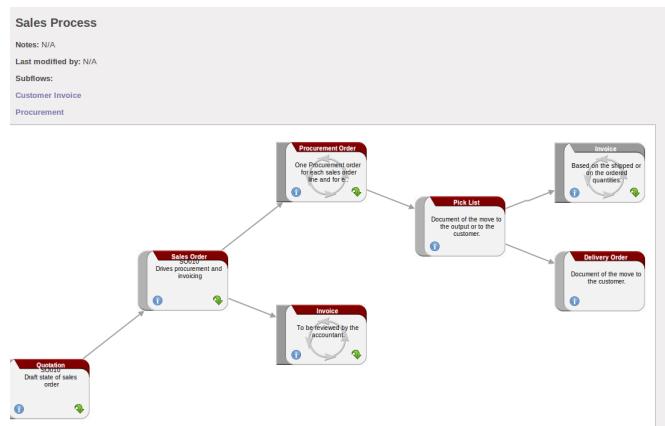


Figure 7.10: Process for a Sales Order

You can see where a particular document is in its process, if you have selected a single document, by the solid bar on one of the process nodes. You also link to documents and menus for each of the stages.

There is a clear distinction between a cross-functional process and the detailed document workflow that is shown in client from a debug mode.

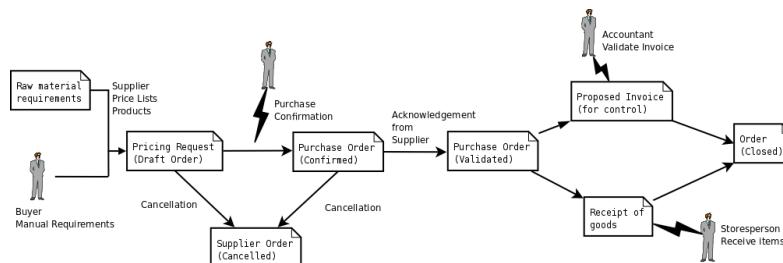


Figure 7.11: flow for a Purchase Order

Alongside the document management system, the process visualization features make OpenERP far better for documentation than similar systems.

7.5.13 Need More?

You have been guided through a brisk, brief overview of many of the main functional areas of OpenERP. Some of these – a large proportion of the core modules – are treated in more detail in the following chapters.

You can use the menu *Settings* → *Modules* → *Modules* to find the remaining modules that have been loaded into your installation but not yet installed in your database. Some modules have only minor side-effects to OpenERP (such as `google_docs`), some have quite extensive effects (such as the various charts of accounts), and some make fundamental additions.

But there are now more than hundred modules available. You can install them according to your needs.

A brief description is available for each module, but the most thorough way of understanding their functionality is to install one and try it. So, pausing only to prepare another test database to try it out on, just download and install the modules that appear interesting.

7.5.14 Tips & Tricks

Overview of Shortcut Keys

- Shortcuts in a relation field

Shortcut Key	What does it do?
F1	Add new Field/Line on the fly
F2	Look up information
F3	Zoom on current field

- Shortcuts in text entries

Shortcut Key	What does it do?
Ctrl+C	Copy selected text
Ctrl+V	Paste selected text
Ctrl+X	Cut selected text
Enter	Auto-complete text field
Shift+Tab	Previous editable widget
Tab	Next editable widget

Filters

The *Advanced Search View* is a new feature of OpenERP v7 which provides a very user-friendly filtering mechanism for the end user to easily look up desired records from the list.

The perfect example of an advanced search view is the *Statistical Report* of OpenERP. Such a report shows the statistical summary with filtered results to the end user.

Usually an Advanced Search is composed of three elements, the Filter buttons at the top, the Extended Filters, and the Group by option. These filters are dynamic, so according to filters you apply, extra columns may be added to the view.

You can also easily combine filters; an arrow will be displayed and you will get a structure according to the order in which you clicked the Filter buttons.

Let's show an example. The statistical report for project tasks is *Task Analysis* which can be displayed using the menu *Reporting* → *Project* → *Tasks Analysis* when you have installed the *Project Management* module.



Figure 7.12: Task Analysis

You can see the *Advanced Search View* at the top right area.

You can filter the information of a task according to the Group by features.

Click, for instance, the *Project* in Group by from the filter, and then click *Stage* to analyse your tasks by project and then by stages.

This *Advanced Search View* can also be attached to any *Kanban or List View* of an object and hence increase the search facility when a user looks up the record in list view.

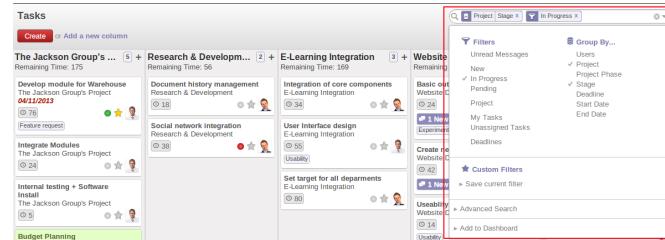


Figure 7.13: Search the Tasks which are ‘In Progress’ with Group by Project and State

HOW DOES IT APPLY TO YOUR BUSINESS?

Now that you have discovered some of the many possibilities of OpenERP from a tour of the demonstration database, you will develop a real case. An empty database provides the starting point for testing a classic workflow from product sales to purchase, completing your guided tour and your getting familiar with OpenERP.

A database loaded with demonstration data is very useful to understand OpenERP's general capabilities. But to explore OpenERP through a lens of your own company's needs, you should start with an empty database. You will work in this chapter on a minimal database containing no demonstration data, so that there is no confusion about what you created. You will keep the database you have created, to allow you to build on it throughout the rest of this book if you want to.

You will develop a real case through the following phases:

1. Specify a real case;
2. Describe the functional needs;
3. Configure the system with the essential modules;
4. Carry out the necessary data loading;
5. Test the system with your database.

The case is deliberately simple to provide you with a foundation for the more complex situations you might have to handle in your company. Throughout this chapter, we assume that you access OpenERP through its web interface. And it is also assumed (as in the rest of this book) that you are using the latest download of OpenERP version 7, the stable production version at the time of writing (not the trunk version, which is likely to have new and potentially unstable features).

8.1 Business Example

In this example, you will configure a system that enables you to:

- buy products from a supplier,
- stock the products in a warehouse,
- sell these products to a customer.

The system should support all aspects of invoicing, payments to suppliers and receipts from customers.

8.2 Basic Settings

For this business case, you will have to model:

- the suppliers and a supplier category,
- the customers and a customer category,
- some products and a product category,
- an inventory,
- a purchase order,
- a sales order,
- invoices,
- payments.

To test the system, you will need at least one supplier, one customer, one product, a warehouse, a minimal chart of accounts and a bank account.

8.3 Get your Database Up and Running without Demo Data

Use the technique outlined in [Database Creation](#) to create a new database, `openerp_ch03`. This database will be free of data and contain the least possible amount of functionality as a starting point. You will need to know your super administrator password for this – or you will have to find somebody who does have it to create this seed database. You will not be able to use the `openerp_ch01` or `openerp_ch02` databases that you might have created so far in this book because they both contain demonstration data.

Start the database creation process from the *Welcome* page by clicking *Manage Databases* and then completing the following fields on the *Create Database* form, as shown in [Creating a blank database](#):

- *Super admin password* : by default it is `admin` , if you or your system administrator have not changed it,
- *New database name* : `openerp_ch03` ,
- *Load Demonstration data checkbox*: not checked (**this step is very important, but catches out many people**),
- *Default Language* : English (US) ,
- *Administrator password* : `admin` (because it is the easiest to remember at this stage, but obviously completely insecure),
- *Confirm password* : `admin` .

The screenshot shows the 'Create a New Database' interface. On the left, there's a sidebar with 'OpenERP' logo and a 'Database Management' menu with options: Create, Duplicate, Drop, Backup, Restore, and Password. The 'Create' option is selected. The main form has a title 'Create a New Database'. It contains instructions: 'Fill in this form to create an OpenERP database. You can create databases for different companies or for different environments. By default, the master password is "admin". This password is required to create, delete, dump or restore databases.' Below this, there are several input fields and checkboxes:

- 'Master password:' with a masked input field.
- 'Select a database name:' with a masked input field containing 'openerp_ch03'.
- 'Load demonstration data:' with a checked checkbox labeled 'Check this box to evaluate OpenERP'.
- 'Default language:' with a dropdown menu set to 'English (US)'.
- 'Choose a password:' and 'Confirm password:' both with masked input fields.

 At the bottom right is a red 'Create Database' button.

Figure 8.1: *Creating a blank database*

Then click *Create Database* to create the database and move to the Application screen [Setting up a blank](#)

database - first screen.

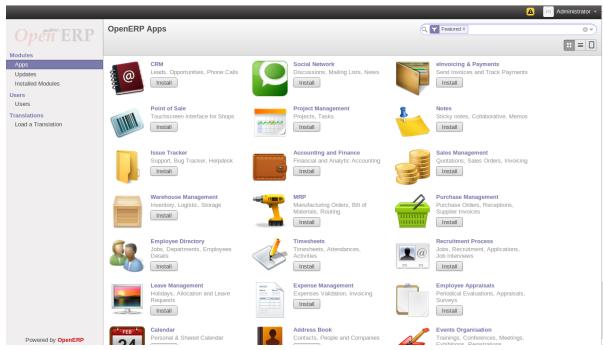


Figure 8.2: *Setting up a blank database - first screen*

You can have the screen as shown in above screenshot *Setting up a blank database - first screen*.

8.4 Fit your Needs

Functional needs can be provided by core modules from OpenERP. You just have to decide which functionality you want in your system. Click *Install* button of the corresponding application in the *At the time of Installation*.

For this instance, we need the following applications:

- Accounting & Finance (the account module),
- Warehouse Management (the stock module),
- Purchase Management (the purchase module),
- Sales Management (the sale module).

To get OpenERP to install these business applications, screens should look as follows:

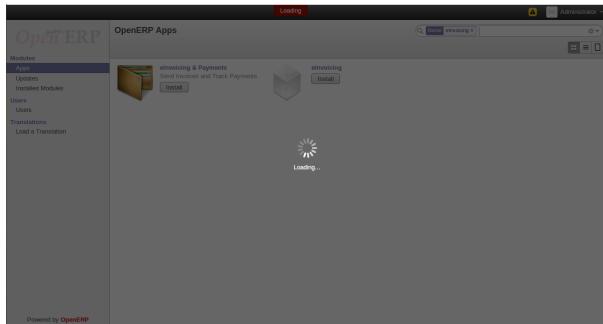


Figure 8.3: *At the time of Installation*

Skip the step that asks you to configure your Accounting Chart. OpenERP will now display the opening screen with all selected business applications installed.

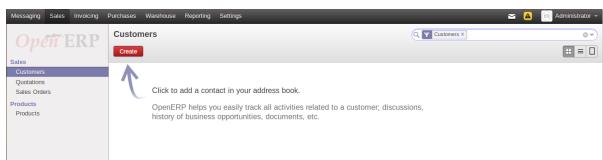


Figure 8.4: *Database with all required functionality for this example*

8.5 Database Setup

You will create all the elements in the database that you need to carry out the use case. These are specified in the functional requirements.

8.5.1 Configuring Accounts

You need to start off with a minimal set of accounts, and to do that you will need a couple of account types. You can structure your accounts into a chart at any time (and, in fact, you can structure them into several additional charts at the same time as you will see in the chapter *Configuring Accounts from A to Z*), so you do not need to be concerned unduly about structure.

Account Types

Create account types using *Accounting* → *Configuration* → *Accounts* → *Account Types* and then clicking the *Create* button. You will need the following four types, the first of which is shown in figure *New Account Type*.

Table 8.1: Defining Account Types

Acc. Type Name	Code	P&L / BS Category	Deferral Method
View	view	/	None
Income	income	Profit & Loss (Income Accounts)	Unreconciled
Expense	expense	Profit & Loss (Expense Accounts)	Unreconciled
Cash	cash	Balance Sheet (Assets Accounts)	Balance

The screenshot shows a software interface for creating a new account type. At the top, there's a header bar with the text "Account Ty... / New". Below it are two buttons: "Save" and "Discard". The main area contains three input fields: "Account Type" with the value "View", "P&L / BS Category" with the value "/", and "Deferral Method" with the value "None". Below these fields is a large, empty text area labeled "Description".

Figure 8.5: *New Account Type*

Accounts

Create accounts using *Accounting* → *Configuration* → *Accounts* → *Accounts* and then clicking the *Create* button.

You need accounts to handle the purchase and sales orders that have not yet been paid, two more for the receipt and shipping of goods, and one for the payment and receipt of funds. And one ‘organizing’ account that is just a view of the other five. So you will need the following six accounts, one of which is shown in *New Account*.

Table 8.2: Defining Accounts

Name	Code	Internal Type	Parent	Account Type	Reconcile
Minimal Chart	0	View		View	unchecked
Payable	AP	Payable	0 Minimal Chart	Payable	checked
Receivable	AR	Receivable	0 Minimal Chart	Receivable	checked
Cash	C	Liquidity	0 Minimal Chart	Cash	unchecked
Purchases	P	Regular	0 Minimal Chart	Expense	unchecked
Sales	S	Regular	0 Minimal Chart	Income	unchecked

Figure 8.6: New Account

The *Account Type* entry is taken from the list of types that you just created. Although it looks a bit like a text box, it does not behave in quite the same way. A single Del or Backspace keystroke is all you need to delete the whole text, and when you type the name (or part of the name), you still need to associate that text with the entry by clicking the *Search More*.

Properties

You now define some default properties, so that you do not have to think about which account is used for which transaction every time you do something. The main new properties are the four that associate accounts payable and receivable to partners, and expenses and income to product categories.

Create properties using *Settings → Technical → Parameters → Configuration Parameters* and then clicking the *create* button. You may have *Technical rights* to be able to access this menu.

Table 8.3: Defining Properties

Name	Field	Type	Value
property_account_payable	Account Payable	Many2One	(account.account) AP Payable
property_account_receivable	Account Receivable	Many2One	(account.account) AR Receivable
property_account_expense_categ	Expense Account	Many2One	(account.account) P Purchases
property_account_income_categ	Income Account	Many2One	(account.account) S Sales

Tip:

Mistakes in configuring accounts and properties

It is easy to make mistakes in configuring accounts and their properties, but the consequences are not immediately obvious. You will mostly discover mistakes when trying to make a Purchase or Sale Order (see later, for example, [Purchase Order](#)), where the accounts are required fields or, if you are diligent, when you set up Partners.

If you configure them correctly at this stage, then fields will be completed automatically and you will never know a thing. If you do not configure all this correctly, then you will not be able to save the order form until you have corrected the problem or until you manually set the accounts.

Since this configuration is quite tedious, you would do best by finding a certified Chart of Accounts that has already been set up to meet your needs, if you can find one.

8.5.2 Configuring Journals

You will also need to configure some journals, which are used to record the transactions from one account to another when invoices are raised and then paid. Create journals from the menu *Accounting → Configuration → Journals → Journals* and then click the *Create* button.

Table 8.4: Defining Journals

Journal Name	Code	Type	Entry Sequence	Default Debit Account	Default Credit Account
Purchase Journal	PUJ	Pur-chase	Purchase Journal	P Purchases	P Purchases
Sale Journal	SAJ	Sale	Account Default Sales Journal	S Sales	S Sales
Bank Journal	BNK	Cash	Account Journal	C Cash	C Cash

Tip:

Mistakes in configuring journals

It is easy to make mistakes in configuring the journals, too, and the consequences are also not immediately obvious. You will mostly discover mistakes when creating an invoice (which happens at different points in the process, depending on your configuration). In this example, validating a Purchase Order creates a draft invoice (see later, again for example, [Purchase Order](#)), where a journal is required.

As with accounts and properties, if you configure them correctly at this stage, then the fields will be completed automatically and you will never know a thing. If you do not configure all this correctly, then there will be errors with the order form or corresponding draft invoice, until you have corrected the problem or until you manually set the journal.

8.5.3 Configuring the Main Company

In case you had chosen to *Skip Configuration Wizards* when you first created the database, you may configure your company information in the following manner. Start configuring your database by renaming the *Main Company* from its default of *Your Company* to the name of your own company or (in this case) another example company. When you print standard documents such as quotations, orders and invoices you will find this configuration information used in the document headers and footers.

To do this, click *Sales → Address Book → Customers* and search for only company there, which is *Your Company*. This gives you a read-only form view of the company, so make it editable by clicking the *Edit* button to the upper left of the form.

Tip:

Editable form in the web-client

When toggling from the list view to the form view of an item, you can generally click its name in the list view to show a non-editable view. You can toggle between editable and non-editable once you are in form view.

Change the following:

- *Name : Ambitious Plumbing Enterprises ,*
- *Add Contact : George Turnbull .*

Before you save this, look at the partner's accounting setup by clicking the tab *Accounting*. The fields *Account Receivable* and *Account Payable* have account values in them that were taken from the account properties you just created. You do not have to accept those values: you can enter any suitable account you like at this stage, although OpenERP constrains the selection to ones that make accounting sense.

Back at the first tab, *General*, change any other fields you like, such as the address and phone numbers, then *Save*. This changes one Contact for the Partner, which is sufficient for the example.

From the *MAIN MENU*, click *Settings* → *Companies* → *Companies* and edit the only entry there:

- *Company Name* : AmbiPlum ,
- *Partner* : should already show Ambitious Plumbing Enterprises ,
- *Custom Footer* : Ticked ,
- *Report Footer* : Best Plumbing Services, Great Prices , Ambitious – our Registered Company Details .

Figure *Changing company details* shows the effect of this. You can also change various other company-wide parameters for reports and scheduling in the other tabs, and you can upload a company logo of a specific size for the reports. Click *Save* to store this.

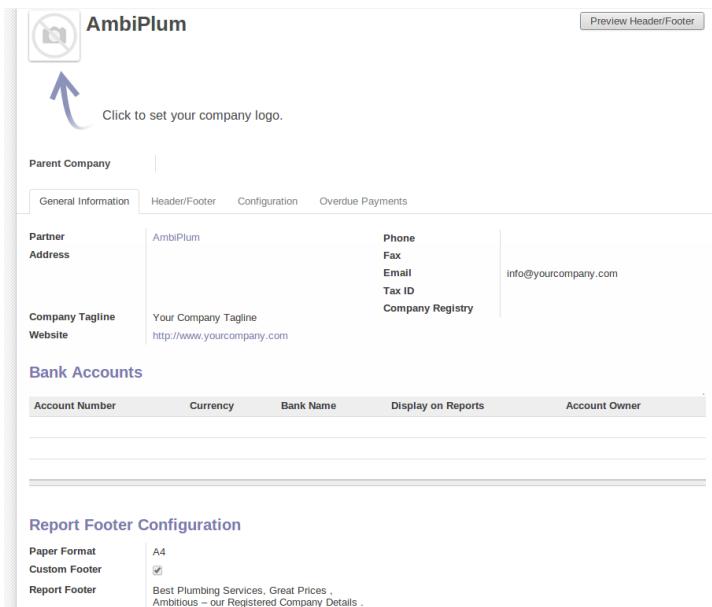


Figure 8.7: *Changing company details*

You can leave the currency at its default setting of EUR Or you can change it in this Company and the two default Pricelists (*Sales* → *Configuration* → *Pricelists* → *Pricelists*) if you feel compelled to do that.

Note:

Currency

The examples in this book are in USD and EUR. You, the reader, could use your home currency (perhaps CAD, CNY, GBP, or Rs) in their place.

8.5.4 Creating Partner Categories, Partners and their Contacts

You will now create a suppliers category and a customers category. Partner categories are useful for organizing groups of partners but have no special behavior that affects partners, so you can assign them as you like. Then you will define one supplier and one customer, with a contact for each.

To do this, use the menu *Sales* → *Configuration* → *Address Book* → *Partner Tags* and click *Create* to open a new form for defining *Partner Categories*. Define the two categories that follow by just entering their *Category Name* and saving them:

- Suppliers ,
- Customers .

Then create two partners from the menu *Sales* → *Sales* → *Customers*. Click on the *Create* button to open a blank form and then add the following data for the first partner first:

- *Name* : Plumbing Component Suppliers ,
- *Customer checkbox* : unchecked ,
- *Supplier checkbox* : checked ,
- add Suppliers to the *Tags* field by selecting it from the selection list,
- then save the partner by clicking the *Save* button.

Figure *New Partner Form* shows the result.

Figure 8.8: *New Partner Form*

For the second partner, proceed just as you did for the first, with the following data:

- *Name* : Smith and Offspring ,
- *Customer checkbox* : checked ,
- *Supplier checkbox* : unchecked ,
- add Suppliers in the *Categories* field ,
- *Save* the form .

To check your work, you can go to the menu *Sales* → *Configuration* → *Address Book* → *Partner Tags* and click on each category in turn to see the companies in the category.

Note:

Multiple Partner Categories

If this partner was also a supplier, then you would add Suppliers to the categories as well, but there is no need to do so in this example. You can assign a partner to multiple categories at all levels of the hierarchy.

8.5.5 Creating Products and their Categories

Unlike partner categories and their assigned partners, product categories do have an effect on the products assigned to them – and a product may belong to only one category. Under the main menu link *Warehouse* or *Sale*, select the menu *Configuration* → *Products* → *Products Categories* and click *Create* to get an empty form for defining a product category.

Enter Radiators in the *Name* field. You will see that other fields, specifically those in the *Accounting Properties* section, have been automatically filled in with values of accounts and journals. These are the values that will affect

products – equivalent fields in a product will take on these values if they, too, are blank when their form is saved. Click *Save*.

Note:

Property Fields

Properties have a rather unusual behavior. They are defined by parameters in the menus in Settings → Technical → Parameters → Configuration Parameters, and they update fields only when a form is saved, and only when the fields are empty at the time the form is saved. You can manually override any of these properties as you need. Property fields are used all over the OpenERP system and particularly extensively in a multi- company environment. There, property fields in a partner form can be populated with different values depending on the user's company.

For example, the payment conditions for a partner could differ depending on the company from which it is addressed.

Note:

UOM

UOM is an abbreviation for Unit of Measure. OpenERP manages multiple units of measure for each product: you can buy in tons and sell in kgs, for example. The conversion between each category is made automatically (so long as you have set up the conversion rate in the product form first).

Tip:

Managing Double Units of Measure

The whole management of stock can be carried out with double units of measure (UOM and UOS – for Unit of Sale). For example, an agro-food company can stock and sell ham by piece, but buy and value it by weight. There is no direct relationship between these two units, so a weighing operation has to be done.

This functionality is crucial in the agro-food industry, and can be equally important in fabrication, chemicals and many other industries.

Now create a new product through the *Warehouse* or *Sale* menu:

1. Go to *Product* → *Products* and click *New*.
2. Create a product – type **Titanium Alloy Radiator** in the *Name* field.
3. Search for *Category* field to select the:guilabel:**Radiators** category.
4. The *Product Type* field should be assigned as **Stockable Product**. The fields *Procurement Method*, *Supply method*, *Default Unit Of Measure*, and *Purchase Unit Of Measure* should also stay at their default values.

- Enter 57.50 into the *Cost Price* field and 132.50 into the *Sale Price* field.

Figure 8.9: Product Form

- Click the *Accounting* tab, then click *Save* and observe that *Accounting Properties* here remain empty. When product transactions occur, the Income and Expense accounts that you have just defined in the Product Category are used by the Product unless an account is specified here, directly in the product, to override that.
- Once the product is saved, it changes to a non-editable state. If you had entered data incorrectly or left a required field blank, an error message would pop-up, the form would have stayed editable and you would need to click from tab to tab to find a field colored red that would have to be correctly filled in.

8.5.6 Stock Locations

Click *Warehouse* → *Inventory Control* → *Location Structure* to see the hierarchy of stock locations. These locations have been defined by the minimal default data loaded when the database was created. You will use this default structure in this example.

OpenERP has three predefined top-level location types, **Physical Locations** and **Partner Locations** that act as their names suggest, and **Virtual Locations** that are used by OpenERP for its own purposes.

- From the *Main Menu* click on *Warehouse* → *Configuration* → *Locations* to reach a list view of the locations (not the tree view).
- Click on the name of a location, such as **Physical Locations/Your Company** to open a descriptive form view. Each location has a *Location Type* and a *Parent Location* that defines the hierarchical structure. While you are here you should change the location's name to **Ambitious Plumbing Enterprises**, since it was named before you changed the company name.
- From the *Main Menu* click *Warehouse* → *Configuration* → *Warehouses* to view a list of warehouses. There is only the one at the moment, which should also be renamed from **Your Company** to **Ambitious Plumbing Enterprises**.

A Warehouse contains an input location, a stock location and an output location for sold products. You can associate a warehouse with a partner to give the warehouse an address. That does not have to be your own company (although it can be); you can easily specify another partner who may be holding stock on your behalf.

Note:**Location Structure**

Each warehouse is composed of three locations Location Input, Location Output, and Location Stock. Your available stock is given by the contents of the Location Stock and its child locations.

So the Location Input can be placed as a child of the Location Stock, which means that when Location Stock is interrogated for product quantities, it also takes account of the contents of the Location Input. Location Input could be used as a goods-in QC location. The Location Output must never be placed as a child of Location Stock, since items in Location Output, which can be considered to be packed ready for customer shipment, should not be thought of as available for sale elsewhere.

8.5.7 Setting up a Chart of Accounts

You can set up a chart of accounts during the creation of a database, but for this exercise you will start with the minimal chart that you created (just a handful of required accounts without hierarchy, tax or subtotals).

A number of account charts have been predefined for OpenERP, some of which meet the needs of national authorities (the number of those created for OpenERP is growing as various contributors create and freely publish them). You can take one of those without changing it if it is suitable, or you can take anything as your starting point and design a complete chart of accounts to meet your exact needs, including accounts for inventory, asset depreciation, equity and taxation.

You can also run multiple charts of accounts in parallel – so you can put all of your transaction accounts into several charts, with different arrangements for taxation and depreciation, aggregated differently for various needs.

Before you can use any chart of accounts for anything, you need to specify a Fiscal Year. This defines the different time periods available for accounting transactions. You can create a Fiscal Year from *Accounting → Configuration → Periods → Fiscal Years*. Click on the *Create* button to open a blank form and then add the following data:

- *Fiscal year* : Fiscal Year X 2013 ,
- *Code* : FY2013 ,
- *Start Date* : 01/01/2013 ,
- *End Date* : 12/31/2013 ,
- Click on *Create Monthly Periods* Button.
- then save the Form by clicking the *Save* button.

Figure *Fiscal Year* shows the result.

Period Name	Code	Start of Period	End of Period	Opening/Closing Period	Company	Status
Opening Period 2013	00/2013	01/01/2013	01/01/2013	<input checked="" type="checkbox"/>	AmbiPlum	Open
01/2013	01/2013	01/01/2013	01/31/2013	<input type="checkbox"/>	AmbiPlum	Open
02/2013	02/2013	02/01/2013	02/28/2013	<input type="checkbox"/>	AmbiPlum	Open
03/2013	03/2013	03/01/2013	03/31/2013	<input type="checkbox"/>	AmbiPlum	Open
04/2013	04/2013	04/01/2013	04/30/2013	<input type="checkbox"/>	AmbiPlum	Open
05/2013	05/2013	05/01/2013	05/31/2013	<input type="checkbox"/>	AmbiPlum	Open
06/2013	06/2013	06/01/2013	06/30/2013	<input type="checkbox"/>	AmbiPlum	Open
07/2013	07/2013	07/01/2013	07/31/2013	<input type="checkbox"/>	AmbiPlum	Open
08/2013	08/2013	08/01/2013	08/31/2013	<input type="checkbox"/>	AmbiPlum	Open
09/2013	09/2013	09/01/2013	09/30/2013	<input type="checkbox"/>	AmbiPlum	Open
10/2013	10/2013	10/01/2013	10/31/2013	<input type="checkbox"/>	AmbiPlum	Open
11/2013	11/2013	11/01/2013	11/30/2013	<input type="checkbox"/>	AmbiPlum	Open
12/2013	12/2013	12/01/2013	12/31/2013	<input type="checkbox"/>	AmbiPlum	Open

Figure 8.10: *Fiscal Year*

Note:**Fiscal year**

In many countries, the fiscal year corresponds to a calendar year. That may not be the case in other countries. Start Date is a first date of your fiscal year and End Date is a last Date of your fiscal year. By clicking Create 3 Months Periods you can create a periods quarterly.

Click Accounting → Charts → Charts of Accounts to open a *Chart of Accounts* form where you define exactly what you want to see. Click Open Charts to accept the defaults and see a hierarchical structure of the accounts.

8.5.8 Make a Backup of the Database

If you know the super-administrator password, make a backup of your database using the procedure described in *Managing Databases*. Then restore it to a new database: `testing`.

This operation enables you to test the new configuration on `testing` so that you can be sure everything works as designed. Then if the tests are successful, you can make a new database from `openerp_ch03`, perhaps called `live` or `production`, for your real work.

From here on, connect to this new `testing` database logged in as `admin` if you can. If you have to make corrections, do that on `openerp_ch03` and copy it to a new `testing` database to continue checking it.

Or you can just continue working with the `openerp_ch03` database to get through this chapter. You can recreate `openerp_ch03` quite quickly if something goes wrong and you cannot recover from it but, again, you would need to know your super-administrator password for that.

8.6 Driving a Purchase / Sales Flow

To familiarize yourself with the system workflow, you will test a purchase-sale workflow in two phases.

The first consists of product purchase, which requires the following operations:

1. Place a purchase order with Plumbing Component Suppliers for 10 Titanium Alloy Radiators at a unit price of 56.00.
2. Receive these products at your Goods In.
3. Generate a purchase invoice.
4. Pay your supplier.

Following this, you will sell some of these products, using this sequence:

1. Receive a sales order for 6 Titanium Alloy Radiators from Smith and Sons, sold at a unit price of 130.00.
2. Dispatch the products.
3. Invoice the customer.
4. Receive the payment.

8.6.1 Purchase Order

To place a Purchase Order with your supplier, use the menu *Purchases* → *Purchase* → *Quotations* and click the *Create* button.

Complete the following field:

- *Supplier*: Plumbing Component Suppliers .

As you complete the *Supplier* field, OpenERP automatically completes the *Pricelist* field from information it takes out of the Partner record.

Enter the following information

- *Product* : Titanium Alloy Radiator - type in part of this name then press the tab key to complete it, or click the *Search More* at the end of the s to bring a search box. (if product is previously configured)

When you have selected a product on the product line, OpenERP automatically completes the following fields from information it finds in the Product record:

- *Product UOM* : the unit of measure for this product,
- *Description* : the detailed description of the product,
- *Scheduled Date* : based on the product lead time,
- *Unit Price* : the unit price of the product,
- *Analytic account* : if any account is specified then it will appear on the order line (it is not in this example),
- *Taxes* : applicable taxes defined in the partner, if specified, otherwise in the product, if specified (there are not any in this example).

Note:

Analytic account

You may have ticked and Apply Analytic accounting for purchases from Settings → Purchases → Purchase Order

You can edit any of these fields to suit the requirements of the purchase order at the time of entry. Change the:

- *Quantity* : 10,
- *Unit Price* to 56 . 00.

Save the order line and close the *Order Line* window by clicking the *Close* button. You can then confirm the whole one-line order by clicking *Save*, which makes the form non-editable.

It is now in a state of *Draft PO*, Confirm that by clicking *Confirm* Button which corresponds to an approval from a manager or from Accounts within your own company and moves the order into *Purchase Order* state. *Send by Email*, with the help of this button you can Request for Quotation and mean while your Draft PO moves in to *RFQ sent* state.

If you click the *Incoming Shipments & Invoices* tab you will see the delivery *Destination* is your own company's *Stock* location and *Receive Invoice* button show you the draft invoice was created from the order. It is not entirely obvious at this stage, but the invoice is in a draft state so it can be edited and, crucially, has no accounting impact yet: it is just ready for your accounting group to activate it.

8.6.2 Receiving Goods

After confirming the order, you would wait for the delivery of the products from your supplier. Typically this would be somebody in Stores, who would:

1. Open the menu *Warehouse → Receive/Deliver By Orders → Incoming Shipments* using the expand/collapse icon.

Note:

From the Purchase Order

You could have clicked the Incoming Shipment Button to the top right of the Purchase Order form to reach the same screen, but this would confuse the purchasing role with the stores role. That Button is very useful during testing and training, however.

- When the *Incoming Shipments* window appears, select the name of the entry in the list (IN/00002) to display the Packing List itself – you would usually do a search for the supplier name or order number in a list that was larger than this – then click *Receive* to indicate that you are receiving the whole quantity of 10 units.

At this point you have accepted 10 units into your company, in a location that you have already seen.

Using the menu *Purchases* → *Products* → *Products* you can find the product *Titanium Alloy Radiators* with *Quantity On Hand* and *Incoming* 10. From the product form click on *Stock by Location* from *More* button, you can see the *Quantity On Hand* and *Incoming Stock* of this product in various locations.

Tip:

Traceability in Double-entry

OpenERP operates a double-entry stock transfer scheme similar to double-entry accounting. Because of this you can carry out various analyses of stock levels in your warehouse, along with the corresponding levels in Partner Location at your Supplier. The double-entry system, analogous to that of accounting, enables you to keep track of stock movements quite easily, and to resolve any errors that occur.

8.6.3 Invoice Control

When you have received an invoice from your supplier (which would usually be sent to your Accounts department), go to the menu *Accounting* → *Suppliers* → *Supplier Invoices* to open a list of supplier invoices waiting for receipt. These invoices enable your Accounts Department to match the price and quantities ordered against the price and quantities on the supplier's invoice (and since it is not uncommon to receive an invoice showing details more favourable to the supplier than those agreed at the time of purchase, this is a useful function).

In this example, you created an invoice automatically when you confirmed the supplier's Purchase Order. That is because the *Invoicing Control* field on the order was set to *From Order* (the default option). Other options enable you to create invoices at the time of receiving goods or manually. The initial state of an invoice is *Draft*.

Now click the invoice for your order PO00001 to display its contents. You can compare the goods that you have recorded there with the invoice received from your supplier. If there is a difference, it is possible to change the order lines to, for example, add a delivery charge. Click *Validate* to confirm the invoice and put it into the *Open* state.

Accounting entries are generated automatically once the invoice is validated. To see the effects on your chart of accounts, use the menu *Accounting* → *Charts* → *Chart of Accounts*, then click *Open Charts* at the *Chart of Accounts* page to see that you have a debit of 560.00 in the *Purchases* account and a credit of 560.00 in the *Payable* account.

8.6.4 Paying the Supplier

Select the menu *Accounting* → *Suppliers* → *Supplier Invoices* and click on the *Unpaid* Filter from Search for a list of supplier invoices that have not yet been paid. Write the PO00001 in search text box, itself to find the invoice. In practice, you would search for the invoice by order number or, more generally, for invoices nearing their payment date.

Click on *Pay* button in the supplier invoice form. It opens the *Pay Invoice* window with a description of the payment.

Supplier and Date comes automatically from invoice. You need to just enter the Payment Method. After that, click on *Pay* button to post this entry.

Note:

Payment of an Invoice

The method described here is for companies that do not use their accounting system to pay bills – just to record them. If you are using the account module with all its features, other, more efficient, methods let you manage payments, such as entering account statements, reconciling paperwork, using tools for preparing payments, interfacing with banks.

You can monitor the accounting impact of paying the invoice through the chart of accounts available from the menu *Accounting → Charts → Chart of Accounts*. OpenERP automatically creates accounting entries from the payment, and can reconcile the payment to the invoice. You now have a new transaction that has debited the *Payable* account with 560.00 and credited the *Cash* account.

If you look in *Accounting → Journal Entries → Journal Entries* you will see both accounting transactions, one in each of the Purchase Journal and Bank Journal in Draft state.

8.6.5 From Sales Proposal to Sales Order

In OpenERP, sales proposals and sales orders are managed using documents that are based on the same common functionality as purchase orders, so you will recognize the following documents in general but see changes to their detail and to their workflows. To create a new sales proposal, use the menu *Sales → Sales → Quotations* and click on *Create* button which creates a new order in a state of *Draft Quotation*, then:

1. Select the *Customer* Smith and Offspring . This has the effect of automatically completing several other fields: *Ordering Contact*, *Invoice Address*, *Shipping Address*, and the *Pricelist* Public Pricelist (EUR) . They are all only defaults, so these fields can be modified as you need.
2. Click the *Add an item* link in *Sales Order Lines* section to open a *Sales Order Lines* window.
3. Select the product Titanium Alloy Radiator . Although the *Product* field is not itself required, it is used by OpenERP to select the specific product so that several other fields can be automatically completed on the order line of the proposal, such as *Description*, *Unit of Measure*, *Unit Price* and *Taxes*.
4. Change the *Quantity (UoM)* to 6 and the *Unit Price* to 130.00. Then click *Save & Close* and the line appears on the quotation form.
5. On the *Other Information* tab of this Sales Order, select a *Shipping Policy* of Deliver all products at once and *Create Invoice* of On Delivery Order from their dropdown menu lists. you can also define default Invoicing Method, use the menu *Settings → Configuration → Sales* under Invoicing Process set *The default invoicing method* is Invoice based on deliveries .
6. Go back to the Quotation and validate the document by clicking *Confirm Sale* which calculates prices and the changes the order's state from Quotation to Sale Order as shown in screenshot *Sales Order Form*. If you were in negotiation with the prospective customer, you would keep clicking *Compute* and *Save*, keeping the document in Quotation state for as long as necessary.

The screenshot shows the Sales Order form for SO001. The top header includes buttons for Edit, Create, Print, More, View Delivery Order, Cancel Order, Draft Quotation, Quotation Sent, Sales Order, and Done. The main area is divided into two tabs: Order Lines and Other Information. The Order Lines tab displays a single line item: Product (Titanium Alloy Radiator), Description (Titanium Alloy Radiator), Quantity (6.000), Unit of Measure (Unit(s)), Taxes (130.00), Unit Price (57.50), Cost Price (%), Discount (0.00), and Subtotal (780.00). The Other Information tab shows Customer (Smith and Offspring), Date (04/01/2013), Shop (Your Company), Customer Reference (Pricelist), and Pricelist (Public Pricelist (EUR)). At the bottom, there are sections for Margin (435.00 €) and Delivery Method. The footer shows Untaxed Amount (780.00 €), Taxes (0.00 €), and Total (780.00 €).

Figure 8.11: Sales Order Form

7. By clicking *View Delivery Order* button, you can see the *Picking List* that has been created and you will be able to see any invoices that relate to this order when they are generated.

Go to *Sales* → *Products* → *Products* to display a list of products: just the one, Titanium Alloy Radiator, currently exists in this example. Its *Real Stock* still shows 10.00 but its *Virtual Stock* now shows 4.00 to reflect the new future requirement of 6 units for dispatch.

8.6.6 Preparing Goods for Shipping to Customers

The stores manager selects the menu *Warehouse* → *Receive/Deliver By Orders* → *Delivery Orders* to get a list of orders to dispatch. For this example, find the Delivery Order related to the sale order which you have created.

Tip:

Running Schedulers

At the moment, your Sales Order is waiting for products to be reserved to fulfil it. A stock reservation activity takes place periodically to calculate the needs, which also takes customer priorities into account. The calculation can be started from the menu Warehouse → Schedulers → Run Schedulers. Running this automatically reserves products.

*If you do not want to have to work out your stock needs but have a lean workflow you can install the *mrp_jit* (Just In Time) module.*

Although OpenERP has automatically been made aware that items on this order will need to be dispatched, it has not yet assigned any specific items from any location to fulfil it. It is ready to move 6.00 Titanium Alloy Radiators from the *Stock* location to the *Customers* location, so start this process by clicking *Check Availability*. The *Move* line has now changed from the *Confirmed* state to the *Available* state.

Then click the *Deliver* button to reach the *Deliver Products* window, where you click the *Deliver* button to transfer the 6 radiators to the customer.

To analyze stock movements that you have made during these operations, use *Warehouse* → *Product* → *Product* and find this product, then click on the action *Stock by Location* which is at the right most side to see that your stocks have reduced to 4 radiators and the generic *Customers* location has a level of 6 radiators.

8.6.7 Invoicing Goods

Use the menu *Accounting* → *Customers* → *Customer Invoices* to open a list of Sales invoices generated by OpenERP. If they are in the *Draft* state, it means that they do not yet have any presence in the accounting system. You will find a draft invoice has been created for the order S000001 once you have dispatched the goods because you had selected *Invoice based on deliveries*.

Once you validate an invoice, OpenERP assigns it a unique number, and all of the corresponding accounting entries are generated. So open the invoice and click *Validate* to do that and move the invoice into an *Open* state with a number of SAJ/2013/002.

You can send your customer the invoice for payment at this stage. Print Invoice by Click *Print* or *Invoice* link from *Print* button to get a PDF document that can be printed to the customer.

Review your chart of accounts to check the impact of these activities on your accounting. You will see the new revenue line from the invoice.

8.6.8 Customer Payment

Registering an invoice payment by a customer is essentially the same as the process of paying a supplier. From the menu *Accounting* → *Customers* → *Customer Invoices*, click the name of the invoice that you want to mark as paid:

1. Use the *Register Payment* button which opens a new window *Pay Invoice*.

2. Select the *Payment Method*, for this example select Bank (EUR) then Pay the entry.

Product	Description	Account	Analytic Account	Quantity	Unit of Measure	Unit Price	Discount (%)	Taxes	Amount
Titanium Alloy Radiator	Titanium Alloy Radiator	S Sales		6.000	Unit(s)	130.00	0.00		780.00

Subtotal : 780.00 €
Tax : 0.00 €
Total : **780.00 €**
Balance : 780.00 €

Figure 8.12: *Invoice Form*

Check your Chart of Accounts as before to see that you now have a healthy bank balance in the Cash account.

Part III

Managing Customer Relationships

The Sales department is the engine of your whole company. Sales success drives staff motivation and your company's general dynamism, which in turn enables you to keep innovating and lay the foundations for future success. The key to continued Sales success is effective Customer Relationship Management (most often known as CRM). Open ERP's CRM capabilities are flexible and highly developed to assist you in managing all aspects of both supplier and customer relationships.

MANAGING CUSTOMER ACQUISITION

9.1 Managing your Customers

What is the difference between a partner (*company*) and a contact in OpenERP? A Partner represents an entity that you do business with - a customer, a prospect, or even an employee of your company. In other CRM applications, a partner (*company*) is also referred to as an Account. A Contact represents a person who works for a partner.

Each partner can have an unlimited number of contacts. OpenERP also allows you to have several contacts with the same address type for one partner. You can easily link several Invoice addresses to a customer, for instance.

Note:

Address Types

If you have recorded several contacts for the same partner (company), you can tell OpenERP which contact will be used in various documents (e.g. a quotation) by specifying the Address Type. For example, a partner (company) can have a delivery address that differs from the company's invoice address. If the Address Types are correctly assigned, OpenERP can automatically select the appropriate address during the creation of the document – an invoice is addressed to the contact that has been assigned the Address Type of Invoice, otherwise to the Default address.

The concept of a partner in OpenERP is much more flexible than in many other management applications. Why is that? Because a partner can be your supplier and your customer at the same time. As a consequence, any data you update for that partner will apply to both customer and supplier! Thanks to this, you no longer need to update your customer/supplier information several times (or even in several places) for the same partner.

The partner form contains information about the company, such as its corporate name, its postal information, its communication information, its website and the categories the partner belongs to. The partner form is composed of several tabs.

- the *Contact* tab contains information about different contacts of that partner (*company*).
- the *Internal Notes* tab is an area for free text notes.
- the *Sales & Purchases* tab contains information such as the default salesperson and sales team, whether the partner (*company*) is a *Customer* and/or a *Supplier* and its primary language.
- the *Accounting* tab contains information about Fiscal Position, Account Payable/Receivable, Credit Limit, etc..

Agrolait

Components Buyer | Partner / IT Services

Address	69 rue de Chimay Wavre Belgium	Phone	+32 10 588 558
Website	http://www.agrolait.com	Mobile	
	1300	Fax	
		Email	info@agrolait.com

Salesperson	Administrator	Customer	<input checked="" type="checkbox"/>
		Supplier	<input type="checkbox"/>
Reference	English	Active	<input checked="" type="checkbox"/>
Language		Opt-Out	<input checked="" type="checkbox"/>
Date			

Figure 9.1: The Sales & Purchases of a Customer

9.1.1 Creating and Updating Partners

Before explaining you how to create a partner, just a quick word on the different ways of representing partners in OpenERP. *Kanban* view shows a global overview of customers (the default representation when you click the Customers menu). *List* view shows a list of customers. In this view, you can see several customers at a time. *Form* view is displayed when you click a specific customer to start editing or when you create a new customer.

To create a new partner (a company, customer, supplier, ...) use the menu Sales → Customers(for customers) or the menu Purchases → Suppliers (for suppliers). These menus does not only allow you to create a new partner, but also to search for partners.

Agrolait

Components Buyer | Partner / IT Services

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Figure 9.2: A Customer Form

Note:

Mandatory

Blue fields are always mandatory, meaning that you have to enter a value there. It is impossible to save changes as long as a blue field is not completed.

You should at least enter the company's Name in the partner form. Some fields are text fields, other fields may be linked to existing data that have been entered elsewhere, such as Countries.

Create a customer with the following data:

- Name : Smith and Offspring,

- *Customer* checkbox : checked, in the Sales & Purchases tab,
- *Supplier* checkbox : unchecked, in the Sales & Purchases tab,
- *Contact Name* : Stephen Smith, in the Contacts tab
- *Type* : Default,
- *Save* the form.

Tip:

Email

If you use the email gateway, the Outlook or the Thunderbird plugin, do not forget to register an email addresses to each contact.

To update a partner, open the corresponding form, select *Edit* and change the required fields. As explained before, when a company is both one of your customers and a supplier, you just have to edit the partner form once to have changes applied to both customer and supplier.

Note:

Checkboxes

Why is it important for you to correctly set the Customer and Supplier checkboxes in the partner form? These checkboxes are designed to enable OpenERP to quickly select the partners who should be displayed in some dropdown boxes. An example: when you select a partner in a Sales Quotation, OpenERP will only allow you to select from the list of Customers. And that is precisely what the Customer checkbox is used for.

9.1.2 Managing your Contacts

You can have several contacts for one partner. Contacts represent company employees that you are in touch with, along with their address details. For each address you can indicate the type (Default, Invoice, Delivery, Contact or Other).

Contacts can be entered into the *Contacts* tab of the **Customer** form. Or you can also create a new partner and assign a company on that partner which will make this partner as a contact on that partner (*company*).

9.1.3 Customizing Partner Fields

OpenERP also allows you to customize the Partner view to your needs. Click the *Manage Views* option if you want to add fields, delete fields or change the order of fields in a view.

Let us add the Birthday field to a contact, in the *Customers* form view. To do so, click on the logged in user at top-right and select *About OpenERP* and then select *Activate the developer mode*. Now go to the *Sales → Customers* menu and open any customer in Form view. Click on *Debug View#* and then select *Manage Views*, then *Edit* because the corresponding view will already be preselected.

Go to the last line of the view and click the blue plus (+) sign to add a field to the *Contacts* view. Proceed as in

the figure below, then click the *Update* button.

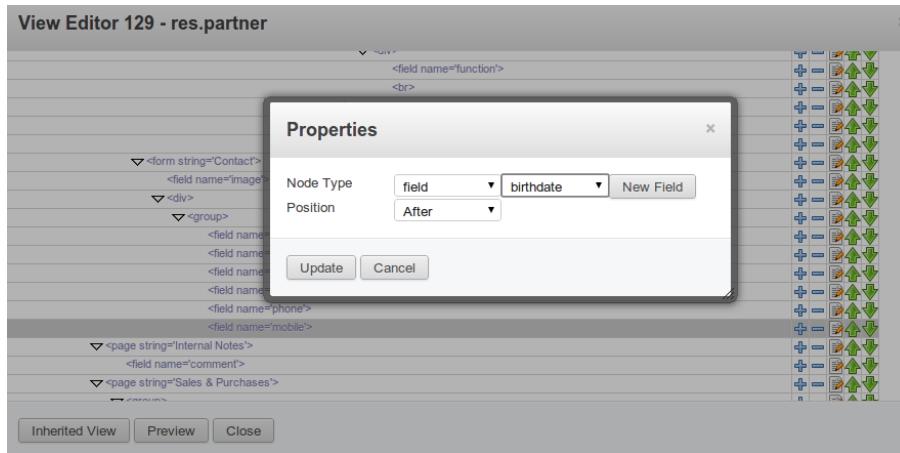


Figure 9.3: Add the Birthday Field for a Contact

In the *Properties* screen that appears, click on the *New Field* through which you can change the label to *Birthday* in the *String* field. To indicate that a new field can be used in the corresponding search view, make sure to select *Always Searchable*. Click the *Update* button to confirm your changes. Click *Preview* to see your result. The *Birthday* field will now appear in your *Customers* form view → *Contacts tab* → *Create/Open* any contact, ready to be used. You can also customize the actions.

9.1.4 Performing Actions on Customers

At the right side of the *Customers* form view, you will find button(Quotations and Sales). You can perform actions(by clicking on the More at the top) and print reports(by clicking on the Print at the top) both from List and from Form view, List view allowing you to do actions for several partners at the same time. You can also add an attachment.

Tip:

Actions

To display the list of possible actions, just select one or more customers.

You can create a new opportunity for a customer, or start a mass mailing. Mass mailings will usually be started from list view, because you will select several partners at a time.

Note:

Campaigns

For mass mailings, you might prefer to use the Direct Marketing application, which offers great functionalities (please refer to chapter Driving your Marketing Campaigns).

9.1.5 Finding your Partners using Filters

Open the *Customers* list view to discover the search options(top-right) allowing you to easily filter your partners. You can group by Salesman to see which customers have already been assigned a salesman or not. And can also group by Company. You can filter by Persons to see the customers you are responsible for. You can also filter by My Partners, Companies, Customers and Suppliers.

Tip:**Limit**

If you want to display more than 80 partners displayed by default, click the 1 to 80 of 80 option at the top of the screen to be able to change the limit.

Filters also allow you to quickly set lists of customers for which you want to do specific actions. Through the New Filter option, you can also add your own filters for any field related to the Customer form.

Note:**Filters**

You can easily create your own frequently used filters by prefILTERING the data the way you want and then using the Save Filter option.

9.1.6 Categorizing your Partners

OpenERP uses categories to organize all of its partners according to their relationship with your company (partner, prospect, supplier, and so on). Each partner may be attached to several categories. To open the list of available partner categories, use the menu *Sales → Configuration → Address Book → Partner Tags*.

Partner Categories	
Create	or Import
<input type="checkbox"/>	Full Name
<input type="checkbox"/>	Company Contact
<input type="checkbox"/>	Components Buyer
<input type="checkbox"/>	Consultancy Services
<input type="checkbox"/>	Distributor
<input type="checkbox"/>	Employee
<input type="checkbox"/>	Manufacturer
<input type="checkbox"/>	Office Supplies
<input type="checkbox"/>	Partner
<input type="checkbox"/>	Partner / Bronze
<input type="checkbox"/>	Partner / Gold
<input type="checkbox"/>	Partner / IT Services
<input type="checkbox"/>	Partner / Silver
<input type="checkbox"/>	Prospect
<input type="checkbox"/>	Retailer
<input type="checkbox"/>	Services
<input type="checkbox"/>	Supplier
<input type="checkbox"/>	Wholesaler

Figure 9.4: List of Partner Categories

Note:**Categories**

To create a new category, go to the menu *Sales → Configuration → Address Book → Partner Tags* and click the Create button.

Because categories can be organized according to a tree structure, you can apply an action at any level of the structure: a marketing promotion activity, for example, can be applied either to all customers, or selectively only to customers in one category and its subcategories.

You can create your own categories and assign them to your partner from the *Customer* form.

9.2 Managing your Leads

To define leads, imagine a bucket full of potential sales contacts expressing an interest in your company's products.

A lead represents a potential customer with whom you have not established a relationship yet. Usually a lead contains valuable information to realise future sales opportunities. However, the most common mistake is that such key information too often gets lost, because it is registered nowhere. And even when registered, it might still be difficult to track any activity for that lead, because the information is not at hand when you need it.

Storing leads information in a central place such as OpenERP will release you of these worries.

So when would you create a lead in OpenERP, either manually or automatically? The following events could be a trigger:

- An inquiry email sent to one of your company's generic email addresses, such as sales@mycompany.com, from the mailgateway,
- A business card from a prospective customer met briefly at an exhibition: you have to contact him again to qualify the lead and to know if there is any possibility of a sales opportunity; registered manually,
- A database of potential customers in a given sector and region imported through a CSV file. The potential customers have to be contacted again individually or through a mass mailing to determine which contacts require further follow-up,
- An interesting contact that you met during a business networking event. You have to qualify it before assigning a salesperson to the contact,
- A form completed on your website directly integrated into OpenERP using our webservice. Before converting the form into a sales proposition or opportunity, you should read and handle the person's request.

Employees in the marketing or presales department will usually work on leads. Once these leads will be converted into customers and/or sales opportunities, the sales department pays individual attention to each opportunity. Of course, before converting a lead into an opportunity, some qualification work has to be done.

OpenERP allows you to easily configure the way your company qualifies leads. You can create your own stages through *Sales → Configuration → Leads & Opportunities → Stages*. Use the sequence number to determine the order of the stages, i.e. 10 for First Call, 20 for Renewing Contact and so on. Of course, you can also drag & drop a stage to another place to automatically change the order of all the stages. A salesperson can change the status of the lead according to the response from the prospect and enter the result of this contact in the lead form (e.g. in the Notes field).

Leads can be assigned to a *Sales Team* for easy follow-up (see [Adapting OpenERP to your Sales Organization](#)). Each user can be added to a default sales team which can be specified in the *User Preferences*. When you define a tree structure for your sales teams, you can also escalate a lead to another sales team for further actions.

Note:

Leads or Opportunities

Companies may decide to not use leads, but instead to keep all information directly in an opportunity. For some companies, leads are merely an extra step in the sales process. You could call this extended (start from lead) versus simplified (start from opportunity) customer relationship management. OpenERP perfectly allows for either one of these approaches to be chosen. If your company handles its sales from opportunities directly, feel free to move on to chapter Optimizing your Sales Cycle through Opportunities, although most of the features explained below also apply to opportunities.

In the next sections we will explain in more detail some examples of what *Leads* in OpenERP can be used for.

9.2.1 Storing your Business Cards effectively

Potential customers are usually entered as a lead in the system. This means that you do not create a partner or a sales opportunity until you have qualified whether the lead is interesting or not.

Tip:

Qualification

When a qualified lead requires further actions, you can turn the lead into a partner and, eventually, a sales opportunity.

To make a new lead, go to the *Sales → Sales → Leads* menu and click the *Create* button. In the **Lead** form that opens, you can enter the contact data of this new potential customer and add notes.

Figure 9.5: *Creating a New Lead*

You can also set the status of a lead according to the qualification work that has been carried out:

- **New** : the lead data have been entered, no work has been done yet and a salesperson has not yet been assigned to the request,
- **Opportunity**: the lead has been converted into a partner and/or a sales opportunity,
- **Escalate**: the lead is escalated to the upper sales team in the tree structure for further actions,
- **Cancelled**: the lead has been cancelled because the salesperson has decided that it is not worth following up.

On the *Extra Info* tab in the **Leads** form, you find information about the campaign, the channel, and so on.

The screenshot shows the 'Leads / Plan to Attend a Training' form. At the top, there are buttons for 'Edit', 'Create', 'Attachment(s)', 'More', '1 / 12', and navigation icons. Below the header, there are tabs: 'Convert to Opportunity', 'Cancel Case', 'New', 'Opportunity', and 'Dead'. The main content area is titled 'Plan to Attend a Training'. It contains several sections with data:

- Company Name:** Le Club SARL
- Customer Address:** 73, rue Léon Dierx, Paris, France, 93190
- Contact Name:** Jason Dunigan, jason@leclub.fr
- Salesperson:** Administrator
- Sales Team:** Sales Department / Support Department / Online Support
- Priority:** Highest
- Categories:** Training

Below these sections are three tabs: 'Internal Notes', 'Extra Info' (which is selected), and 'Assignation'. Under 'Extra Info', there are two groups: 'Marketing' and 'Mailings'.

Marketing:

- Campaign Channel:** Email Campaign - Services, Email
- Opt-Out:** (checkbox)

Mailings:

- Opt-Out:** (checkbox)

Misc:

- Active:** (checkbox)
- Referred By:** (checkbox)

Figure 9.6: *Extra Tab*

9.2.2 Importing a Leads Database

You can also import a huge list of leads. That may be useful if you have bought a database of potential prospects that you want to load into OpenERP to handle them all at the same time.

Start with a list of leads in CSV format, for instance. If your prospects database is provided in another format, you can easily convert it to the CSV format using Microsoft Excel or OpenOffice Calc.

Tip:

Import

The best thing to do to make sure your import will go smoothly, first export all the required Lead fields using the Export function, and then edit the resulting csv file for import.

Open the **Leads** form using the menu *Sales → Sales → Leads*. List view of leads shows two options create or import, click the *Import* link.

Select your file containing the leads information and click *Import File*. OpenERP will automatically map the column headers from your CSV file to the corresponding fields in OpenERP. If necessary, you can click *CSV Options* to change the settings so that they match your local settings.

The screenshot shows the 'Import a CSV File' dialog. At the top, there are buttons for 'Validate', 'Import', and 'Cancel'. Below the buttons, it says 'Select the .CSV file to import. If you need a sample importable file, you can use the export tool to generate one.' There is a 'CSV File:' field with 'Choose File' and 'm2m_custom..._tags.csv' selected, and a 'File Format Options...' button. The main area is titled 'Map your data to OpenERP' and contains a table with columns: Name, Reference, Tags, Customer, Street, City, and Country. A note says 'The first row of the file contains the label of the column'. The table data is as follows:

Name	Reference	Tags	Customer	Street	City	Country
Credit & Leasing Services & Finance	3	Services Consultancy Services,IT Services	True True	Central Avenue 814 Grove Road 5	Johannesburg London	South Africa United Kingdom
Hydra Supplies	6	Manufactures,Retailer	True	Palm Street 9	Los Angeles	United States
Bots & Screws	8	Wholesaler,Components Buyer	True	Rua Americo 1000	Campinas	Brazil
National Parts & Supplies	18	Manufacturer,Wholesaler	True	Guangdong Way 20	Shenzhen	China

Figure 9.7: *Importing Leads into the System*

Check the online chapter about system administration for more information on import and export on <http://doc.openerp.com/v6.0/book/>.

Tip:

Various Imports

Importing and Exporting data in OpenERP is a generic function available to all resources. So you can import and export such lists as partners, opportunities, accounting entries, products and price lists.

Clearly there are other methods of generating leads automatically or semi-automatically:

- Through a Contact Form on your Website;
- Using the Outlook or Thunderbird plugin to insert new leads directly from the salesman's mailbox when he sees promising emails,
- Using the email gateway for each incoming email from a certain address (such as sales@mycompany.com) which may create a lead automatically from the contents of the email.

These different methods are described later in this book (see chapter *Automating your Lead Acquisition*).

9.2.3 Organizing Leads

To help the users organize and handle leads efficiently, OpenERP provides several features in the CRM to be used according to the needs of each:

Use the *Sales → Sales → Leads* view to organize your leads:

- Display a list of all the leads (New, open, Unassigned Leads, ...) according to the sales team you are linked to,
- Display a list of New leads by clicking *New*,
- Display Unassigned Leads by clicking *Unassigned Leads*,
- Display a list of all the leads assigned to different salespeople by clicking the Group by button *Salesperson*.
- Quickly find leads not yet assigned to a Campaign, by clicking the Group by button and then Campaign.

The sales manager can use this **Leads** view to easily keep track of what each salesperson is working on.

The screenshot shows the 'Leads' view in OpenERP. On the left, there is a list of leads with columns for Creation Date, Subject, Contact Name, and Email. The list includes entries like 'Plan to Attend a Training' (Contact: Jason Dunagan), 'Information about laptop' (Contact: Andrew), and 'Need estimated cost for new project' (Contact: Thomas Passot). On the right, there is a sidebar with several sections: 'Filters' (with checkboxes for Open, Dead, Unassigned, Unread Messages, Assigned to Me, and Assigned to My Team(s)), 'Group By...' (with options for Salesperson, Team, Stage, Customer, Country, Stage, Referrer, Campaign, Channel, and Creation), 'Display' (with options for Show Countries and Show Sales Team), 'Custom Filters' (with Draft Leads and Leads from USA), and 'Advanced Search' and 'Add to Dashboard' buttons.

Figure 9.8: List of Leads to be Handled

Leads can also be prioritized. Salespeople can assign a priority to their lead, and then start working on their leads from the top of the list, which is sorted by priority.

9.2.4 Analysing Leads

OpenERP also offers statistical reports to keep track of your Lead Management. The *Reporting → Sales → Leads Analysis* report allows you to check various leads-related elements. You can look at processing delays, number

of responses given and emails sent (if you use the email gateway feature). Sort your leads analysis by different groups to get accurate, grained analysis.

These are some analysis possibilities of the **Leads Analysis** report.

1. Leads by State and per Month

To analyse the leads by status, group the leads by qualification level (`Stage`) and status (`State`), this can also be done for individual months (first group by `Month`).

2. How effective are your Campaigns?

Group by Campaign to easily find the number of leads by campaign and the total number of leads. You can also select a specific campaign in your filter.

3. Leads by Priority.

Group by Priority to see which leads are hot, warm or cold.

The screenshot shows the 'Leads Analysis' interface. On the left, there is a table with columns: Group, # of Cases, Delay to Open, and Delay to Close. The data includes:

Group	# of Cases	Delay to Open	Delay to Close
Administrator (5)	5	0.00	
Demo User (5)	5	0.00	
Undefined (2)	2	0.00	
	12		

On the right, there is a sidebar with filtering and grouping options:

- Filters:**
 - ✓ Lead: Opportunity, New, Open, Pending, Closed
 - My Sales Team(s)
 - My Case(s)
 - Extended Filters...
- Group By...**
 - ✓ Salesperson: Sales Team, Partner, Country, Company, Stage, Priority, Campaign, Channel
 - Year, Month, Day, Exp. Closing
- Custom Filters:**
 - ★ Save current filter
 - Advanced Search
 - Add to Dashboard

Figure 9.9: *Leads Analysis*

9.3 Optimizing your Sales Cycle through Opportunities

While a lead represents the first contact with a prospect yet to be qualified, a sales opportunity represents a potential contract. Each opportunity has to be followed up by a salesperson (or sales team) spending time to qualify the opportunity, and this either by making a quotation or cancelling the opportunity.

Leads are generally handled by the dozen, with the automation of certain responses or emails. Opportunities, on the contrary, are usually tracked one by one by the salespeople, because an opportunity involves a negotiation process with the customer to be.

Just like for leads, OpenERP provides specific features to handle sales opportunities efficiently. All opportunities can be found in the menu `Sales → Sales → Opportunities`.

With opportunities, you can manage and keep track of your sales pipeline by creating specific customer- or prospect-related sales documents to follow up potential sales. Information such as expected revenue, opportunity stage, expected closing date, communication history, next action date, next action, and much more can be stored.

Opportunities can be connected to the email gateway: new emails may create opportunities, each of them automatically gets the history of the conversation with the customer. You and your sales team(s) will be able to plan meetings and phone calls from opportunities, convert them into quotations, manage related documents, track all customer-related activities, and much more.

Tip:

Attachments

By default, you can keep attachments in OpenERP to make sure all linked documents are directly accessible. At the top side of the screen, under Attachments, click the Add button to start linking documents to your opportunity. You can add attachments in the same way for leads, for instance. If you also want those documents to be indexed (not for pictures), you should install the Knowledge Application.

9.3.1 Converting Leads into Customers or Opportunities

If the salesperson thinks that the lead has been well qualified and that there is a real opportunity, following the contact he had with the prospect, he can easily convert the lead into a partner / opportunity using the button *Convert to Opportunity*.

Clicking the *Convert to Opportunity* button offers several possibilities, allowing you also to avoid duplicate partners:

- You can decide to just create the opportunity and keep the contact data from the lead without creating a customer,
- You can convert to an opportunity, and create a new customer if it does not exist yet, or merge the contact with an existing customer,
- You first create a customer, and later you convert the lead to an opportunity.

Tip:

Convert to Opportunity

When you click the Convert to Opportunity button and the email address of the new contact is filled out, OpenERP will check whether this email address corresponds to an email address of an existing customer. If so, OpenERP will directly propose to merge the new contact with the customer found.

When you click the *Convert to Opportunity* button and the customer already exists, OpenERP opens a window allowing you to select:

- whether you want to create a new opportunity,
- whether you want to add this lead to an existing opportunity (merge).

OpenERP shows the title of the opportunity (taken from the lead description) and the partner.

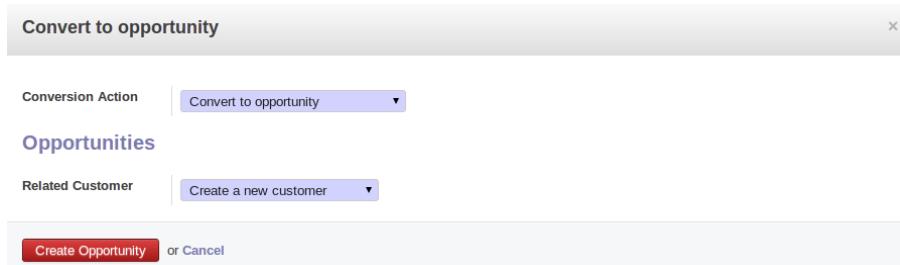


Figure 9.10: *Converting a Lead into a Sales Opportunity.*

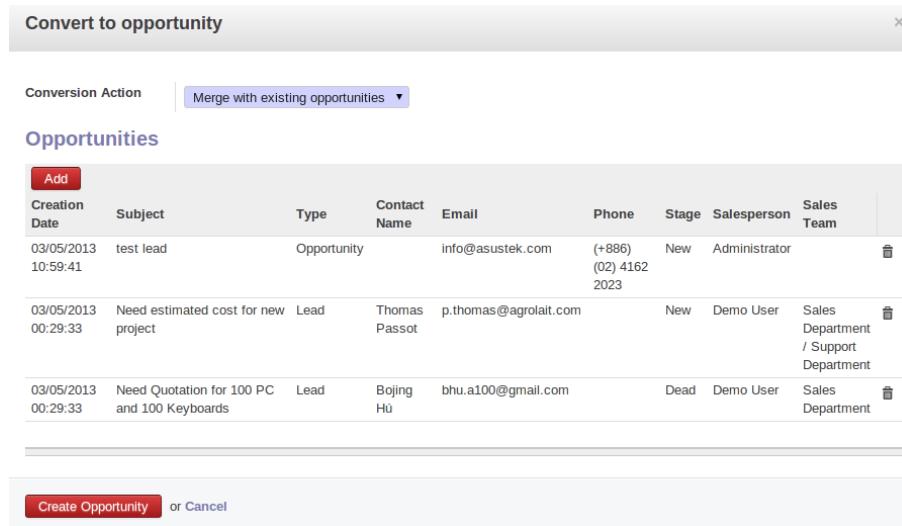


Figure 9.11: Convert to opportunity (merge with existing)

9.3.2 The Kanban View: Everything at a Glance

In order to improve the end user productivity, we developed a drag & drop kanban view for some documents. This new view allows users to easily reorganize their records while allowing them to maintain a global overview.

In kanban view of Opportunities where you can now pick between different stages in the kanban view: New, Qualification, Proposition, Negotiation, Won or Lost. This will help you understand and visualize better the status of your opportunities and decide what to tackle first.

As opposed to 6.1., when you access Opportunities in 7.0. there are no extra buttons or unnecessary tabs.

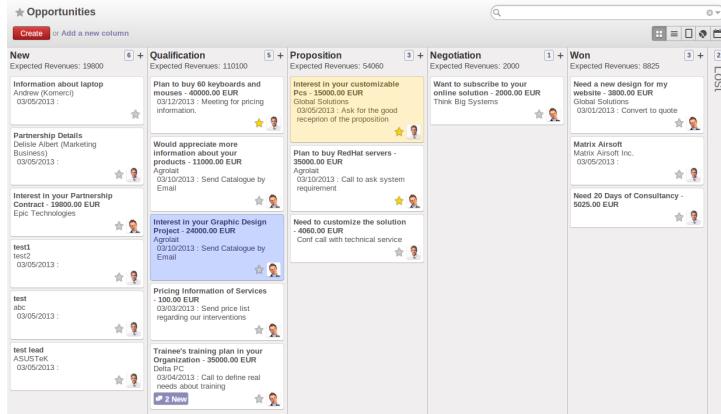


Figure 9.12: Kanban view of Opportunity

9.3.3 Adapting OpenERP to your Sales Organization

Your sales organization may be composed of several groups which for instance address different customer segments or geographies, sell different products and services and often manage different sales cycles. As a manager you will want to track the performance not only for each individual but also for each group.

OpenERP allows you to do that by defining *Sales Teams*. A sales team is a group of sales people who are performing a similar position. Implementing sales teams is a powerful tool. It allows you to:

- Assign leads or opportunities according to their nature to a sales team first. Then according to the company's policy, the opportunities can be assigned to a given individual. For example opportunities can be assigned

to a *Western Region sales team* or *Eastern Region sales team* in the first place according to their location. Each sales person may pick unassigned opportunities in his sales team according to his availability.

- You can group your sales teams according to a tree structure (hierarchy). This allows you to have a view of your sales activity at different granular levels (local, regional, national for instance),
- Some sales teams may manage their opportunities through different sales cycles. For instance a car dealership which addresses both the residential and corporate customers, will have different sales cycles.
- For each sales team, you can assign a responsible user and an email address that will be used when creating or replying to emails from OpenERP. This will be proposed by default in OpenERP when you create an event for this customer.

Note:

Sales Teams

To define your Sales Teams, go to Sales → Configuration → Sales Teams.

Let us take the example of a bank to explain how you can define your sales teams. A bank has several departments, such as Insurance, Accounts, Assets, Credit Management. Each department may be divided into several subdepartments. For Insurance, this could be Group Insurance and Home Insurance. The hierarchical structure of your Sales Teams could then be as follows:

- **Insurance Sales Team**
 - Group Insurance
 - Home Insurance
- Accounts Sales Team
- Assets Sales Team
- Credit Management Sales Team

9.3.4 Defining the Key Steps of your Sales Cycle

Each company will have similar, yet customized stages to qualify opportunities.

To see & define stages for Opportunity qualification, go to *Sales → Configuration → Leads & Opportunities → Stages*.

The key steps of your Sales Cycle are what OpenERP calls *Stages*. You can use the stages to improve your sales capacity, because they allow you to find out the reasons why deals succeed or fail.

Stages will allow salesmen to easily track where a specific opportunity is positioned in the sales cycle. One of the frequent difficulties in using stages is that different sales people may assess differently in which stage their sales opportunity should be. You can avoid this by clearly stating what you expect as a result for each stage. This way, your sales teams will use the same stages throughout the qualification process, allowing the sales manager to get accurate and consistent information. We also recommend to limit the number of stages in your sales cycle to make them easy to follow up.

As you progress in your sales cycle, and move from one stage to another, you can expect to have more precise information about a given opportunity. For example, when setting an opportunity as ‘Qualified’, you may decide that the salesman has to enter the “Expected Revenue” and the “Expected Closing Date.” You can also have the probability changed automatically when changing stages, by selecting the “Change Probability Automatically” checkbox. If checked, OpenERP will set the probability of the opportunity to the probability defined in the stage. If you set a probability of 0% (Lost) or 100% (Won), OpenERP will assign the corresponding stage when the opportunity is marked as Lost or Won.

As an example, to track your opportunities, you can assign the following stages to the sales team. For each stage, you assume you will define criteria that have to be met prior to moving to the next stage.

1. New - Segment your opportunities into territories.

2. Qualified – Attract the prospect's interest, determine whether the prospect has a need.

What is the expected result?

- The need to buy the product/service has been confirmed,
- Confirm that there is a budget.

3. Proposition – Discuss some solutions to determine the customer's preferences, recommend specific solutions to answer the customer's needs.

What is the expected result?

- Demo and/or Proposal given,
- Decision maker confirmed his interest to purchase,
- Preliminary pricing confirmed/agreed upon.

4. Negotiation – Submit the final proposal to the customer and begin the negotiation process.

What is the expected result?

- Negotiation concluded,
- Contract terms/conditions agreed upon,
- Contract submitted for signature.

5. Won/Lost – Register the final step of the opportunity.

What is the expected result?

- Contract signed / not signed,
- Next steps.

If you decide to add a stage, you will have to configure it with some basic information. In case you are really keen on states, we kept the state concept through the stage in order to associate your stage to a state (new, open, pending, close). You can do this by accessing the stage configuration form.

Stage Name	New	Related Status	New
Probability (%)	10.00	Type	Both
Change Probability Automatically	<input checked="" type="checkbox"/>	Sequence	0
Default to New Sales Team	<input checked="" type="checkbox"/>	Fold by Default	<input type="checkbox"/>
Requirements			

Figure 9.13: Example of Opportunity Stages

The stages are now conveniently placed on the top right hand of each of opportunity. In this way, you can easily change the status of the opportunity in just one click.

Plan to buy RedHat servers			
35000.00 € at 30%			
Customer	Agrolat virgine@agrolat.com	Next Action	03/10/2013 - Call to ask system requirement
Email		Expected Closing	03/12/2013
Phone		Priority	Highest
Salesperson	Demo User	Categories	<input type="checkbox"/> Product
Sales Team	Sales Department / Direct Marketing Escalate		
Internal Notes			
Lead			

Figure 9.14: Stages on Opportunity

OpenERP also has other sales configuration options; you can define your *Campaigns*, allowing you to keep track of the event your leads and opportunities refer to. Examples of campaigns are Google Adwords, an event you are hosting, a newsletter. With *Sales Tags* you identify your prospect's needs (e.g. Needs Training, Needs OpenERP Online), while *Channels* help you to keep visibility on how the lead or opportunity entered the system (email, website, referred by an existing customer).

9.3.5 Planning your Next Actions

When a lead has been converted into an opportunity, the latter can be assigned to any salesperson. You might designate an opportunity manager in the company who is responsible for assigning the new opportunities to different salespeople according to the job they do, their location or availability.

Of course, OpenERP allows you to automate such steps in your sales cycle. With *Automated Rules* you can tell the system for instance to automatically assign opportunities to a sales person or to change the status of an opportunity according to specific criteria.

Note:

Automated Actions

To access the CRM rules, use the Settings → Technical → Automated Actions → Automated Actions menu.

Let's give an example of what you can use Automated Actions for. Suppose you want to have OpenERP assign opportunities for customers in the IT Services category directly to Thomas, your IT salesperson. Thomas should be assigned automatically when a lead is converted to an opportunity by clicking the *Convert to Opportunity* button in the *Leads* screen. This can be set through the *Object* field in the *Automated Actions* form; just select *Lead To Opportunity Partner*.

The screenshots below illustrate how you can tell OpenERP to do this automatically for you.

Step 1

The screenshot shows the 'Automated Actions' configuration interface. At the top, it says 'Set Auto Reminder on leads which are not open since 5 days.' Below this, there are tabs for 'Save' and 'Discard'. On the right, there are navigation icons and a page number '1 / 2'. The main area is titled 'Rule Name' with the value 'Set Auto Reminder on leads which are not open since 5 days.' Underneath, there are sections for 'Related Document Model' (set to 'Lead/Opportunity'), 'Active' (checked), 'Sequence' (set to 1), and 'Conditions' (selected). The 'Actions' tab is also visible. In the 'Filter Condition' section, there are two dropdowns: 'Before Update Filter' (set to 'Leads from USA') and 'After Update Filter' (set to 'Draft Leads'). In the 'Timer' section, there are two dropdowns: 'Trigger Date' (set to 'Creation Date') and 'Delay After Trigger Date' (set to '5 Days'). Below these sections, there is a note about precondition filters and instructions for creating a new filter. At the bottom, it says 'The filter must therefore be available in this page.'

Figure 9.15: Conditions Tab of Automated Actions

Step 2

The screenshot shows the configuration of an automated action in OpenERP. The rule is titled "Set Auto Reminder on leads which are not open since 5 days." It is associated with the "Lead/Opportunity" document model and has an active sequence of 1. The "Fields to Change" section includes a "Set Responsible" field. The "Server actions to run" section contains one action: "5 Reminder to User" with an "Action Type" of "Email".

Figure 9.16: Actions Tab of Automated Actions

Planning your next actions also refers to filling fields or performing actions manually, without interference of automated rules. It is important that you fill all the opportunity fields accurately. To ensure good follow-up and prioritise your opportunities, make sure to register the Next Action Date and the Next Action in the Opportunity.

You can use the filters to group by Priority and then click the Next Action Date column to sort by next action date to easily follow up your opportunities and know exactly what you have to do.

9.3.6 Planning your Meetings & Calls Effectively

Planning your meetings & calls does not only allow you to structure your work, but also to improve your sales skills by learning from your call & meeting history. For both Meetings & Calls, you can enter a complete report of what you discuss!

As explained in chapter *crm-flow*, you can schedule a meeting directly from an opportunity. When you create a meeting from an opportunity, related fields will be prefilled from the opportunity. For the ease of reading, Thomas will schedule a new meeting from an opportunity here and set Luc, the Sales Manager, as the person responsible for the meeting. He wants to send Luc a reminder 1 day before the meeting starts.

Note:

Schedule a Meeting from an Opportunity

To plan the meeting, Thomas clicks the Meeting button in the **Opportunity** and clicks the Week button in the Calendar view. He uses the drag and drop function to schedule the meeting for Luc. He plans the meeting next Wednesday from 2 pm to 3 pm. He sets Luc as the person responsible and sets a reminder to be sent 1 day before the start of the meeting. He also changes the Next Action Date in the opportunity to the meeting date.

You can also schedule a meeting directly from a **Customer** form by clicking the *Meetings* button. If you stay in the Month view of the Calendar, you just have to click the day you want the meeting to be planned, let's say Thursday in two weeks. A meeting form will be displayed, with the name of the customer and the date prefilled.

In the **Meeting** window, enter the meeting data such as meeting subject, Attendees, Tags. In the weekly and daily views, you can also press the left mouse button in the calendar and slide the mouse along to create an event of several hours. OpenERP then opens an entry screen for a new meeting. You can add reminders (or Alarms) to your meetings and send invitations, either to persons from your own company, partner contacts or external people (just specify the email address directly in the invitation).

Tip:**Alarms or Meeting Reminders**

Add your own alarms through Sales → Configuration → Calendar → Alarms. You might want to be warned one week in advance of the meeting, so all you have to do is create your own alarm. The screenshot below will show you how to do this.

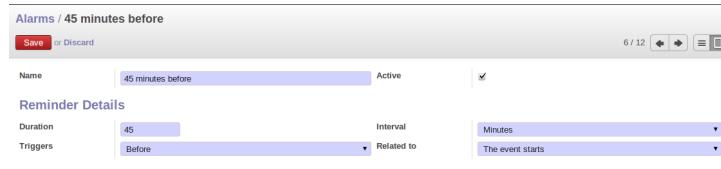


Figure 9.17: Defining your Own Alarms

Add events through Sales → Configuration → Calendar → Events

Figure 9.18: Entering a new Event

You can filter the My Events by selecting them from the list at the right of the screen.

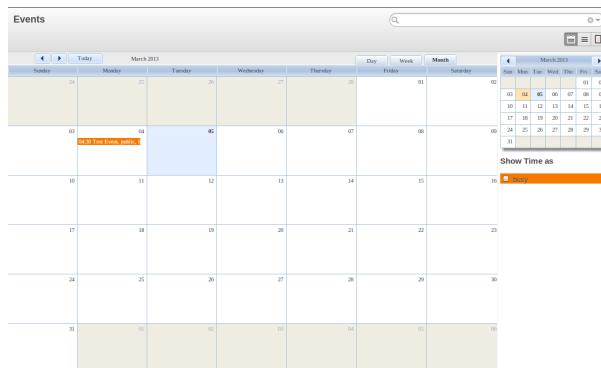


Figure 9.19: Monthly Meeting Calendar

Weekly meeting Calendar seems like following screenshot.

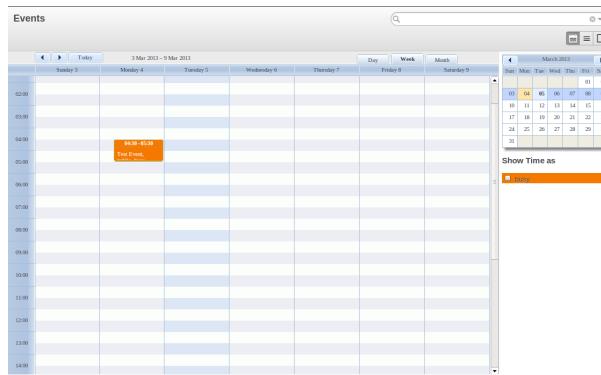


Figure 9.20: Weekly Meeting Calendar

You can change the Calendar view for meetings and return to the list, form view by using the buttons at the top right. OpenERP's usual search tools and filters enable you to filter the events displayed in the calendar or, for example, to display the calendar for only some employees at a time.

Tip:

Related Responsible

When you hover your mouse cursor over a meeting in Calendar view, the related responsible will be displayed.

Of course, you can access this OpenERP calendar from your smartphone. For more information about this feature, please refer to chapter *ch-sync1*.

OpenERP also allows you to manage incoming (*inbound*) and outgoing (*outbound*) calls. Even from the **Phone Calls** list view, you can directly edit a call (change the status, convert it to an opportunity or schedule a meeting). For every call, you can enter notes about the outcome. While on the phone with your prospect or customer, you can directly schedule a meeting, schedule another call or convert your call to an opportunity. There is no need for you to scroll to several menus to do what you have to: plan an action as a result of your call.

Call management may be used for other needs than planning, such as:

- Entering customer calls so that you keep a record of the communication attached to a partner or a sales opportunity,
- Calling out to large lists of prospects,
- Scheduling recurring calls or next actions.

Note:

Schedule a Phone Call directly

Go to Sales → Phone Calls → Scheduled Calls to register incoming calls or Outbound to register outgoing calls.

Of course, OpenERP also allows you to schedule a phone call directly from an **Opportunity** form through the related **Schedule/Log Call** button.

Note:

Phone Calls in Meeting Calendar

To have one calendar with both your meetings and your phone calls, you may choose to enter phone calls as a meeting, with a specific meeting Tags, Phone Call.

9.3.7 Scheduling Closing Dates

To keep track of the coming sales pipeline, you should enter the expected closing date for each opportunity. By doing this, from the **Opportunities** screen you can easily filter your pipeline by Exp. Closing (button in Group by). This is a clear way to forecast the expected revenues. You can also use this filter to check whether the expected closing date has been set.

Simply by adding an expected closing date, the sales team can manage the sales process more efficiently and effectively.

The screenshot shows the OpenERP Opportunities module. On the left, there is a list of opportunities with columns for Group, Creation Date, Opportunity, Customer, Next Action Date, and Next Action Type. The list includes several entries with details like 'Plan to Attend a Training' for Jason Dunagan (Le Club SARL) on 03/04/2013 at 16:49:24. On the right, there is a sidebar with various filtering and grouping options. Under 'Filters', there are checkboxes for 'New', 'In Progress', 'Won', 'Lost', 'Unassigned', 'Unread Messages', 'Assigned to Me', and 'Assigned to My Team(s)'. Under 'Group By...', there are checkboxes for Salesperson, Team, Stage, Customer, Country, Priority, and 'Expected Closing' (which is checked). Under 'Display', there are checkboxes for 'Show Sales Team' and 'Show Countries'. At the bottom of the sidebar, there are links for 'Custom Filters', 'Draft Leads', 'Leads from USA', 'Save current filter', 'Advanced Search', and 'Add to Dashboard'.

Figure 9.21: *Closing Dates*

9.4 Managing your Indirect Sales

OpenERP will help you to manage your Channel Partners. You can geolocalize your opportunities by installing typing `crm_partner_assign` module from module list. The module will be installed and the menus *Sales → Configuration → Leads & Opportunities → Partner Grade* and *Reporting → Sales → Opp. Assignment Analysis* will be added.

9.4.1 Forwarding Opportunities to Channel Partners

You can use geolocation to assign and forward opportunities to channel partners.

Through *Sales → Configuration → Leads & Opportunities → Partner Grade*, you can create partner grades to classify your partners, such as Gold Partner, Silver Partner, Ready Partner. These grades will be used to determine who gets assigned which kind of opportunities.

Assign the Partner Level on the *Geo Localization* tab of the Customer form. Also assign a *Weight* to determine the probability of assigning opportunities to a partner. The weight might for instance be how much the partner pays for their channel partner contract.

How can you tell OpenERP to geolocalize an opportunity?

Either you convert a promising lead to an opportunity, or you go directly to the opportunity you wish to assign to the channel partner. Go to the *Assignment* tab of the **Opportunities** form, and click the *Geo Assign* button. The location of the partner in the opportunity will be matched with the geolatitude and the weight of the channel partners. The most appropriate channel partner will be assigned.

For Example, customer(Agrolait) has 2 partners, Michel Fletcher and Thomas Passot in his region. Now, suppose opportunity(Interest in product) has customer Agrolait, and now go to *Assignment* tab. After clicking *Geo Assign* button, Assign Partner field shows Michel Fletcher, because Michel Fletcher is one of the partner of Agrolait in

nearest region, so it shows that result. The following image shows this example,

The screenshot shows the 'Interest in product' view in OpenERP. At the top, there are buttons for 'Edit', 'Create', 'Attachment(s)', 'More', 'Mark Won', 'Mark Lost', 'Convert to Quotation', and 'New'. The main area displays customer information: Agrolait, info@agrolait.com, +32 10 588 558, Salesperson: Administrator, Sales Team: Sales Team. It also shows next action: Expected Closing Priority, Normal. Below this, tabs include 'Internal Notes', 'Tasks', 'Lead', 'Assigination' (which is selected), and 'Fund Raising'. The 'Partner Assignment' section shows Michel Fletcher (Agrolait) assigned on 03/08/2013, with a 'Forward' button. The 'Geo Assignment' section shows Geo Latitude 50.71 and Geo Longitude 4.61, with a 'Geo Assign' button.

Figure 9.22: Assigination of Partner

Note:

GPS

You can also use the geolocalisation without GPS coordinates.

Now you can decide whether this is the correct channel partner for this opportunity. If you feel that another channel partner would be better to follow up this opportunity , you can change the assigned channel partner.

To automatically inform the channel partner of the new opportunity, proceed as follows.

Click the **Forward** button to automatically send an email to the assigned partner with all the details of the opportunity and the prospect. When forwarding an opportunity to a partner, you can select which information you want to send: Latest email, Whole Story or Case Information. You can add a cc and add attachments to the mail. You can send the mail to the partner (any contact person you want), to an OpenERP user or to an email address you specify.

To allow your salespeople to keep a view on forwarded opportunities, the assigned opportunity will be displayed for the selected channel partner on the *Geo Localization* tab of the **Customer** form.

Use the **Opportunity Assignment Analysis** for your reporting, you can use the menu Reporting → Sales → Opp. Assignment Analysis.

9.4.2 Geolocalization of a Partner

To determine the geographic location of your partners, you do not have to enter the GPS coordinates yourself. OpenERP can do this for you. All you have to do is click the **Geo Localize** button in the **Customer** form. The GPS coordinates will now be filled according to the address of the partner.

In the partner form, the *Geo Localization* tab gives you the information you need.

As explain in above example of Assign Partner , assign partner is Michel, so he has this opportunity and it is

shown in following image.

The screenshot shows the 'Geo Localization' tab selected under 'Partner Activation'. It displays partner details like level (Gold Partner), activation weight (5), and review history (Latest Partner Review: 03/01/2013, Next Partner Review: 03/14/2014, Partnership Date: 03/01/2013). The 'Geo Localization' section includes a 'Geo Localize' button and shows coordinates (50.71, 4.61) from 03/08/2013. Below is a kanban view of communication records:

Creation Date	Subject	Type	Stage	Salesperson	Status
03/08/2013 16:34:02	Interest in product	Opportunity	New	Administrator	New

Figure 9.23: *Geolocalizing a Partner*

9.5 Keeping Track of your Communications

9.5.1 Tracking your Customer's History

Information related to leads & opportunities, meetings, phone calls, sales and purchase, marketing campaigns and emails will be tracked in OpenERP. You can see all above information of customer in its kanban view, it seems like follow.

The screenshot shows a grid of customer entries:

- Agrolait**: Components Buyer, Partner / IT Services. 4 Opportunities, 2 Meetings, 2 Sales. Wave, Belgium. info@agrolait.com
- Axelor**: Partner / Gold, Services. Champs sur Marne, France. info@axelor.com
- Benjamin Flores**: Business Executive at Nebula Business. Rosario, Argentina. ben@nebula.ar
- Angel Cook**: General Manager at Chamber Works. Detroit, United States. angel.cook@chamberworks.com
- Ayaan Agarwal**: Director at Best Designers. Mumbai, India. info@bestdesigners.in
- Best Designers**: Partner / Bronze, Partner / IT Services. Mumbai, India. info@bestdesigners.in
- Bank Wealthy and sons**: Consultancy Services, Partner / Gold. 2 Sales. Birmingham, United Kingdom. email@wealthyandsons.com
- Brian Williams**: Computer Technician at Delta PC. Fremont, United States. info@delatpc.com
- Arthur Gomez**: Software Developer at Spark Systems. São Paulo, Brazil

Figure 9.24: *Customer Kanban view*

From above example , you can see 4 opportunities , 2 Meetings , 2 Sales. You can click on any one of them and will find the related information. The other option for view the customer information is , in customer form view , you can see the buttons related it in upper right side of the corner.

The activities are automatically reported in the form of the customer. To have a complete overview of the activities for a customer, all you have to do is open the **Customer** form and click the *History* tab. As you will notice in the screenshot below, this is not merely a report. This tab contains informations like tasks, events , Registrations , Campaigns . From this tab, you can also plan new activities for the customer or change existing

activities!

The screenshot shows the 'Customers / Agrolait' screen in OpenERP. At the top, there are buttons for 'Edit' and 'Create', and tabs for 'Print', 'Attachment(s)', and 'More'. On the right, there are buttons for 'Meetings', 'Calls', 'Opportunities', 'Quotations and Sales', and navigation icons. The main area is divided into sections:

- Address:** 69 rue de Chimay, 1300 Wavre, Belgium. Website: <http://www.agrolait.com>. Phone: +32 10 588 558. Mobile: . Fax: . Email: info@agrolait.com
- Tasks:** A table showing a task: 'Develop module for Warehouse' assigned to 'Administrator' with a deadline of '03/07/2013'.
- Events:** A table with columns 'Event' and 'Main Speaker'.
- Registrations:** A table with columns 'Date', 'Event', 'Number of Participants', and 'Status'. One entry: '03/08/2013 23:30:00' for 'Opera of Verdi (2013-03-08 - 2013-03-09)' with 5 participants, status 'Unconfirmed' (red dot).
- Campaigns:** A table with columns 'Campaign', 'Segment', 'Activity', 'Resource Name', 'Partner', 'Execution Date', and 'Status'.

Figure 9.25: History of Activities in a Customer Form

9.5.2 Tracking Sales Orders

After intensive opportunity qualification, your customer asks you to make a quotation. You can easily do this from the corresponding opportunity! Just click the Convert to Quote button and OpenERP will create a sales quotation ready for you to be edited. A sales quotation is an unconfirmed sales order. On the quotation, the Source document it was created from (in this case the opportunity) is displayed, to allow you to keep track of which opportunity is linked to which sales quotation / order.

To review the quotation later, you can access it from the *Sales → Sales → Sales Orders* menu. On the *Other Information* tab of the sales quotation, you can find the source document to the related sales quotation / order that has been created from the opportunity concerned.

For more information about sales orders, please refer to the chapter *part4-crm-sales*.

9.5.3 Storing Attached Documents

For any object in OpenERP, for instance a lead, opportunity, customer, you can attach external documents. Suppose you send a product folder to one of your customers, and to make sure you know exactly which version of the document he received, you can keep it as an attachment in OpenERP.

To attach whatever type of document to the customer, you just have to go to the *Sales → Customers* menu.

Open the Customer form of the selected partner, and click the *Add* button in the Action bar, just below *Attachments*. Then navigate to the location where the product folder is stored, just like you would do in your file explorer. Click the product folder, and then confirm.

The product folder is now stored in OpenERP as an attachment for the customer. You can open it by clicking the document in *Attachments*.

OpenERP allows you to add as many attachments as needed. Combined with the *Knowledge* application, OpenERP will index documents of the type .doc, .pdf, .sxw and .odt, so that you can effortlessly search through their content.

Note:

File Storage

If you do not install the Document Management system (Knowledge application) then the attachments in OpenERP are stored directly in the database. Once the document management system has been installed, the contents of the files are no longer stored in the database, but on the OpenERP server file system.

You can then read and add attachments to OpenERP quite independently of the OpenERP interface or the FTP server using simple drag and drop.

For more information about the Knowledge and Document Management System, please refer to the online documentation.

9.6 Analysing your Sales Performance

9.6.1 Organizing Sales Funnel Reviews

Through the **Opportunities Analysis**, *Reporting → Sales*, you can keep track of your sales funnel. The analysis report gives you instant access to your opportunities displaying information such as planned revenue, probable revenue, overpassed deadline or the number of interactions per opportunity. This report is perfect for the Sales Manager to periodically review the sales pipeline with the salesteams concerned.

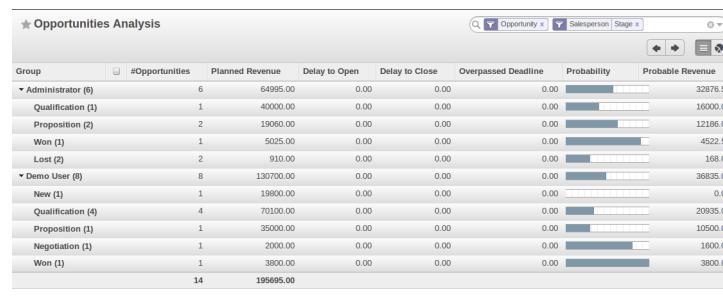


Figure 9.26: *Sales Funnel Review*

The powerful *Advanced Search View* allows you to customize your analysis reports by using *Group by features*.

You can select specific options to filter your opportunities. For example, when you select a partner here and type partner name, only opportunities related to that specific partner will be displayed.

You can also filter the information of an opportunity according to the *Group by* features. Suppose you want to analyse your opportunities by campaign and by salesperson. When you open the **Opportunities Analysis** screen, you will notice that the opportunities are by default grouped by salesperson (see *Salesperson* button in the *Group by area*).

Since you want to group by *Campaign* first, click the *Salesman* button to uncheck it. Just click the *Campaign*

button, then click *Salesperson* to get the report you want.

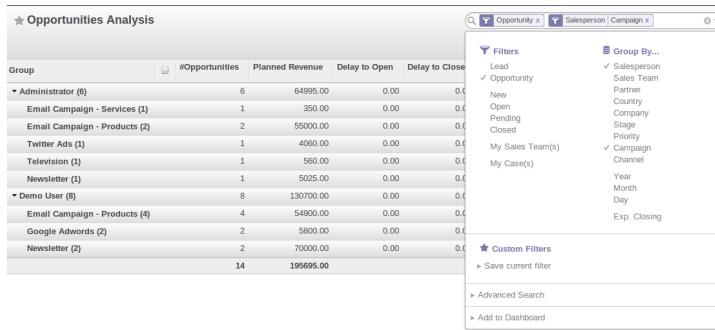


Figure 9.27: *Opportunities Analysis*

Some examples of how you could use the **Opportunities Analysis** report to analyse your opportunities in various ways.

- 1. Customers with Open Opportunities:

Group by *Partner*, check the *Open* to provide a list with the customer names and the number of draft / open opportunities.

- 2. Closed Opportunities:

Check the *Closed* on filters, then group by *State*, then by *Stage* to display a list of closed opportunities divided by stage (lost and won).

- 3. Opportunity Sources:

The number of opportunities can be displayed by closing date and sales stage, including Planned Revenue. Select only the Closed opportunities, group by Date, then by Stage to obtain this view.

- 4. Opportunity Pipeline:

To get an idea of what your salesperson's pipeline is like (or sales team), including the planned sales volume, select the Open and group by Salesman (or Sales Team).

- 5. Opportunities by Category:

Click the *Graph* button in the Opportunities screen to display the report as a Graph.

Tip:

Graph

You can also display the **Opportunities Analysis** screen as a graph.

DRIVING YOUR MARKETING CAMPAIGNS

10.1 Lead Automation with Marketing Campaigns

OpenERP offers a set of modules allowing you to easily create and track your Marketing Campaigns. With the **Marketing** application, you define your direct marketing campaigns, allowing you to automate your lead communication. You can install it by installing the marketing module from the list of modules.

Campaigns can be displayed in List or Diagram view. The Diagram view allows you to clearly see the marketing actions (represented by a node) and the applied conditions (represented by an arrow).

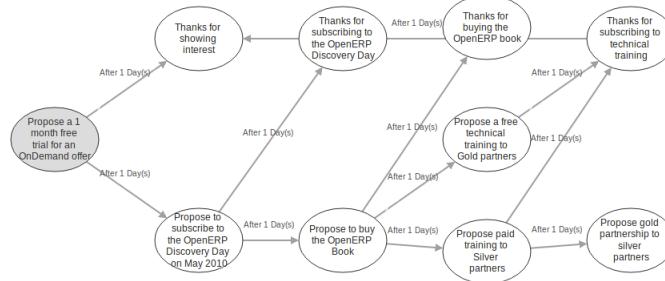


Figure 10.1: Diagram View of a Campaign

A marketing campaign is an event or an activity that will help you manage and reach your partners with specific messages. A campaign can have many activities that will be triggered from a specific situation, for instance a response from a contact to an email you sent. The result of such a response (action) could be the sending of an email, for which a template has previously been created in OpenERP.

To use the email functionality, you have to configure your email account. This is explained in the chapter *ch-crm-fetchmail-install*.

10.1.1 Example of a Complete Marketing Campaign

Suppose we are an insurance company that wants to launch a marketing campaign to generate new leads. The company launches a campaign on its website and proposes potential customers to get a free offer for their car insurance.

Each time a customer registers himself through the contact form, a lead is created in OpenERP. For further information about web contact forms, please refer to the chapter *Automating your Lead Acquisition*.

The salesperson responsible for Car Insurances triggers the marketing campaign by sending an introductory email of all the insurance services we offer and thanking for subscribing for the free Car Insurance Offer.

Based on the response, the insurance company plots whether the lead is interested in:

- Buying a Car Insurance,
- Information about other Insurance policies,
- Buying the book about Keeping your Children Safe.

According to the replies we receive from the leads, we send an email catering their respective needs.

- If they respond back to such an email, the lead is converted into an opportunity. When the lead buys a car insurance, the lead becomes our partner and is created as a customer in OpenERP.
- If we do not receive an answer, they get a reminder regarding the offer a week later. If they still do not answer, our salesperson gives a voluntary call to ask about their needs.

See it as a flowchart allowing us to trigger a respective activity for every possible cue. The chances of leads going unattended become very low, and for every lead, we have a predefined method of handling it.

Moreover, we can measure the method according to our goals. Based on the goals we can evaluate the effectiveness of our campaign and analyze whether there is room for improvement.

Tip:

Campaign Example

To get an example of a complete campaign in OpenERP, you can install the `marketing_campaign_crm_demo` module or you can also go to `Settings → Configuration → Marketing` tick the Marketing Campaigns and Demo Data for Marketing Campaigns then click on `Apply...`

10.1.2 Designing your Campaigns

Designing a marketing campaign is mostly a long term process and the success of any campaign depends on the research and the effectiveness in selecting your target audience for the campaign. There are certain questions that every marketeer always asks while designing a campaign.

- What would be our marketing campaign?
- Who would be the target audience?
- How would we measure the effectiveness of our campaign?

The OpenERP campaign is based on the principle of *lead automation*. A lead is created according to a specific response by a customer towards a stimulus. An example: filling the car insurance calculator on your website may create a lead in OpenERP.

The first step is to define the campaign, i.e. the sequence of steps to be performed. By defining the campaign, we trigger a set of activities in the **Marketing Campaign** application of OpenERP.

From the lead automation, we define the sequence of steps we ought to follow, the modes of creating and processing these activities and the cost involved in this campaign. After each activity and based on its respective stimuli, we can trigger the next event of the campaign concerned.

10.1.3 Segmenting your Campaigns

The two most important points for any successful campaign are the adoption of a concrete methodology of execution and choosing the right segment: a target loop of customers to whom our campaign would be directed (i.e. your target audience). Inappropriate focus on the wrong segment would result in the campaign being misfired and our efforts would reach deaf ears.

Through the *Segment* in the **Campaign** module, we can define our segment for each Campaign activity. Indeed, it is perfectly well possible that with every step downwards, the segment gets narrowed in terms of number. You can also synchronize the entire campaign steps according to the defined segments.

Our insurance company wants to attack the Spanish market, and will define a segment called Spanish Leads. Of course you would want your segment to be valid for leads coming from Spain only. To achieve this, go to the **Leads** list view. Filter all the leads for Spain (type *Spain* in the *Search box* and filter by country), make sure to uncheck the salesteam, so that all leads coming from Spain will be selected. Then click *Save Filter* in Custom Filters and call it for instance *Spanish Leads*. Now return to the **Campaigns** menu and open the *Segment*, then click the *Filter* field to select *Spanish Leads*. The segment will now only apply to Spanish leads.

As you can see, the **Marketing Campaign** module is closely synchronized with the **Customer Relationship Management** Business Application. Let us consider the segment we cater in the campaign as Leads in OpenERP. Goals are set for each campaign, which would be considered as a desired state. Once a lead meets our objective criteria of goals, we change the lead status by converting it into an **Opportunity**, meaning that we should give focused attention.

Once the lead satisfies our final objective, we would consider it as a partner/customer and close that lead.

10.1.4 Email Templates

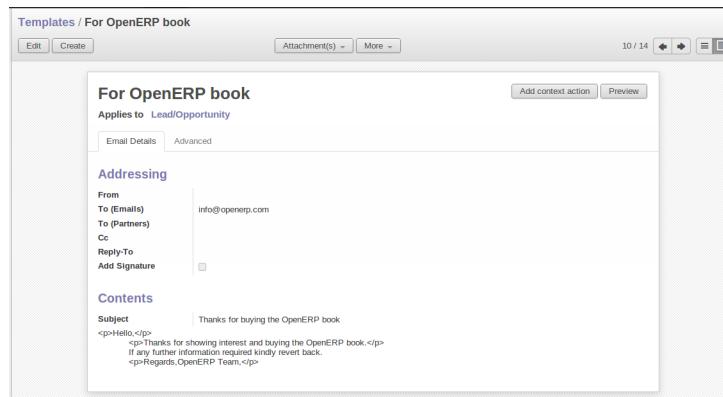


Figure 10.2: *Email Template*

OpenERP allows you to create your own email templates. You can configure your email template(s) from the **Settings → Technical → Email → Template**. You can use the Expression Builder to have the variables created for you. Suppose you would like to add the Contact Name in the email, but of course, this will be a different name for each email.

In the Dynamic Value Builder, in **Field**, select Contact Name. Automatically, the Placeholder Expression will be filled. Copy the value from the expression and paste it in your email, e.g. Dear \${object.contact_name}. So your email will start with Dear followed by the name of the contact. This way you automatically create personalized emails.

For each email template, you can have OpenERP generate a Action / Button that will be related to the object. So if you choose to do marketing campaigns for leads click on *Add context action* button of Email template form, the action will be added to the top panel of the **Lead** form.

Tip:

Configuring Marketing Campaigns

Please notice that it requires some technical knowledge to configure Marketing Campaigns. To be able to see, create, edit campaign, users need to be in the Marketing / User group.

10.1.5 Setting up your Marketing Campaigns

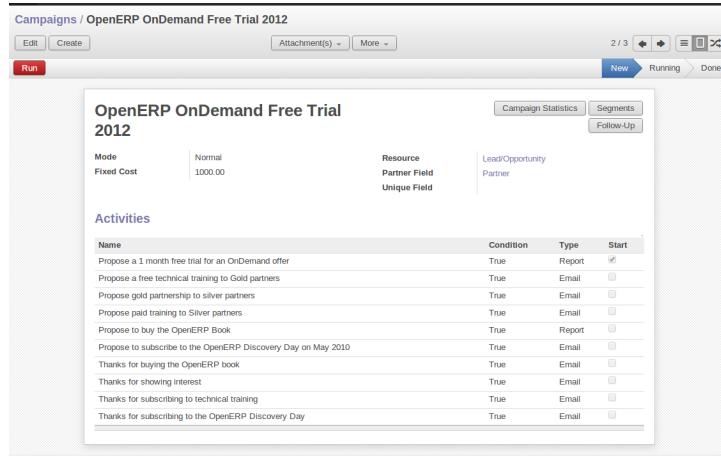


Figure 10.3: *Marketing Campaign*

0. Introduction

A campaign defines a workflow of activities that items/objects entering the campaign will go through. Items are selected by segments. Segments are automatically processed every few hours and inject new items into the campaign, according to a given set of criteria. It is possible to watch the campaign as it is running, by following the campaign “workitems”. A workitem represents a given object/item passing through a given campaign activity. See it as a step that still can go either way. Workitems are left behind when the item proceeds to the next activities. This allows an easy analysis and reporting on the running campaign. Each activity may execute an action upon activation depending on a dynamic condition. When the condition is not met, the workitem is cancelled/deleted; if the condition is met, the action is executed, the workitem is marked as Done, and propagated to the next activities.

1. Campaigns (*Marketing* → *Campaigns* → *Campaigns*)

Campaign Each campaign is made of activities and transitions, and must be defined on any specific object the system knows about (e.g. Leads, Opportunities, Employees, Partners).

Mode: A campaign can be in one of 4 modes

- *Test Directly*: processes the whole campaign in one go, ignoring any delay put on transitions, and does not actually execute the actions, so the result is simply the set of corresponding campaign workitems (see below). Any time a segment adds new items in the campaign they will be processed in the same manner.
- *Test in Real time*: processes the campaign but does not actually execute the actions, so the result is simply the set of corresponding campaign workitems. Any time a segment adds new items in the campaign they will be processed in the same manner.
- *Manual confirmation*: No action will be executed automatically, a human intervention is needed to let workitems proceed into the flow. It is like a step-by-step manual process using the Campaign Followup menu. You can ignore the time delays and force any step of the campaign, implementing the campaign at your pace i.e. (you have a test email and want to see if the steps and templates do exactly what you want them to do). You will see that the actions set are defined as To Do and Done and the page has to be refreshed to see the next activities defined by the campaign node: the campaign sends real messages to the actual targets, be warned.
- *Normal*: the campaign is processed normally, all actions are executed automatically at the scheduled date. Pay attention that in this status, the campaign sends real messages to the actual target audience.

Regardless of the current mode of the campaign, any workitem can be manually executed or cancelled at any time (even if it is scheduled in the future) through *Campaign Followup*.

Resource

Specifies where the campaign will get the information from, i.e. the OpenERP object linked (e.g. Leads, Opportunities, Employees, Partners).

Activities

Activities are steps in the campaign. Each activity is optionally linked to previous and next activities through transitions.

Each activity has:

- one optional condition that stops the campaign,
- one action to be executed when the activity is activated and the condition is True (could be a ‘do nothing’ action),
- one optional signal (ignore it),
- a start flag.

Start Activity

Activities that have the Start checkbox set, will receive a new workitem corresponding to each new resource/object entering the campaign. It is possible to have more than one Start Activity, but not less than one.

Activity Conditions

[a Boolean expression, made of clauses combined using boolean operators: AND, OR, NOT] Each condition is the criterion that decides whether the activity is going to be activated for a given workitem, or just cancelled. It is an arbitrary expression composed of simple tests on attributes of the object, possibly combined using *or*, *and* & *not* operators.

The individual tests can use the “object” name to refer to the object/resource it originates from (e.g the lead), using a “dot notation” to refer to its attributes. Some examples on a CRM Lead resource:

- `object.name == 'Insurance Offer Lead'` would select only leads whose title is exactly “Insurance Offer Lead”,
- `object.state == 'pending'` would select Pending leads only,
- `object.country_id.code == 'be'` would select leads whose country field is set to Belgium,
- `object.country_id.name == 'Belgium'` would select leads whose country field is set to Belgium.

Tests can also use a ‘workitem’ name to refer to the actual item denoting the position of the object in the campaign. This can be useful to access some specific attributes, such as the segment that selected this item. Some examples:

- `workitem.segment_id.name == 'Insurance Offer EU Zone1 - Industry Consulting/Technology'` would select leads that entered this campaign through the “Insurance Offer Lead EU Zone1 - Industry Consulting/Technology” segment,
- ‘EU Zone1’ in `workitem.segment_id.name` would select only leads that entered the campaign through a segment that has “EU Zone1” in its name.

Tip:

Help

In the Web client you can use “User > About OpenERP > Active the developer mode ” to see the attribute name of every field in a form. These are the same that you can use during import/export with CSV files.

You can also use the special formula `re.search(PATTERN_TO_SEARCH, ATTRIBUTE_TO_SEARCH)` where `PATTERN_TO_SEARCH` is a character string delimited with quotes, and `ATTRIBUTE_TO_SEARCH` uses the dot notation above to refer to a field of the object. An example for CRM leads:

- `re.search('Plan to buy: True', object.description)` would be true if the Notes on a Lead contain this text: “Plan to buy: True”. Be careful that all spaces etc. do matter, so you may use the special pattern characters as detailed at the bottom to account for small variations,

- `re.search('Plan to.*True', object.description)` would be true if the Notes on a Lead contain this text: “Plan to” followed later on by “True”.

You can combine individual tests using boolean operators and parentheses. Some examples on a CRM Lead resource:

- `object.state != 'pending' and (re.search('Plan to by:.*True',object.description) and not re.search('Plan to use:.*True',object.description))` would be true if the lead is NOT in Pending state and it contains “Plan to buy”, but not “Plan to use”.

Guidelines for Creating a Campaign

- It is a good idea to have an initial activity that will change some fields on the objects entering the campaign to mark them as such, to avoid mixing them in other processes (e.g. set a specific state and Sales Team on a CRM lead being processed by a campaign). You can also define a time delay so that the campaign seems more human (note if the answer comes in a matter of seconds or minutes it is computer generated).
- Put a stop condition on each subsequent activity in the campaign to get items out of the campaign as soon as the goal is achieved (e.g. every activity has a partial condition on the state of the item, if CRM Leads stops being Pending, the campaign ends for that case).

2. Email Templates (*Settings → Technical → Email → Template*)

Email templates are composed of the following information:

- The Email headers: to, from, cc, bcc, subject
- The raw HTML body, with the low-level markup and formatting
- The plaintext body

Headers and bodies can contain placeholders for dynamic contents that will be replaced in the final email with the actual content.

3. Campaign Segments

Segments are processed automatically according to a predefined schedule set in the menu *Setting → Technical → Scheduler →Scheduled Actions*. It could be set to process every 4 hours or every minute for example. This is the only entry point in a campaign at the moment.

Segment filters

Segments select resources via filters, exactly the same kind of filter that can be used in advanced search views on any list in OpenERP. You can actually create them easily from any OpenERP screen allowing you to save filters. Save your advanced search criteria as a new filters and add them to the segment in the *Filter* field. Filters mainly consist in a domain expressing the criteria of selection on a model (the resource). See section 10.3 for more information on the syntax for these filters.

For Leads, the following filter would select draft Leads from any European country with “Plan for use: True” or “Plan for buy: True”

```
[ ('type','=','lead'), ('state', '=', 'draft'), ('country_id.name', 'in', ['Belgium', 'Netherlands', 'Luxembourg', 'United Kingdom', 'France', 'Germany', 'Finland', 'Denmark', 'Norway', 'Austria', 'Switzerland', 'Italy', 'Spain', 'Portugal', 'Ireland',]), '|', ('description', 'ilike', 'Plan for use: True'), ('description', 'ilike', 'Plan for buy: False') ]
```

4. Miscellaneous References, Examples

4.1 Reference of Comparison Operators:

- `==`: Equal
- `!=`: Not Equal
- `<`: Bigger than
- `>`: Smaller Than

- <=: Bigger than or equal to
- >=: Smaller than or equal to
- in: to check that a given text is included somewhere in another text. e.g “a” in “dabc” is True

4.2 Reference of Pattern/Wildcard characters

- . (dot) represents any character (but just one)
- * means that the previous pattern can be repeated 0 or more times
- + means that the previous pattern can be repeated 1 or more times
- ? means that the previous pattern is optional (0 or 1 times)
- .* would represent any character, repeated 0 or more times
- .+ would represent at least 1 character (but any)
- 5? would represent an optional 5 character

4.3 Reference of filter domains

Generic format is: [(criterion_1), (criterion_2)] to filter for resources matching both criterions. It is possible to combine criterions differently with the following operators:

- ‘&’ is the boolean AND operator and will make a new criterion by combining the next 2 criterions (always 2). This is also the implicit operator when no operator is specified.
 - for example: [(criterion_1), ‘&’, (criterion_2), (criterion_3)] means criterion_1 AND (criterion_2 AND criterion_3)
- ‘|’ is the boolean OR operator and will make a new criterion by combining the next 2 criterions (always 2)
 - for example: [(criterion_1), ‘|’, (criterion_2), (criterion_3)] means criterion_1 AND (criterion_2 OR criterion_3)
- ‘!’ is the boolean NOT operator and will make a new criterion by reversing the value of the next criterion (always only 1)
 - for example: [(criterion_1), ‘!', (criterion_2), (criterion_3)] means criterion_1 AND (NOT criterion_2) AND criterion_3

Criterion format is: (‘field_path_operand’, ‘operator’, value)

Where:

- field_path_operand specifies the name of an attribute or a path starting with an attribute to reach the value we want to compare
- operator is one of the possible operator:
 - ‘=’, ‘!=’ : equal and different
 - ‘<’, ‘>’, ‘>=’, ‘<=’ : greater or lower than or equal
 - ‘in’, ‘not in’ : present or absent in a list of value. Values must be specified as [value1, value2], e.g. [‘Belgium’, ‘Croatia’]
 - ‘ilike’ : search for string value in the operand
- value is the text or number or list value to compare with field_path_operand using comparator

10.1.6 Pushing your Campaign Results further

Of course, Marketing Campaigns can only be effective when you also do something with the results. OpenERP offers analysis features to help you better manage future campaigns based on the outcome of past campaigns. Learning from your results, that is.

The *Reporting → Marketing → Campaign Analysis* report allows you to analyse your campaigns in detail, both ongoing and completed campaigns.

Segments allow you to keep good track of the results of a marketing campaign. You can see from which segment you have most demands, for instance.

Thanks to good insights in the way your respondents answer to your campaign, you can continuously improve your marketing results!

Group	# of Actions	Cost	Revenue
OpenERP Partner Channel (3)	3	0.00	
OpenERP Partner (3)	3	0.00	
Gold Partner (1)	1	0.00	
Propose a 1 month free trial for an OnDemand offer (1)	1	0.00	
Propose a free technical training to Gold partners (1)	1	0.00	
OpenERP OnDemand Free Trial 2012 (6)	6	0.00	
BossList US Associations List-0190 (6)	6	0.00	
Gold Partner (1)	1	0.00	
Propose a free technical training to Gold partners (1)	1	0.00	
Propose to buy the OpenERP Book (1)	1	0.00	
Propose to subscribe to the OpenERP Discovery Day on May 2010 (1)	1	0.00	
Thanks for buying the OpenERP book (1)	1	0.00	
Thanks for subscribing to the OpenERP Discovery Day (1)	1	0.00	

Figure 10.4: *Campaign Analysis*

10.2 Automating your Lead Acquisition

Through your website, your company wants to get as much information as possible about the people who visit the website. But how can you make sure that every person who wants to know more about your company is actually registered somewhere?

Well, you could use a Contact form for this. And precisely such a form allows you to register contacts automatically in OpenERP. By creating a link from your website's Contact form to OpenERP, your contact data will automatically be created in the CRM (or any other application of your choice, such as HR).

Let us show you an example of how this can be achieved. The figure below shows a Contact form on a website.

Download eBook

Buy the paper book on [Amazon](#) or fill this form to download the OpenERP ebook for free.

About You <div style="margin-top: 5px;"> <input style="width: 100%; height: 25px; border: 1px solid #ccc; padding: 2px; margin-bottom: 5px;" type="text"/> First name (*) <input style="width: 100%; height: 25px; border: 1px solid #ccc; padding: 2px; margin-bottom: 5px;" type="text"/> Last name (*) </div> <div style="margin-bottom: 5px;"> <input style="width: 100%; height: 25px; border: 1px solid #ccc; padding: 2px; margin-bottom: 5px;" type="text"/> Company (*) <input style="width: 100%; height: 25px; border: 1px solid #ccc; padding: 2px; margin-bottom: 5px;" type="text"/> Job title (*) </div> <div style="margin-bottom: 5px;"> <input style="width: 100%; height: 25px; border: 1px solid #ccc; padding: 2px; margin-bottom: 5px;" type="text"/> Email (*) <input style="width: 100%; height: 25px; border: 1px solid #ccc; padding: 2px; margin-bottom: 5px;" type="text"/> Phone (*) </div> <div style="margin-bottom: 5px;"> <input style="width: 100%; height: 25px; border: 1px solid #ccc; padding: 2px; margin-bottom: 5px;" type="text"/> City (*) <input style="width: 100%; height: 25px; border: 1px solid #ccc; padding: 2px; margin-bottom: 5px;" type="text"/> Zip code (*) </div> <div style="margin-bottom: 5px;"> <input style="width: 100%; height: 25px; border: 1px solid #ccc; padding: 2px; margin-bottom: 5px;" type="text"/> State (*) <input style="width: 100%; height: 25px; border: 1px solid #ccc; padding: 2px; margin-bottom: 5px;" type="text"/> Country (*) </div> <div style="margin-bottom: 5px;"> <input style="width: 100%; height: 25px; border: 1px solid #ccc; padding: 2px; margin-bottom: 5px;" type="text"/> Industry (*) <input style="width: 100%; height: 25px; border: 1px solid #ccc; padding: 2px; margin-bottom: 5px;" type="text"/> No.of employees (*) </div>	
---	--

Your primary interest with openerp

General Interests about OpenERP
 Interest about implementing OpenERP within your company
 Interest about becoming a partner
 Educational offer

[→ Click here to leave us a comment...](#)

Figure 10.5: *Contact Form on your Website*

All data entered in this form are linked to the **Lead** form in the CRM. Each time someone enters this contact form, a new lead is automatically created in OpenERP.

Such a system is a very easy yet flexible way of keeping track of your leads and automatically launch your marketing campaigns.

10.2.1 How to Link a Web Contact Form to OpenERP?

OpenERP is accessible through XML-RPC interfaces, for which libraries exist in many languages.

Python example

```
import xmlrpclib # ... define HOST, PORT, DB, USER, PASS url = ‘http://%s:%d/xmlrpc/common’
% (HOST,PORT) sock = xmlrpclib.ServerProxy(url) uid = sock.login(DB,USER,PASS) print
“Logged in as %s (uid:%d)” % (USER,uid) # Create a new lead url = ‘http://%s:%d/xmlrpc/object’
% (HOST,PORT) sock = xmlrpclib.ServerProxy(url) args = { ‘name’ : ‘A New Lead’, ‘de-
scription’ : ‘This is a new lead from the web contact form’, ‘inventor_id’: uid, } lead_id =
sock.execute(DB,uid,PASS,’crm.lead’,’create’,args)
```

PHP Example

```
<? include(‘xmlrpc.inc’); // Use phpxmlrpc library, available on source-
forge // ... define $HOST, $PORT, $DB, $USER, $PASS $client = new xml-
rpc_client(“http://$HOST:$PORT/xmlrpc/common”); $msg = new xmlrpcreqmsg(“login”); $msg-
>addParam(new xmlrpcreqval($DB, “string”)); $msg->addParam(new xmlrpcreqval($USER, “string”));
$msg->addParam(new xmlrpcreqval($PASS, “string”)); resp = $client->send($msg); uid = $resp-
>value()->scalarval() echo “Logged in as $USER (uid:$uid)”

// Create a new lead $arrayVal = array( ‘name’=>new xmlrpcreqval(“A New Lead”, “string”), ‘descrip-
tion’=>new xmlrpcreqval(“This is a new lead from the web contact form”, “string”), ‘inventor_id’=>new
xmlrpcreqval($uid, “int”), );

$msg = new xmlrpcreqmsg(‘execute’); $msg->addParam(new xmlrpcreqval($DB, “string”)); $msg-
>addParam(new xmlrpcreqval($uid, “int”)); $msg->addParam(new xmlrpcreqval($PASS, “string”));
$msg->addParam(new xmlrpcreqval(“crm.lead”, “string”)); $msg->addParam(new xmlrpcreqval(“create”,
“string”)); $msg->addParam(new xmlrpcreqval($arrayVal, “struct”)); $resp = $client->send($msg); ?>
```

Tip:

How to Link a Web Contact Form to OpenERP?

For technical information about how to link a web contact form to OpenERP, please also refer to the Technical Memento that you can download from <http://www.openerp.com/community>, the chapter about WebServices – XML-RPC.

10.3 Profiling your Customers

The segmentation tools let you create partner groups (or categories) and act on each segment differently according to questionnaires. For example, you could create pricelists for each of the segments, or start phone marketing campaigns by segment. To allow you to work with segments in OpenERP, you should install the `crm_profiling` module, which can also be achieved from *Setting → Configuration → Marketing* tick the *Track customer profile to focus your campaigns*

Profiling can be used to qualify your customers according to a questionnaire you define. When you establish a good customer profile, this will surely help you to close your deals. Customer profiles might even help you beat your competitors!

10.3.1 Establishing the Profiles of Prospects

During presales activities it is useful to qualify your prospects quickly. You can ask a series of questions to find out what product / service to offer to the customer, or how quickly you should handle the request.

Tip:***Profiling***

This method of rapidly qualifying prospects is often used by companies who carry out presales by phone. A prospect list is imported into the OpenERP system as a set of partners and the operators then ask a series of questions to each prospect by phone.

Responses to these questions enable each prospect to be qualified automatically which leads to a specific service being offered based on their responses.

As an illustration, take the case of a software company which offers a service based on the OpenERP software. The company goes to several exhibitions and encounters dozens of prospects over a few days. It is important to handle each request quickly and efficiently.

The products offered at these exhibitions are:

- training on OpenERP – for independent people or small companies,
- partner contract – for IT companies that intend to offer an OpenERP service,
- OpenERP as SaaS – for small companies,
- a meeting in conjunction with a partner to provide a demonstration aimed at providing a software integration – for companies that are slightly larger.

The IT company has therefore put a decision tree in place based on the answers to several questions to prospects. These are given in the following figure *Example of Profiling Customer Prospects by the OpenERP Company*:

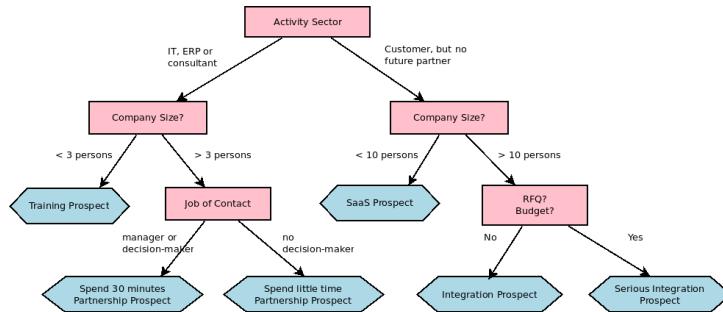


Figure 10.6: *Example of Profiling Customer Prospects by the OpenERP Company*

The sales person starts by asking the questions mentioned above and then after only a couple of minutes of work, he can decide what to propose to the prospective customer simply by analysing the prospect's answers.

At the end of the exhibition, prospects' details and their responses to the questionnaire are entered into OpenERP. The profiling system automatically classifies the prospects into appropriate partner categories.

This enables your sales people to efficiently follow up prospects and adapt their approach according to each prospect's profile. For example, they can send a letter based on a template developed for a specific partner category. They would use OpenERP's report editor and generator for their sales proposition, such as an invitation to a training session a week after the show.

10.3.2 Using Profiles effectively

To use the profiling system, you have to install OpenERP's `crm_profiling` module. You can also use the *Setting → Configuration → Marketing* tick the *Track customer profile to focus your campaigns*

Once the module is installed, you can create several questionnaires through the menu *Sales → Configuration → Questionnaires*. For each questionnaire, OpenERP allows you to create a list of questions and the possible responses through the menu *Sales → Configuration → Questions*.

To obtain the scheme presented earlier you can create the following questions and responses:

Table 10.1: Questionnaire for Defining Profiles

Questions	Possible Responses
Journalist ?	Yes / No
Industry Sector ?	IT / ERP Consultant / Services / Industry / Others
Number of Staff ?	1 / 2-20 / 21-50 / 51-100 / 101-500 / 500+
Contact's job function ?	Decision-maker / Not decision-maker
Already created a specification for the work ?	Yes / Soon / No
Implementation budget ?	Unknown / <100k / 101-300k / >300k

For instance, a sales person specializing in large accounts for the service sector could have a profile defined like this:

- Budget for integration: Unknown , 100k–300k or >300k ,
- Already created a specification for the work? Yes , No
- Industry Sector? Services .

When entering the details of a specific prospect, the prospect's answers to various questions can be entered in the *Profiling* tab of the **Customer** form. All you have to do is click the *Use a Questionnaire* button on the *Profiling* tab of the **Customer** form.

OpenERP will automatically assign prospects to the appropriate partner category based on these answers.

Customers corresponding to a specific search profile can be treated as a priority. The sales person can access the profile of the large active accounts easily.

Part IV

Manage your Books

When it is well integrated with the management system, an accounting system offers a company special benefits in addition to the obvious abilities it should have to report on the financial position. This part deals with the practical aspects of accounting, and accounting's role throughout the whole company.

OpenERP's accounting modules enable you to not only manage your operations clearly, following the workflow from invoicing to payment, but also to use various tools for financial analysis based on both real-time data and recent history depending on the analysis.

Your accounting structure can be completely configured from A to Z to match the needs of your company very closely.

CUSTOMER INVOICING & PAYMENTS

OpenERP provides various features to keep track of your invoicing and payments. The simple workflow of invoicing, with efficient encoding of the payment process of your customers, makes OpenERP more adoptable. In this section, we discuss two processes, the easy workflow for non-accountants who just want to keep track of their payments, and the complete accounting section. Note that only the customer process will be described, but of course OpenERP offers equal invoicing and payment methods for suppliers. In OpenERP, the invoicing workflow is very simple. You can see it in the following figure:

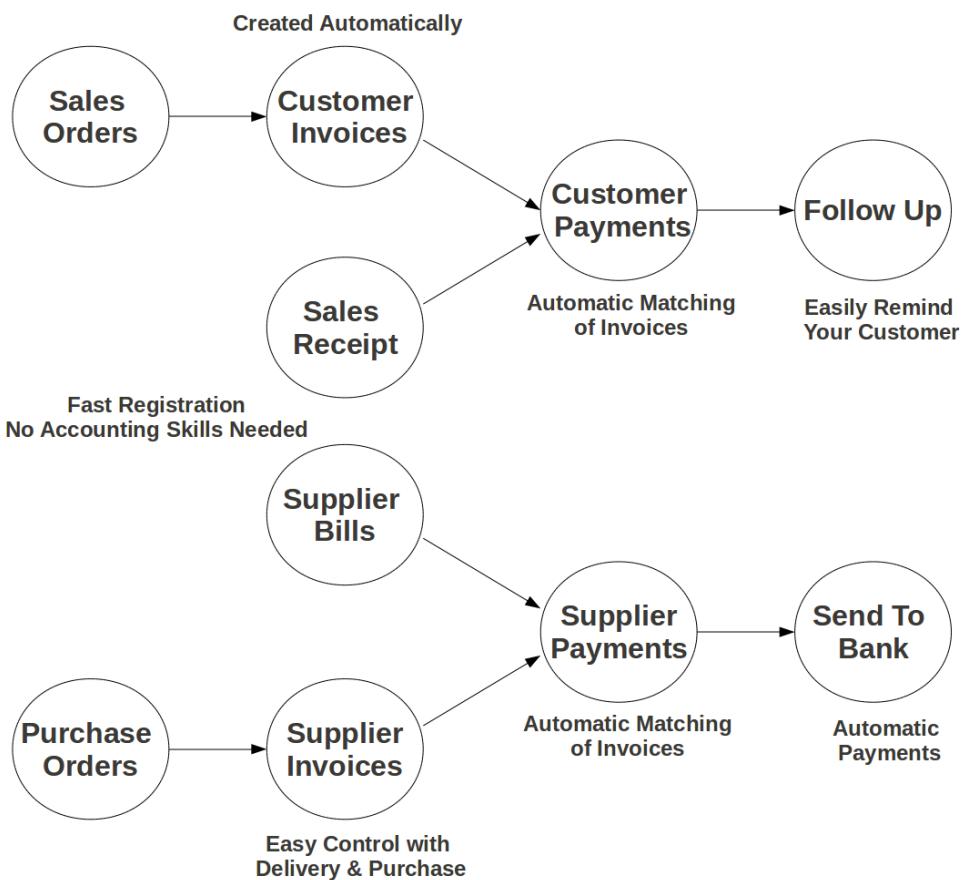


Figure 11.1: *Invoicing Workflow*

An invoice can be generated from various documents, such as a *Sales Order* and a *Purchase Order*, or at the time of confirming a shipment. These methods will be proposed when you use OpenERP as a truly integrated system.

Of course, companies often work together with an external accountant who keeps their books. In that case, you would like to know which invoices exist and have been paid.

The specific and easy-to-use *Invoicing* system in OpenERP allows you to keep track of your accounting, even when you are not an accountant. It provides an easy way to follow up your suppliers and customers. You could use this simplified accounting in case you work with an (external) account to keep your books, and you still want to keep track of payments. The *Invoicing* system includes receipts and vouchers (an easy way to keep track of sales and purchases). It also offers you an easy method to register payments, without you having to encode complete abstracts of account.

11.1 Simple Customer Receipts

When you sell products to a customer, you can give him a true invoice or a *Sales Receipt*, which is also called *Customer Receipt*. Sales Receipts are merely a kind of sales ticket and not a real invoice.

When the sales receipt is confirmed, OpenERP creates journal items automatically and you can record the customer payment related to this sales receipt. The easy invoicing system does not require extensive accounting setup, so you will be up and running quickly!

You can create and modify a sales receipt from the menu *Accounting* → *Customers* → *Sales Receipt*.

Figure 11.2: Defining a Customer Receipt

When you create a new *Sales Receipt*, you have to enter the *Customer* for whom you want to create a voucher. You can also define *Sales Lines* in the *Sales Information* tab. Here you have to define *Account*, *Amount* and *Description*. At the bottom of the form, you will have two options for *Payment*: one is *Pay Directly* and another is *Pay Later or Group Funds*. When you select the *Pay Directly* option, you have to enter the bank *Account*. The *Total* amount displays automatically with calculation of tax (if you select VAT to be added) when you click the *Compute Tax* button.

When you purchase products from a supplier, you will receive a *Purchase Receipt* (a ticket), which is also called *Notes Payable* in accounting terminology. When a purchase receipt is confirmed, it creates journal items automatically and you can record the supplier payment related to this purchase receipt, just like for the sales receipts.

You can create and modify the purchase receipt through the menu *Accounting* → *Suppliers* → *Purchase Receipt*.

Purchase R... / 17250.00

[Edit](#) [Create](#) [More](#)

[Validate](#) [Cancel Voucher](#) [Draft](#) [Posted](#)

Purchase Receipt

Supplier Memo Ref # Company	ASUSTeK Your Company	Bill Date Due Date Journal	03/29/2013 Purchase Journal (EUR)
--------------------------------------	-------------------------	----------------------------------	--------------------------------------

Bill Information

Account	Description	Amount	Analytic Account
220000 Expenses	Travel Expence	10000.00	
220000 Expenses	Other Expence	5000.00	

OTAX S 2250.00
Total : **17250.00**

Figure 11.3: *Purchase Receipt*

The *Purchase Receipt* form looks like the *Sales Receipt* form. In this form, carefully select the journal.

11.2 Invoice your Customers

It is surprising to see that in the 21st century, most companies still process quotations & invoices manually, mostly by post or email. The trend is clearly for personal communication to disregard these legacy media, and replace them with instant messaging, social networks, etc. The *Electronic Data Interchange* (EDI) platform is here to try and open OpenERP to more modern communication systems, where electronic documents are exchanged and synchronised between business partners in real-time.

Initially, OpenERP will support a simple EDI mechanism for certain OpenERP documents, such as Sales Orders, Purchase Orders and Invoices.

Indeed, the integrated email and invoicing system in OpenERP allows you to create an invoice and automatically send an email with the invoice link to the customer.

The customer then has several options. If your customer also has an OpenERP instance, he can easily import the invoice you have sent him, simply by clicking the link.

Below, you find an example of such an EDI flow:

1. Your company issues a Sales Order, a Purchase Order or an Invoice for a specific partner, let's say Camptocamp.
2. Partner Camptocamp receives an email with a link to an online preview of the document.
3. In the online preview of the document, Camptocamp can read the document, download or print the PDF version, and then choose between a couple of options:
 1. import this document in his own OpenERP instance, simply by providing the instance address;
 2. ask to create a new OpenERP online instance, where the document will be pre-imported;
 3. ask for the raw EDI document, which the partner can then import in his own third-party software through a corresponding EDI import system.
4. Partner Camptocamp can also choose to directly pay online through Paypal or any other mechanism provided by your company.

The email notification is freely customisable as an Email Template from the *Settings → Technical → Email → Templates*.

To get the EDI and automatic emailing of orders and invoices to work, you need the EDI module, which is installed by default. You need to add an email address to the partner and make sure the “Opt-out” checkbox is not selected. Ask your system administrator to configure an Outgoing Mail Server. Note that email notifications will be added to a mail queue and processed once in a while, but you can force emails to be send directly from the *Settings → Technical → Email → Messages*.

The email your customer will receive, will look like the image displayed.

Hello Luminous Technologies,

A new invoice is available for you:

REFERENCES

Invoice number: **SAJ/2013/0001**

Invoice total: **18.0 EUR**

Invoice date: 2013-04-03

Your contact: [Administrator](#)

You can access the invoice document and pay online via our Customer Portal:

[View Invoice](#)

It is also possible to directly pay with Paypal:



If you have any question, do not hesitate to contact us.

Thank you for choosing Your Company!

YOUR COMPANY

Web : www.yourcompany.com

Figure 11.4: *Mail to Your Customer*

11.3 Keep Track of your Customer's Payments

It is important to efficiently keep track of payments of your customers and suppliers. People who have no accounting knowledge and just want to use OpenERP to keep an eye on their payments, can set the Invoicing & Payments access rights from the User form.

Customer Payment allows you to register the payments you receive from your customers. In order to record a payment, you have to enter the customer, the payment method (= the journal) and the payment amount. OpenERP will automatically propose the reconciliation of this payment with any open invoices or sales receipts, credit notes and (advance) payments.

You can register Customer payments in OpenERP from the menu *Accounting → Customers → Customer*

Payment; click Create to register a payment.

The screenshot shows the 'Customer Payment' window with the following details:

- Customer:** Luminous Technologies
- Paid Amount:** 2995.00
- Payment Method:** Bank Journal - (OpenERP BE) (EUR)
- Date:** 04/01/2013
- Payment Ref:** Memo
- Credits:**

Journal Item	Date	Due Date	Original Amount	Open Balance	Full Reconcile	Allocation
SAJ/2013/0001 (SAJ20130001)	04/01/2013	04/01/2013	3000.00	3000.00	<input checked="" type="checkbox"/>	3000.00
- Difference Amount:** -5.00
- Payment Difference:** Reconcile Payment Balance
- Counterpart Account:** 100000 Capital non amorti
- Counterpart Comment:** Write-Off
- Write-Off Analytic Account:**

Figure 11.5: *Customer Payment*

Suppose you have an invoice of 3000 EUR; the amount you actually receive from the customer is 2995 EUR. You would consider the invoice as entirely paid. How would you proceed?

To create a new *Customer Payment*, select the customer, key in the *Paid Amount*, e.g. 2995 and select the *Payment Method*, i.e. your bank journal. Any open invoices, credit notes or advances for this partner will be displayed on the *Payment Information* tab. In this example, the 3000 EUR invoice will be proposed.

Now you have to tell OpenERP that you want to consider the invoice as fully paid. Simply click the invoice line on the *Payment Information* tab to make it editable. Now select the *Full Reconcile* checkbox, and notice that the amount changes to the full amount of the invoice.

Select the proper option in the *Payment Difference* field, i.e. *Reconcile Payment* (you would use the *Keep Open* option if you want to claim the 5 EUR from the customer). The write-off amount is already proposed automatically, but you have to enter the *Counterpart Account* so that write-off entries can be generated by OpenERP. You can also enter a comment about the reconciliation (by default, *Write-Off* will be proposed). Then post your payment.

Note:

Analytic Accounts

When you do analytic bookkeeping as well, you can enter an analytic account for the write-off too.

This easy payment system also allows you to post a payment that you cannot directly attribute to a customer as an advance.

Let us take the following example. A customer has two open invoices, one of 2000, one of 1500. He pays 1000, but you cannot assign this to any of the two invoices directly. You can just enter this payment as an advance. How do you proceed?

When you key in an *Amount paid* of 1000 in your *Customer Payment*, the amount will be attributed to the oldest invoice. You do not want this, because you have no idea yet of what invoice the amount should be linked to. Click the amount in the first line and set it to 0. Validate the payment. The system will now create an advance payment of 1000 for the customer concerned.

Tip:

Supplier Payment

The *Supplier Payment* form allows you to track the payment to your suppliers in the same way as a customer payment.

From the menu *Accounting* → *Suppliers* → *Supplier Payment*, click the *Create* button to create a new *Supplier Payment*.

Journal Item	Account	Date	Due Date	Original Amount	Open Balance	Full Reconcile	Amount
EXJ/2012/0001 (EXJ20120001)	120000 Creditors	09/12/2012		1012.00	1012.00	✓	1012.00

Figure 11.6: *Supplier Payment Form*

Another way of keeping track of your payments is the way accountants will do it, by encoding Bank Statements. For more information about this, please refer to the chapter on *invoicemanagement*.

You can also push your accounting further by importing your payments electronically through a CODA file you receive from the bank. To do this install the `110n_be_coda` module.

How should you proceed?

You have to enter your company's bank account(s) for which you want to accept CODA files. Go to the menu *Accounting* → *Configuration* → *Accounts* → *Setup your Bank Accounts*. Choose the bank account type you want to use (IBAN or normal bank account). For electronic payments, you should use IBAN; do not forget to also enter your bank's BIC code.

Tip:

Bank Journal

When you save the bank account through the Setup your Bank Accounts wizard, a bank journal will be automatically created for that account.

Then add the bank account details for each partner that will pay you through a bank. You can do this in the Partner form, on the Accounting tab.

Download the CODA file from your bank to any directory. Import the electronic bank statement through the menu *Accounting* → *Bank and Cash* → *Import CODA File*.

Enter the data required in the wizard. Then select the CODA file in your directory and click the *Import* button to start processing the CODA file.

OpenERP will then import a draft bank statement in the selected journal and will match all corresponding customer / supplier payments when possible. You can change the draft statement if necessary from the menu *Accounting* → *Bank and Cash* → *Bank Statements*.

11.4 Get your Money in

OpenERP provides many tools for managing customer and supplier accounts. In this part we will explain:

- financial analysis of partners, to understand the reports that enable you to carry out an analysis of all of your partners,
- multi-level reminders, which is an automatic system for preparing reminder letters or emails when invoices remain unpaid.
- detailed analysis of individual partners.

11.4.1 Financial Analysis of Partners

When members of your accounting department sign in to OpenERP, they can immediately be presented with the *Accounting Dashboard*. By default, it contains company analysis according to account type. You can also call the dashboard from the menu *Reporting → Dashboards → Accounting*.

To obtain a more detailed report of the aged balance (or order by past date), use the menu *Accounting → Reporting → Generic Reporting → Partners → Aged Partner Balance*.

When you click that report, OpenERP shows a wizard asking you for the chart of accounts, the start date of the analysis period and the size of the interval to be analysed (in days). The start date will determine which documents will be included in the report (document date until the selected start date) and it will serve as a reference date to calculate the amounts due for the selected interval. You can print an aged partner balance for Receivable Accounts or Payable Accounts of for both at the same time. The analysis direction may be *Past* (for entries that are due) or *Future* to keep track of your cash flow in the next days or weeks (according to your selection). OpenERP then calculates a table of credit balance by period. So, if you request an interval of 30 days, OpenERP generates an analysis of creditors for the past month, past two months, and so on. An ageing balance will indicate how much of the accounts receivable is overdue. It also reports how far overdue the accounts are (number of days).

Tip:

Aged Partner Balance

This report works best of you use payment terms or if you set a due date yourself.

Your Company							1 / 1
Aged Trial Balance							
Chart of Accounts	Fiscal Year	Start Date	Period Length(days)	Partner's	Analysis Direction	Target Moves	
Your Company	Fiscal Year X 2013	04/01/2013	30	Receivable Accounts	past	All Posted Entries	
Partners	Not due	0-30	30-60	60-90	90-120	+120	Total
Account Total	0.00 €	3921.00 €	0.00 €	0.00 €	0.00 €	0.00 €	3921.00 €
ASUSTeK	0.00 €	903.00 €	0.00 €	0.00 €	0.00 €	0.00 €	903.00 €
Administrator	0.00 €	18.00 €	0.00 €	0.00 €	0.00 €	0.00 €	18.00 €
Luminous Technologies	0.00 €	3000.00 €	0.00 €	0.00 €	0.00 €	0.00 €	3000.00 €

Figure 11.7: *Aged Balance in the Past using a 30-days Period*

Your Company							1 / 1
Aged Trial Balance							
Chart of Accounts	Fiscal Year	Start Date	Period Length(days)	Partner's	Analysis Direction	Target Moves	
Your Company	Fiscal Year X 2013	04/01/2013	30	Receivable Accounts	future	All Posted Entries	
Partners	Due	0-30	30-60	60-90	90-120	+120	Total
Account Total	0.00 €	3921.00 €	0.00 €	0.00 €	0.00 €	0.00 €	3921.00 €
ASUSTeK	0.00 €	903.00 €	0.00 €	0.00 €	0.00 €	0.00 €	903.00 €
Administrator	0.00 €	18.00 €	0.00 €	0.00 €	0.00 €	0.00 €	18.00 €
Luminous Technologies	0.00 €	3000.00 €	0.00 €	0.00 €	0.00 €	0.00 €	3000.00 €

Figure 11.8: *Aged Balance in the Future using a 30-days Period*

For an analysis by partner, you can use the partner balance that you get through the menu *Accounting → Reporting → Generic Reporting → Partners → Partner Balance*. The system then supplies you with a PDF report containing one line per partner representing debit, credit and balance. The total is displayed per account

receivable.

Your Company					
Partner Balance					
Chart of Accounts	Fiscal Year	Journals	Filter By	Partner's	Target Moves
Your Company	Fiscal Year X 2013	TSAJ, TSCNJ, TEXJ, TECNJ, TMIS, TOEJ, TUBK, ECNJ-, BNK-O, CHK-O, CSH-O, STJ, SAJ, EXJ, SCNj, ECNJ, MISC, OPEJ, BNK1, BNK2, SAJ-O, SCNj-, EXJ-O, ECNJ-, BNK-O, CHK-O, CSH-O, SAJ-O, SCNj-, EXJ-O, ECNJ-, BNK-O, CHK-O, CSH-O, SAJ-O, SCNj-, EXJ-O, TBNK, TCHK, TCSH, SAJ, EXJ, SCNj, ECNJ, MISC, OPEJ, BNK1, BNK2	No Filters	Receivable Accounts	All Posted Entries
Code	(Account/Partner) Name	Debit	Credit	Balance	In dispute
Total:		0.00	0.00	0.00 €	0.00 €
400000	Clients	3921.00	0.00	3921.00 €	0.00 €
	ASUSTeK	903.00	0.00	903.00 €	0.00 €
	Administrator	18.00	0.00	18.00 €	0.00 €
	Luminous Technologies	3000.00	0.00	3000.00 €	0.00 €

Figure 11.9: Partner Balance

If you want detailed information about all invoices, credit notes and payments related to partner, print the partner ledger from the menu *Accounting → Reporting → Generic Reporting → Partners → Partner Ledger*. You can choose to print one partner per page.

Your Company					
Partner Ledger					
Chart of Accounts	Fiscal Year	Journals	Filters By	Partner's	Target Moves
Your Company	Fiscal Year X 2013	TSAJ, TSCNJ, TEXJ, TECNJ, TMIS, TOEJ, TUBK, ECNJ-, BNK-O, CHK-O, CSH-O, STJ, SAJ, EXJ, SCNj, ECNJ, MISC, OPEJ, BNK1, BNK2, SAJ-O, SCNj-, EXJ-O, ECNJ-, BNK-O, CHK-O, CSH-O, SAJ-O, SCNj-, EXJ-O, ECNJ-, BNK-O, CHK-O, CSH-O, SAJ-O, SCNj-, EXJ-O, TBNK, TCHK, TCSH, SAJ, EXJ, SCNj, ECNJ, MISC, OPEJ, BNK1, BNK2	No Filters	Receivable Accounts	All Posted Entries
Date	JRNL	Ref	Account	Entry Label	Debit
- ASUSTeK					903.00
04/01/2013	SAJ	SAJ/2013/0002	400000	SAJ2013... - /	903.00
- Luminous Technologies					3000.00
04/01/2013	SAJ	SAJ/2013/0001	400000	SAJ2013... - /	3000.00
- Administrator					18.00
04/01/2013	SAJ	SAJ/2013/0003	400000	SAJ2013... - /	18.00
					Credit
					903.00 €
					903.00 €
					3000.00 €
					3000.00 €
					18.00 €
					18.00 €
					Balance

Figure 11.10: Partner Ledger

Furthermore, OpenERP also provides statistics about individual account entries, invoices and treasury, for instance. To look up statistic information about your accounting, explore the menu *Reporting → Accounting*. There you will find *Invoices Analysis*, *Entries Analysis* and *Treasury Analysis* etc.. By default these statistics are displayed as a list which you can filter to fit your needs. Standard filter buttons, extended filters and grouping features allow you to make an in-depth analysis of your accounting. But the list is

not all OpenERP has to offer. These statistic reports can be displayed as a graph simply by clicking the Graph button at the top right side of the screen. Notice that graphs allow for only one Group by function at a time.

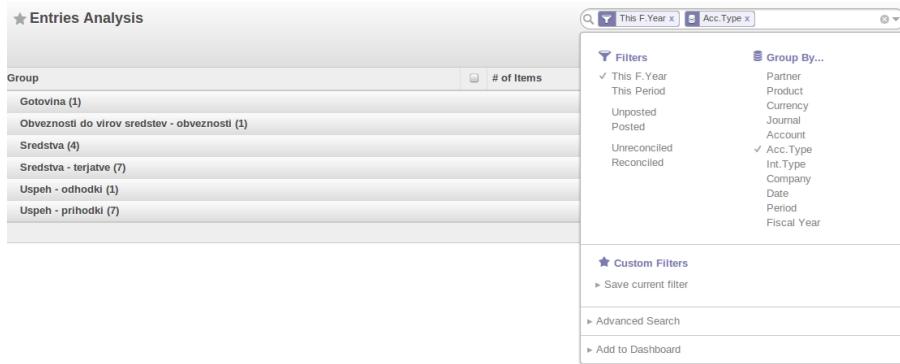


Figure 11.11: *Entries Analysis List View*

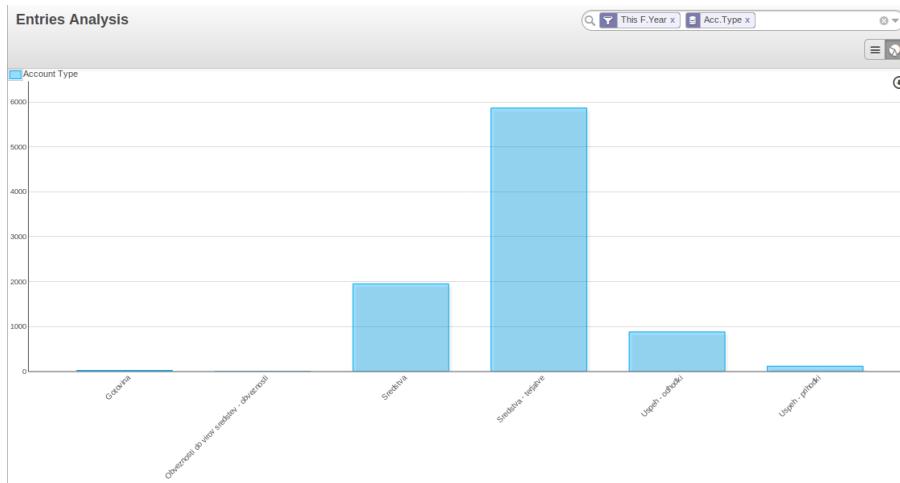


Figure 11.12: *Entries Analysis Graph View*

Tip:

Exporting Entries

Remember that you can export all types of resources in OpenERP. You can go to the More button at the top centre of any view. The Export feature enables you to easily create your own analysis in tools such as Microsoft Excel or Calc (LibreOffice or OpenOffice), simply by exporting accounting entries.

11.4.2 Multi-step Reminders

To automate the management of follow-ups (reminders) you should install the module `account_followup` (or select the *Manage customer payment follow-ups* option in the Settings -> Configuration -> Accounting -> eInvoicing & Payments).

This module is integrated with the email features of OpenERP. Ask your system administrator to define the smtp server through the menu *Settings → Technical → Email → Outgoing Mail Servers*.

Once the module is installed, configure your levels of follow-up using the menu *Accounting → Configuration → Follow-Up Levels*.

Note:**Follow-ups**

You can define only one follow-up cycle per company, because you cannot link the follow-up cycle to a partner.

The levels of follow-up are relative to the due date; when no payment term is specified, the invoice date will be considered as the due date.

For each level, you should define the number of days and create a note which will automatically be added into the reminder letter. The order in which you define the various follow-up levels determines the order in which letters will be sent.

Table 11.1: Example of Configuring Follow-up Levels

Sequence	Level	Days	Description
1	Level 1	15 days net	First payment reminder
2	Level 2	30 days net	Second reminder
3	Level 3	45 days from end of month	Put on notice

To obtain a detailed statistical report of sent follow-ups go to the menu :menuselection: ‘ Reporting → Accounting → Follow-ups Analysis’. This screen will let you analyse your reminder data in various ways, e.g. by follow-up level, by partner or for a combination of these data. You can also group by Latest Followup Date or Partner, for instance.

The different reports are standard OpenERP screens, so you can filter them and explore the elements in detail.



Figure 11.13: *Reminder Statistics*

11.5 Analyse your Turnover

Analyse your invoicing in OpenERP through the **Invoices Analysis** screen from the menu *Reporting → Accounting → Invoices Analysis*.

In this statistic report, the columns displayed will vary according to the selections and grouping made, thus making it a very flexible report to analyse your invoices.

This report provides an overview of what has been invoiced to your customer as well as the average payment delays. To see the average due delay, make sure to group by Due Date. You can easily group by partner, product category, ... or select only invoices that have not been confirmed yet.

This is also an easy way to check your sales people's impact on turnover. You can see your turnover per product

category, per salesman, per partner and many more options.

★ Invoices Analysis						
Group	Sales Team	Reference Unit of Measure	# of Lines	Qty	Total Without Tax	
▼ Draft (9)			9	-7.00	8536.00	
► [GRAPs/w] GrapWorks Software (1)			1	-4.00	-618.00	
► [HEAD-USB] Headset USB (1)			1	2.00	130.00	
► [INK] Ink Cartridge (1)			1	-9.00	-522.00	
► [LAP-ES] Laptop E5023 (1)			1	3.00	8850.00	
► [PD-SP4] Pen drive, SP-4 (1)			1	5.00	725.00	
► [TONER] Toner Cartridge (2)			2	-4.00	-205.00	
► [Zplus] Zed+ Antivirus (1)			1	-1.00	-4.00	
► Golden Membership (1)			1	1.00	180.00	
▼ Open (4)			4	51.00	3027.00	
► [ADPT] USB Adapter (1)			1	1.00	18.00	
► [CARD] Graphics Card (2)			2	0.00	9.00	
► [ROUT_430] Router R430 (1)			1	50.00	3000.00	
▼ Done (2)			3	1.00	1868.00	
► [ADPT] USB Adapter (1)			1	1.00	18.00	
► Undefined (1)			2	0.00	1850.00	
			16	45.00	13431.00	

Figure 11.14: Analysing your Invoices

To quickly see the total turnover per customer in a graph view, group by Partner and click the Graph button to change to graph mode.

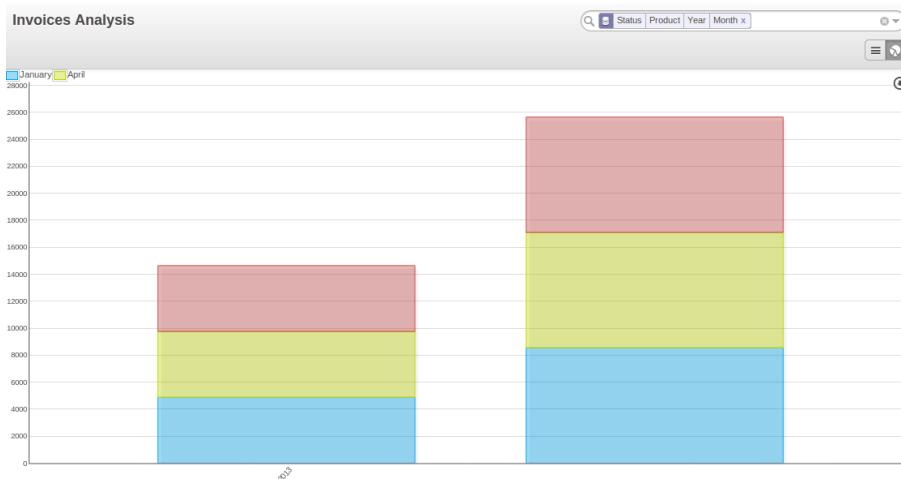


Figure 11.15: Analysing your Customer's Turnover

FROM INVOICE TO PAYMENT

This chapter traces the basic accounting workflow in OpenERP, from entering an invoice to registering payments. The various operations are described, from the entry of accounting receipts to the treatment of the reconciliation process, including payment orders.

Accounting is at the heart of managing a company: all the company's operations have an impact here. It has an informational role (how much cash is there? what debts need to be repaid? what is the stock valuation?) and, because of the information it provides, a reliable and detailed accounting system can and should have a major decision-making role.

In most companies, accounting is limited to producing statutory reports and satisfying the directors' curiosity about certain strategic decisions, and to printing the balance sheet and the income statement several times a year. Even then, there is often several weeks of delay between reality and the report.

Note:

Valueing your Accounting Function

In many small companies, the accounting function is poorly treated.

Not only do you see the data for documents being entered into the system twice, but also the results are often just used to produce legal documents and regular printouts of the balance sheet and income statements some weeks after the closing dates.

By contrast, integrating your accounts with your management system means that you can:

- *reduce data entry effort – you only need to do it once,*
- *run your processes with the benefit of financial vision: for example, in managing projects, negotiating contracts, and forecasting cash flow,*
- *easily get hold of useful information when you need it, such as a customer's credit position.*

So accounting is too often underused. The information it brings makes it a very effective tool for running the company if it is integrated into the management system. Accounting information really is necessary in all of your company's processes for you to be effective, for example:

- for preparing quotations it is important to know the precise financial position of the client, and to see a history of any delays in payment,
- if a given customer has exceeded his credit limit, accounting can automatically stop further deliveries to the customer,
- if a project budget is 80% consumed, but the project is only 20% complete, you could renegotiate with the client, or review and refine the objectives of the project,
- if you need to improve your company's cash flow then you could plan your service projects on the basis of billing rates and payment terms of the various projects, and not just delivery dates – you could work on short-term client projects in preference to R&D projects, for example.

OpenERP's general accounting and analytic accounting handle these needs well because of the close integration between all of the application modules. Furthermore, the transactions, the actions and the financial analyses happen in real time, so that you cannot only monitor the situation but also manage it effectively.

The account module in OpenERP covers general accounting, analytic accounting, and auxiliary and budgetary accounting. It is double-entry, multi-currency and multi-company.

Note:

Accounting

- General accounting (or financial accounting) is for identifying the assets and liabilities of the business. It is managed using double-entry accounting which ensures that each transaction is credited to one account and debited from another.
- Analytical accounting (or management accounting, or cost accounting) is an independent accounting system, which reflects the general accounts but is structured along axes that represent the company's management needs.
- Auxiliary accounting reflects the accounts of customers and/or suppliers.
- Budgetary accounts predefine the expected allocation of resources, usually at the start of a financial year.

Tip:

Multi-company

There is a choice of methods for integrating OpenERP in a multi-company environment:

- if the companies hold few documents in common (such as products, or partners - any OpenERP resource), you could install separate databases,
- if the companies share many documents, you can register them in the same database and install OpenERP's multi-company documents to finely manage access rights,

One of the great advantages of integrating accounts with all of the other modules is in avoiding the double entry of data into accounting documents. So in OpenERP, an Order automatically generates an Invoice, and the Invoice automatically generates the accounting entries. These in turn generate tax submissions, customer reminders, and so on. Such strong integration enables you to:

- reduce data entry work,
- greatly reduce the number of data entry errors,
- get information in real time and enable very fast reaction times (for bill reminders, for example),
- exert timely control over all areas of company management.

Tip:

For Accountants

You can configure the Accounting application using the information given in the configuration settings.

The screenshot shows the 'Chart of Accounts' configuration screen. It includes fields for 'Template' (Configurable Account Chart Template), 'Sales tax (%)' (15.00), 'Purchase tax (%)' (15.00), and a 'Chart of Account' section. Below this is a note: 'No Fiscal Year Defined for This Company' with date range and period selection. At the bottom are 'Options' (Default company currency: EUR, Decimal precision on journal entries: 2, Tax calculation rounding method: Round per line) and 'Features' (checkboxes for Allow multi currencies, Full accounting features: journals, legal statements, chart of accounts, etc., Analytic accounting, Assets management, Budget management).

With appropriate rights management, this allows trustees to provide customers with real-time access to their data. It also gives them the opportunity to work on certain documents that have no direct accounting impact, such as budgets.

This can provide a value-added service that greatly improves the interaction between trustees and their clients.

All the accounts are held in the default currency (which is specified in the company definition), but each account

and/or transaction can also have a secondary currency (which is defined in the account). The value of multi-currency transactions is then tracked in both currencies.

For this chapter you should start with a fresh database that includes demo data, with *Sales Management* installed and a generic chart of accounts.

12.1 Accounting Workflow and Automatic Invoice Creation

The chart *Accounting workflow for invoicing and payment* shows the financial workflow followed by each invoice.

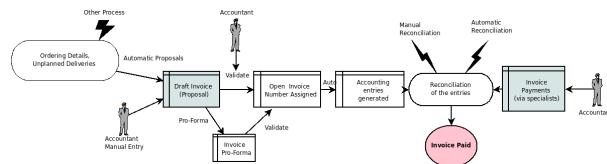


Figure 12.1: Accounting workflow for invoicing and payment

In general, when you use all of OpenERP's functionality, invoices do not need to be entered manually. Draft invoices are generated automatically from other documents such as Purchase Orders.

12.1.1 Draft Invoices

The system generates invoice proposals which are initially set to the *Draft* state. While these invoices remain unconfirmed, they have no accounting impact within the system. There is nothing to stop users creating their own draft invoices if they want to.

You can create draft customer invoice manually using the menu *Accounting → Customers → Customer Invoices*.

The information that is needed for invoicing is automatically taken from the Partner form (such as payment conditions and the invoice address) or from the Product (such as the account to be used) or from a combination of the two (such as applicable Taxes and the Price of the product).

Tip:

Draft Invoices

There are several advantages in working with draft invoices:

- You have got an intermediate validation state before the invoice is approved. This is useful when your accountants are not the people creating the initial invoice, but are still required to approve it before the invoice is entered into the accounts.
- It enables you to create invoices in advance, without approving them at the same time. You are also able to list all of the invoices awaiting approval.

12.1.2 Open or Pro Forma Invoices

You can approve (or validate) an invoice in the *Open* or *Pro-forma* state. A pro forma invoice does not have an invoice number yet, nor accounting entries. It is commonly used as a preliminary invoice or for customs purposes. It is more formal than a draft invoice and a pro forma invoice can later be converted to an open invoice.

Tip:

Pro-forma in Invoice

Go to menu Settings → Configuration → Accounting in eInvoicing & Payments section tick Allow pro-forma invoices. Then the Pro-forma will be shown in Invoice form.

An open invoice has a unique invoice number. The invoice is sent to the customer and is marked on the system as awaiting payment.

12.1.3 Reconciliation and Payments

In OpenERP, an invoice is considered to be paid when its accounting entries have been reconciled with the payment entries. If there has not been a reconciliation, an invoice can remain in the Open state until you have entered the payment.

Tip:

Payment and Reconciliation

To avoid surprises, it is important to understand the idea of reconciliation and its link with invoice payment. You will find the Paid/Reconciled checkbox on an invoice. It is checked if the Journal Entry of the invoice has been totally reconciled with one or several Journal Entries of payment.

Note:

Reconciliation

Reconciliation links entries in an account that cancel each other out – they are reconciled to each other (sum of credits = sum of debits).

This is generally applied to payments against corresponding invoices.

Without the reconciliation process, OpenERP would be incapable of marking invoices that have been paid. Suppose that you have got the following situation for the Smith and Offspring customer:

- Invoice 145: 50,
- Invoice 167: 120,
- Invoice 184: 70.

If you receive a payment of 120, OpenERP will delay reconciliation because there is a choice of invoices to pay. It could either reconcile the payment against invoices 145 and 184 or against invoice 167.

At regular intervals, and independent of the invoices, an automatic import procedure or a manual accounts procedure can be used to bring in bank statements. These comprise all of the payments of suppliers and customers and general transactions, such as between accounts.

When an account is validated, the corresponding accounting entries are automatically generated by OpenERP.

Invoices are marked as Paid when accounting entries on the invoice have been reconciled with accounting entries about their payment.

This reconciliation transaction can be carried out at various places in the process, depending on your preference:

- at data entry for the accounting statement,
- manually from the account records,
- automatically using OpenERP's intelligent reconciliation.

You can create the accounting records directly, without using the invoice and account statements. To do this, use the rapid data entry form in a journal. Some accountants prefer this approach because they are used to thinking in terms of accounting records rather than in terms of invoices and payments.

You should really use the forms designed for invoices and bank statements rather than manual data entry records, however. These are simpler and are managed within an error-controlling system.

12.1.4 Records-based Accounting System

All the accounting transactions in OpenERP are based on records, whether they are created by an invoice or created directly.

So, customer reminders are generated quickly from the list of unreconciled entries in the trade receivables account for that partner. In a single reminder, you will find the whole set of unpaid invoices as well as unreconciled payments, such as advance payments.

Similarly, financial statements such as the general ledger, account balance, aged balance (or chronological balance) and the various journals are all based on accounting entries. It does not matter if you generated the entry from an invoice form or directly in the invoice journal. It is the same for the tax declaration and other statutory financial statements.

When using integrated accounting, you should still go through the standard billing process because some modules are directly dependent on invoice documents. For example, a sales order can be configured to wait for payment of the invoice before triggering a delivery. In such a case, OpenERP automatically generates a draft invoice to send to the client.

12.2 Invoices

In OpenERP, the concept of “invoice” includes the following documents:

- The Customer Invoice
- The Supplier Invoice
- A Customer Credit Note or Customer Refund
- A Supplier Credit Note or Supplier Refund

Only the invoice type and the representation mode differ for each of the four documents. But they are all stored in the same object type in the system.

You get the correct form for each of the four types of invoice from the menu you use to open it. The name of the tab enables you to tell the invoice types apart when you are working on them.

Note:

Types of Invoice

There are many advantages in deriving the different types of invoice from the same object. Two of the most important are:

- *In a multi-company environment with inter-company invoicing, a customer invoice in one company becomes a supplier invoice for the other,*
- *This enables you to work and search for all invoices from the same menu. If you are looking for an invoicing history, OpenERP provides both supplier and customer invoices in the same list, as well as credit notes.*

Note:

Credit Note

A credit note is a document that enables you to cancel an invoice or part of an invoice.

To access customer invoices in OpenERP, use the menu *Accounting → Customers → Customer Invoices*, and for supplier invoices, use the menu *Accounting → Suppliers → Supplier Invoices*.

Most of the time, invoices are generated automatically by OpenERP as they are generated from other processes in the system. So it is not usually necessary to create them manually, but simply approve or validate them. OpenERP uses the following different ways of generating invoices:

- from Supplier or Customer Orders,
- from receipt or dispatch of goods,

- from work carried out (timesheets, see *Key Features HR*),
- from closed tasks (see *Drive your Projects*),
- from fee charges or other rechargeable expenses (see *Deliver Quality Services*).

The different processes generate **Draft** invoices. These must then be approved by a suitable system user and sent to the customer. The different invoicing methods are detailed in the following sections and chapters.

It is also possible to enter invoices manually. This is usually done for invoices that are not associated with an order (usually purchase orders) or Credit Notes. Also, if the system has not been configured correctly you might need to edit the invoice before sending it to the customer.

For example, if you have not realized that the customer is tax-exempt, the invoice you generate from an order will contain tax at the normal rates. It is then possible to edit this out of the invoice before validating it.

12.2.1 Entering a Customer Invoice

The principle of entering data for invoices in OpenERP is very simple, as it enables non-accountant users to create their own invoices. This means that your accounting information can be kept up-to-date all the time as orders are placed and received, and their taxes are calculated.

At the same time, it allows people who have more accounting knowledge to keep full control over the accounting entries that are being generated. Each value proposed by OpenERP can be modified later if needed.

Start by manually entering a customer invoice. Use *Accounting* → *Customers* → *Customer Invoices* and click on *Create* button for this.

A new invoice form opens for entering information.

Product	Description	Account	Analytic Account	Quantity	Unit of Measure	Unit Price	Discount (%)	Taxes	Amount
[LAP-CUS] Laptop Customized	[LAP-CUS] Laptop Customized Custom Laptop based on customer's requirement.	701000 Ventes en Belgique		1.000	Unit(s)	3645.00	0.00		3645.00

Figure 12.2: Entering a New Invoice

The document is composed of three parts:

- the top of the invoice, with customer information,
- the main body of the invoice, with detailed invoice lines,
- the bottom of the page, with some additional information, taxes, and the totals.

To enter a document in OpenERP, you should always fill in fields in the order they appear on screen. Doing it this way means that some of the later fields are filled in automatically from the selections made in earlier fields. So select the *Customer*, and the following fields are completed automatically:

- the invoice address corresponds to the customer contact that was given the address type of *Invoice* in the customer form (or otherwise the address type of *Default*),
- the customer account corresponds to the account given in the *Accounting* which is found in a tab of the customer form,
- a specific or a default payment condition can be defined for this customer in the *Accounting* tab of the customer form. Payment conditions are generated by rules for the payment of the invoice. For example: 50% in 21 days and 50% in 60 days from the end of the month.

Note:

Properties Fields

The Properties fields on the Customer form or the Product form are multi-company fields. The value that the user sees in these fields depends on the company that the user works for.

If you work in a multi-company environment that is using one database, you have several charts of accounts. Asset and liability accounts for a customer depend on the company that the user works for.

Tip:

Seeing Customer Relationships

You can reach more information from certain relation fields in OpenERP.

- In OpenERP, a relation is commonly a hyperlink - it takes you to the main form for that entity, with all of the actions and links.

So one way or another you can rapidly reach the customer's:

- current sales and purchases,
- CRM requests,
- open invoices,
- accounts records,
- payable and receivable accounts.

You can add more detailed additional information to the invoice and select the currency that you want to invoice in.

Once the invoice heading is saved, you must enter the different invoice lines. You could use either of the two techniques:

- enter the whole field manually,
- use a product to complete the different fields automatically.

Tip:

Invoice Line Description

The invoice line description is more of a title than a comment. If you want to add more detailed comments you can use the field Additional Information.

So select the product Laptop Customized in the product field in an invoice line. The following fields are then completed automatically:

- *Description* : this comes from the product, in the language of the partner,
- *Account* : determined by the purchase or sales account defined in the product properties. If no account is specified in the product form, OpenERP uses the properties of the category that the product is associated with.
- *Unit of Measure* : this is defined by default in the product form,
- *Unit Price* : this is given by the sales price in the product form.
- *Taxes* : provided by the product form and the partner form.

Tip:**Managing the Price with Tax Included**

By default, OpenERP invoices and processes the price without taxes – they are managed as a separate amount. OpenERP can manage tax inclusive prices when you check the Tax Included in Price field true when configuring the tax.

You can enter several invoice lines and modify the values that are automatically completed by OpenERP.

Once the invoice lines have been entered, you can click (*update*) on the invoice to get the details of tax calculated such as:

- Untaxed amount,
- Tax amount,
- Total amount.

In the *Other Info* tab at the bottom you will find the details of the total calculated for different tax rates used in the invoice.

Before approving the invoice you can modify the date and the accounting period, which are entered by default as today's date.

A click on *PRO-FORMA* moves from the Draft to Pro-forma state. And click *Validate* when you want to approve the invoice. It moves from the Draft state to the Open state.

Note:**PRO-FORMA button**

In order to get the PRO-FORMA button on invoice, go to the menu Settings → Accounting, eInvoicing & Payments section and click the boolean field Allow pro-forma invoices.

When you have validated an invoice, OpenERP gives it a unique number from a defined sequence. By default it takes the form Journal Code/Year/Sequence Number for example, SAJ/2010/005 . You cannot modify an invoice number, but instead, you should modify the sequence numbers through the menu *Settings → Configuration → Accounting, eInvoicing & Payments* section and provide *Next Invoice number*

Accounting entries corresponding to this invoice are automatically generated when you approve the invoice. You see the details by clicking the entry in the *Journal Entry* field and searching there for the account moves generated by that invoice number.

Furthermore, you can also *Print* or *Email* your Invoice.

12.2.2 Tax Management

Details on the product form determine the selection of applicable taxes for an invoice line. By default, OpenERP takes account of all the taxes defined in the product form.

Take the case of the following product

- Applicable taxes:
 - TVA: 19.6% type TVA
 - DEEE: 5.5, type DEEE

Note:**DEEE Tax**

The DEEE tax (disposal of electronic and electrical equipment) is an ecological tax that was imposed in France from 2009. It is applied to batteries to finance their recycling and is a fixed sum that is applied to the before-tax amount on the invoice.

If you trade with a company in your own country, and your country has a DEEE-type tax, the applicable taxes for this invoice could be:

- DEEE: 5.5,
- TVA: 19.6%.

If you sell to a customer in another company in the community (intracomunity), instead, then tax is not charged. In the partner form, in the tab *Accounting*, the field *Fiscal Position* maintains information whether the customer is within the region or not. When you create an invoice for this customer, OpenERP will calculate the following taxes on the product:

- DEEE: 5.5,
- TVA intracomunity: 0%.

If you have not entered the parameters in the customer form correctly, OpenERP will suggest incorrect taxes in the invoice. That is not a real issue, because you can always modify the information directly in the invoice before approving it.

Tip:

Occasional Invoices

When you create an invoice for a product that will only be bought or sold once, you do not have to encode a new product. Instead, you will have to provide quite a bit of information manually on the invoice line:

- *product description,*
- *account,*
- *quantity,*
- *unit price.*

12.2.3 Cancelling an Invoice

By default, OpenERP will not allow you to cancel an invoice once it has been approved. Since accounting entries have been created, you theoretically cannot go back and delete them. However, in some cases, it is more convenient to cancel an invoice when there is an error than to produce a credit note and reconcile the two entries. Your attitude to this will be influenced by current legislation in your accounting jurisdiction and your adherence to accounting purity.

OpenERP accommodates either approach. Install the *account_cancel* module. Then allow cancelling an invoice by checking the box *Allow Cancelling Entries* in the Journal corresponding to this invoice. You will then be allowed to cancel the invoice if the following two conditions are met:

1. The accounting entries have not been reconciled or paid: if they have, then you will have to cancel the reconciliation first.
2. The accounting period or the fiscal year has not already been closed: if it is closed then no modification is possible.

Cancelling an invoice has the effect of automatically modifying the corresponding accounting entries.

To be able to cancel invoices, you should install the module *account_cancel*. You can cancel an invoice if the *Allow Cancelling Entries* function has been activated in the journal and the entries have not yet been reconciled. You could then move it from *Cancelled* to the *Draft* state to modify it and regenerate it.

Tip:*Numbering Invoices*

Some countries require you to have contiguously numbered invoices (that is, with no break in the sequence). If, after cancelling an invoice that you are not regenerating, you find yourself with a break in the numbering you would have to go and modify the sequence, redo the invoice and replace the sequence number with its original value.

You can control the sequences using the menu Settings → Technical → Sequences & Identifiers → Sequences.

Cancelling an invoice will cause a break in the number sequence of your invoices. You are strongly advised to recreate this invoice and re-approve it to fill the hole in the numbering if you can.

Tip:*Duplicating a Document*

The duplication function can be applied to all the system documents: you can duplicate anything – a product, an order, or a delivery.

Note:*Duplicating Invoices*

Instead of entering a new invoice each time, you can base an invoice on a similar preceding one and duplicate it. To do this, first search for a suitable existing invoice. In the web client, show the invoice in read-only (non-editable) form view, then click on More and Duplicate.

The duplication creates a new invoice in the Draft state. That enables you to modify it before approving it. Duplicating documents in OpenERP is an intelligent function, which enables the duplicated invoice to be given its own sequence number, today's date, and the draft state, even if the preceding invoice has been paid.

12.2.4 Creating a Supplier Invoice

The form that manages supplier invoices is very similar to the one for customer invoices. However, it has been adapted to simplify rapid data entry and monitoring of the amounts recorded.

Tip:*Entering Data*

Many companies do not enter data on supplier invoices, but simply enter accounting data corresponding to the purchase journal.

This particularly applies to users that have focused on the accounting system rather than all the capabilities provided by an ERP system. The two approaches reach the same accounting result: some prefer one and others prefer the other depending on their skills.

However, when you use the Purchase Management functions in OpenERP you should work directly on invoices because they are provided from Purchase Orders or Goods Receipt documents.

To enter a new supplier invoice, use the menu Accounting → Suppliers → Supplier Invoices.

Everything is similar to the customer invoice, starting with the *Journal* unless the default is acceptable, and then the *Supplier*, which will automatically complete the following fields

- Partner Account.

Unlike the customer invoice, you do not have to enter payment conditions – simply a *Due Date* if you want one. If you do not give a due date, OpenERP assumes that this invoice will be paid in cash. If you want to enter more complete payment conditions than just the due date, you can use the *Payment Term* field which you can find on the second tab *Other Info*.

Indicate the *Currency* if the invoice is not going to use the default currency, then you can enter the *Invoice lines*.

Just like the customer invoice, you have the choice of entering all the information manually or use a product to complete many of the fields automatically. When you enter a product, all of the following values are completed automatically:

- the product *Account* is completed from the properties of the product form or the *Category* of the product if nothing is defined on the product itself,
- the *Taxes* come from the product form and/or the partner form, based on the same principles as the customer invoice,
- the *Quantity* is set at 1 by default but can be changed manually,
- *Unit Price* : this is given by the cost price in the product form.

You can click (*update*) on the invoice in the *Edit* mode to get the details of tax calculated.

OpenERP automatically completes the *Invoice Date* and the accounting period.

Note:

Dates and Accounting Periods

Accounting periods are treated as legal period declarations. For example, a tax declaration for an invoice depends on the accounting period and not on the date of invoicing.

Depending on whether your declarations are made monthly or quarterly, the fiscal year contains either twelve or four accounting periods.

The dates are shown in the document you created in the accounting system. They are used for calculating due dates.

The two pieces of information do not have to have the same date. If, for example, you receive an invoice dated 5th January which relates to goods or services supplied before 31st December, the invoice may be coded into the December accounting period and thus be recognized in that period for the tax declaration, while the invoice can remain 5th January which remains the basis of the due date for payment.

You can find that the amounts do not correspond with what your supplier has given you on paper for reasons that can include:

- the supplier made a calculation error,
- the amounts have been rounded differently.

Tip:

Rounding Tax

It often happens that a supplier adds 1 to the total because the tax calculation has been rounded upwards. Some tax amounts are not valid because of this rounding.

For example, it is impossible to arrive at the amount of 145.50 if you are working to a precision of 2 decimal places and a rate of 19.6%:

- $121.65 \times 1.196 = 145.49$
- $121.66 \times 1.196 = 145.51$

In this case you can add a row in the Taxes so that you can adjust a total.

When the totals tally, you can validate the invoice. OpenERP then generates the corresponding accounting entries. You can manage those entries using the *Account* fields on the invoice and on each of the invoice lines.

12.2.5 Credit Notes / Refunds

Entering a customer credit note is almost identical to entering a customer invoice. You just start from the menu *Accounting → Customers → Customer Refunds*.

Similarly, entering a supplier credit note is the same as that of the supplier invoice, and so you use the menu *Accounting → Suppliers → Supplier Refunds*.

It is easy to generate a credit note quickly from an existing invoice. To do this, select a customer or supplier invoice which is in `Paid` state and click the *Refund* button. OpenERP opens a new payment invoice form for you in the `Draft` state so that you can modify it before approval.

Below you find the different options displayed when you click the Refund button on an invoice.

- *Create a Draft Refund* : Creates a draft credit note of the complete invoice. You can change this credit note, i.e. to make a partial credit note.
- *Modify* : Creates a credit note for the existing invoice, validates the credit note and reconciles it with the invoice. The existing invoice is duplicated so that you can modify it.
- *Cancel* : Creates a credit note for the complete invoice, validates the credit note and reconciles it with the invoice concerned.

12.2.6 Payments

An invoice is automatically marked as `Paid` by OpenERP once invoice entries have been reconciled with payment entries. You yourself do not have to mark the invoices as paid: OpenERP manages that when you reconcile your payments.

Tip:

Reconciling a Credit Note

Generally, you reconcile the invoice's accounting entries with their payment(s). But you can also reconcile an invoice with the entries from the corresponding credit note instead, to mutually cancel them.

You have seen the *Register Payment* button in the invoice form which is in `Open` state. This lets you enter payments and get entries reconciled very quickly.

You can also manage the payment of invoices when you are entering bank statements and cash transactions. These allow better control of financial transactions and permit greater flexibility in areas such as:

- advance and partial payments of invoices,
- payment of several invoices by several payments,
- fine-grained management of different due dates on the same invoices,
- management of adjustments if there are different amounts to those on the invoice.

12.3 Accounting Entries

Various methods can be used to create accounting entries. You have already seen how an invoice creates its own entries, for example.

This section deals with

- managing bank statements,
- managing cash,
- manual journal entries.

Here we will show you how to enter financial transactions. In OpenERP, you can handle bank statements and also a cash register. Use different journals for these two kinds of transaction. According to the journal type selected, you will have a different screen. For more information about creating journals, refer to the Configuring Accounts from A to Z chapter.

12.3.1 Managing Bank Statements

OpenERP provides a visual tool for managing bank statements that simplifies data entry into accounts. As soon as a statement is validated, the corresponding accounting entries are automatically generated by OpenERP. So non-accounting people can enter financial transactions without having to worry about things such as credit, debit and counterparts.

To enter a bank statement, go to the menu *Accounting → Bank and Cash → Bank Statements*. A data entry form for bank statements then opens as shown in figure *Data Entry Form for a Bank Statement*.

The screenshot shows the 'Bank Statement' data entry form. At the top, it displays the reference 'BNK/2013/024'. Below this, there are sections for 'Journal' (set to 'Bank (EUR)'), 'Date / Period' (set to '04/07/2013 X 04/2013'), and 'Company' (set to 'Your Company'). On the right, it shows 'Starting Balance' (0.00 €) and 'Ending Balance' (250.00 €). The main area contains a table with two tabs: 'Transactions' (selected) and 'CODA Notes'. The 'Transactions' tab shows a single row of data:

Date	OBI	Reference	Partner	Type	Account	Analytic Distribution	Amount
04/08/2013	/	SO019	Agrolait	Customer	400000 Clients		250.00

Figure 12.3: Data Entry Form for a Bank Statement

The statement reference *Name* and the *Date* are automatically suggested by OpenERP. The *Name* will be filled with the statement number at confirmation of the bank statement. You can configure your own reference by managing sequences in the *Settings → Technical → Sequences & Identifiers → Sequences* menu.

Then select the correct *Journal*. Ideally, when you are configuring your company, you would create at least one journal for each bank account and one journal for petty cash in your company. So select the journal corresponding to the bank account whose statement you are handling.

The currency that you are using for the statement line is that of the selected journal. If you are entering statement lines for an account in American Dollars (USD), the amounts must be entered in USD . The currency is automatically converted into the company's main currency when you confirm the entry, using the rates in effect at the date of entry. (This means that you would need valid currency conversion rates to be created first. Go to *Accounting → Configuration → Miscellaneous → Currencies* menu.)

OpenERP automatically completes the initial balance based on the closing balance of the preceding statement. You can modify this value and force another value. This lets you enter statements in the order of your choice. Also if you have lost a page of your statement, you can enter the following ones immediately and you are not forced to wait for a duplicate from the bank.

So, complete the closing balance which corresponds to the new value in the account displayed on your bank statement. This amount will be used to control the operations before approving the statement.

Then you must enter all the lines on the statement. Each line corresponds to a banking transaction.

Enter the transaction line. You have two ways of entering financial transactions: manually or through the *Import Invoices* button.

12.3.2 Manual Entry

When you type the Partner name, OpenERP automatically proposes the corresponding centralisation account. The total amount due for the customer or supplier is pre-completed (*Amount*). This gives you a simple indication of the effective payment. You must then enter the amount that appears on your statement line: a negative sign for a withdrawal and a positive sign for a cash payment or deposit.

12.3.3 Import Invoices

Click the *Import Invoices* button, then click Add to select the invoices for which your payment will have to be reconciled. Click select to confirm your selection; the statement line will automatically be added with the corresponding reconciliation.

	Journal	Period	Effective date	Name	Reference	Partner	Account	Analytic Distribution	Journal Entry	Debit	Credit
<input type="checkbox"/>	Sales Journal (EUR)	X 04/2013	04/08/2013	/	SO020	Seagate	400000 Clients		SAJ/2013/0007	1.21	0.00
<input type="checkbox"/>	Sales Journal (EUR)	X 04/2013	04/08/2013	/	SAJ20130006	Axelor	400000 Clients		SAJ/2013/0006	700.00	0.00
<input type="checkbox"/>	Sales Journal (EUR)	X 04/2013	04/08/2013	/	SAJ20130005	Camptocamp	400000 Clients		SAJ/2013/0005	90.00	0.00
<input checked="" type="checkbox"/>	Sales Journal (EUR)	X 04/2013	04/08/2013	/	SO019	Agrolait	400000 Clients		SAJ/2013/0004	250.00	0.00
<input type="checkbox"/>	Sales Journal (EUR)	X 04/2013	04/08/2013	/	SO001	Agrolait	400000 Clients		SAJ/2013/0003	9705.00	0.00
<input type="checkbox"/>	Purchase Journal	X 04/2013	04/08/2013	PO00006	PO00006	Vicking Direct	440000 Entrepeneur		EXJ/2013/0001	0.00	1335.00

Figure 12.4: Reconciliation from Data Entry of the Bank Statement

Note:

Reconciliation

Other methods of reconciliation are possible: from accounting entries, when saving the payment directly on an invoice, or using the automatic reconciliation tool.

You can carry out either a full or a partial reconciliation.

If you see a difference between the payment and the invoices to reconcile, you can enter the difference in the second part of the form *Write-off*. You have to set an account for the adjustment. The main reasons explaining the difference are usually:

- profit or loss,
- exchange differences,
- discounts given for fast payment.

When the reconciliation is complete - that is, the payment is equal to the sum of the due payments and the adjustments - you can close the reconciliation form.

The reconciliation operation is optional – you could very well do it later or not do it at all. However, reconciliation has got two significant effects:

- marking that the invoices have been paid,
- preventing the payment and invoice amounts from appearing on customer reminder letters. Unless you have reconciled them, a customer will see the invoice and payment amounts on his reminder letter (which will not alter the balance due since they will just cancel each other out).

Finally, once you have entered the complete bank statement, you can validate it. OpenERP then automatically generates the corresponding accounting entries if the calculated balance equals the final balance, indicated in the Closing Balance field. The reconciled invoices are marked as paid at that point.

You can also enter general accounting entries, for example, banking costs. In such cases, you can enter the amounts directly in the corresponding general accounts.

A user with advanced accounting skills can enter accounting entries directly into the bank journal from *Accounting* → *Journal Entries* → *Journal Items*. The result is the same, but the operation is more complex because you must know the accounts to use and must have mastered the ideas of credit and debit.

12.3.4 Cash Management

To manage cash, you can use the menu *Accounting → Bank and Cash → Cash Registers*. At the start of the day you set the opening amount of cash in the entry (*Opening Balance*). Then click on button *Open CashBox*, after you can start making entries from the *Cash Transactions* tab.

Note:

Cash Control

You have to go menu Accounting → Configuration → Journals → Journals and open the cash journal , then go to the Cash Register tab of form and select option Opening With Last Losing Balance and Cash Control.

Because if you do not select that options , than you will find Opening Cash Control field 0.00 of Cash Register form. So first you have to configure Journal.

The screenshot shows the SAP Cash Register interface for document BNK1/2013/0005. The top navigation bar includes 'Edit', 'Create', 'Attachment(s)', 'More', 'Close CashBox', 'Cancel CashBox', 'New', 'Open' (which is highlighted in blue), and 'Closed'. The main area displays the document header with fields: Journal (BNK1/2013/0005), Cash (EUR), Responsible (Administrator), Date (04/08/2013), Total Transactions (0.00), Closed On (X 04/2013), Company (Your Company), and Period (X 04/2013). Below the header are two tabs: 'Cash Transactions' (selected) and 'Cash Control'. The 'Cash Transactions' tab shows a table of cash movements with columns: Unit of Currency, Opening Unit Numbers, Opening Subtotal, Closing Unit Numbers, and Closing Subtotal. The table lists various denominations from 0.01 to 1000.00, with a total of 20 units and a closing subtotal of 20000.00. The 'Cash Control' tab shows 'Opening Balance' (Opening Cash Control: 20000.00, Last Closing Balance: 0.00, Total Transactions: 200.00) and 'Closing Balance' (Computed Balance: 20200.00).

Figure 12.5: Defining the Cash Register

All the transactions throughout the day are then entered in this statement. When you close the cashbox, generally at the end of the day, enter the amounts on the *Cash Control* tab, in the *Closing Balance* section. Then confirm the statement to close the day's cash statement and automatically generate the corresponding accounting entries. Note that the *Calculated Balance* and the *CashBox Balance* need to be equal before you can close the cashbox.

Tip:

Confirming the Statement

Accounting entries are only generated when the cash statement is confirmed. So if the total statement has not been approved (that is to say during the day, in the case of petty cash), partner payments will not have been deducted from their corresponding account.

12.3.5 Manual Entry in a Journal

Invoices and statements produce accounting entries in different journals. But you could also create entries directly in a journal (line by line) without using the dedicated journal views. This functionality is often used for miscellaneous entries.

To make manual entries, go to the following menu *Accounting → Journal Entries → Journal Items*. In the *Journal* field from the filter, select the journal in which you want to post. When you select a journal in this filter, you do not have to fill in the journal when posting new entries.

Let us give the example of a purchase invoice. Note, however, that these entries are usually generated automatically by OpenERP.

Click the *Create* button. Fill these fields manually in the following order:

- *Reference*: reference from the invoice or entry,
- *Effective date*: effective date of the entry, will be preset with today's date
- *Period*: financial period, will be preset with the current period
- *Partner*: partner concerned,
- *Account*: general account (e.g. purchase account Products Purchase),
- *Name*: description of the invoice line (e.g. PC2),
- *Debit*: here you type the debit amount.
- *Journal*: here you select the journal in which you want to post.
- *Credit*: here you type the credit amount, e.g. 1196 .

Press the *Enter* key on your keyboard to validate the first line. The next draft move number is assigned to your accounting entry. Your line is then colored red and takes the *Unbalanced* state. When a line is in the draft state, it is not yet reflected in the accounts. OpenERP will not validate that line until the balancing entry is made (so the credit amounts must balance the debit amounts for that set of entries).

OpenERP now proposes the balancing accounting line to be filled in. If the account used (in this case account 600000) includes taxes by default OpenERP automatically proposes taxes associated with the amount entered. At this stage you can modify and validate this second line of the account, or replace it with other information such as a second purchase line.

When you have entered all of the data from your lines, OpenERP automatically proposes counterpart entries to you, based on the credit entries.

Tip:

Completing a Balancing Entry

When an accounting entry is matched, OpenERP moves it to the Valid state automatically and prepares to enter the next data. Do not forget to definitely post the valid entries by clicking the Action button and selecting Post Journal Entries.

If you want to add some other balancing lines you can enter the number of the entry on the new line that you are entering. In such a case the whole line stays Draft until the whole set balances to zero.

12.3.6 Reconciliation Process

The reconciliation operation consists of matching entries in different accounts to indicate that they are related. Generally reconciliation is used for:

- matching invoice entries to payments, so that invoices are marked as paid and customers do not get payment reminder letters for those entries (reconciliation in a customer account),
- matching deposits and cheque withdrawals with their respective payments,
- matching invoices and credit notes to cancel them out.

A reconciliation must be carried out on a list of accounting entries by an accountant, so that the sum of credits equals the sum of the debits for the matched entries.

Reconciliation in OpenERP can only be carried out in accounts that have been configured as reconcilable (the *Reconcile* field).

Tip:

Do not confuse account reconciliation and bank statement reconciliation

It is important not to confuse the reconciliation of accounting entries with bank statement reconciliation. Account reconciliation consists of linking account entries with each other, while statement reconciliation consists of verifying that your bank statement corresponds to the entries of that account in your accounting system.

There are different methods of reconciling entries. You have already seen the reconciliation of entries while doing data entry in an account. Automatic and manual reconciliations are described here.

Automatic Reconciliation

For automatic reconciliation, you will be asking OpenERP to search for entries to reconcile in a series of accounts. OpenERP tries to find entries for each partner where the amounts correspond.

Depending on the level of complexity that you choose (= power) when you start running the tool, the software could reconcile from two to nine entries at the same time. For example, if you select level 5, OpenERP will reconcile, for instance, three invoices and two payments if the total amounts correspond. Note that you can also choose a maximum write-off amount, if you allow payment differences to be posted.

Code	Name	Secondary Currency	Exchange Rate	Foreign Balance	Adjusted Balance	Balance	Unrealized Gain or Loss
400000	Clients			0.00	0.00	10746.21	0.00

Figure 12.6: Form for Automatic Reconciliation

To start the reconciliation tool, click *Accounting → Periodical Processing → Reconciliation → Automatic Reconciliation*.

A form opens, asking you for the following information:

- *Add Accounts to Reconcile* : you can select one, several or all reconcilable accounts,
- the Reconciliation *Power* (from 2 to 4),
- checkbox *Allow write off* to determine whether you will allow for payment differences.
- information needed for the adjustment (details for the *Write-Off Move*).

Note:**Reconciling**

You can reconcile any account, but the most common accounts are:

- *all the Accounts Receivable – your customer accounts of type Debtor,*
- *all the Accounts Payable – your supplier accounts of type Creditor.*

The write-off option enables you to reconcile entries even if their amounts are not exactly equivalent. For example, OpenERP permits foreign customers whose accounts are in different currencies to have a difference of up to, say,

0.50 units of currency and put the difference in a write-off account.

Tip:

Limit Write-off Adjustments

You should not make the adjustment limits too large. Companies that introduced substantial automatic write-off adjustments have found that all employee expense reimbursements below the limit were written off automatically!

Manual Reconciliation

For manual reconciliation, open the entries for reconciling an account through the menu *Accounting → Periodical Processing → Reconciliation → Manual Reconciliation*.

You can also call up manual reconciliation from any screen that shows accounting entries.

Select entries that you want to reconcile. OpenERP indicates the sum of debits and credits for the selected entries. When these are equal you can click the *Reconcile Entries* button to reconcile the entries.

Note:

Example Real Case of Using Reconciliation

Suppose that you are entering customer order details. You wonder what is outstanding on the customer account (that is the list of unpaid invoices and unreconciled payments). To review it from the order form, navigate to the Partner record and select the view Receivables and Payables. OpenERP opens a history of unreconciled accounting entries on screen.

After running the Reconcile Entries wizard, these lines can no longer be selected and will not appear when the entries are listed again. If there is a difference between the two entries, OpenERP suggests you to make an adjustment. This “write-off” is a compensating entry that enables a complete reconciliation. You must therefore specify the journal and the account to be used for the write-off.

For example, if you want to reconcile the following entries:

Table 12.1: Entries for reconciliation

Date	Ref.	Description	Account	Debit	Credit
12 May 11	INV23	Car hire	4010	544.50	
25 May 11	INV44	Car insurance	4010	100.00	
31 May 11	PAY01	Invoices n° 23, 44	4010		644.00

On reconciliation, OpenERP shows a difference of 0.50. At this stage you have two possibilities:

- do not reconcile, and the customer receives a request for 0.50,
- reconcile and accept an adjustment of 0.50 that you will take from the P&L account.

OpenERP generates the following entry automatically:

Table 12.2: Write-off account

Date	Ref.	Description	Account	Debit	Credit
Date	Ref.	Description	Account	Debit	Credit
03 Jun 11	AJ001	Adjustment: profits and losses	4010		0.50
03 Jun 11	AJ001	Adjustment: profits and losses	XXX	0.50	

The two invoices and the payment will be reconciled in the first adjustment line. The two invoices will then be automatically marked as paid.

12.4 Payment Management

OpenERP gives you forms to prepare, validate and execute payment orders. This enables you to manage issues such as:

1. Payment provided on several due dates.
2. Automatic payment dates.
3. Separating payment preparation and payment approval in your company.
4. Preparing an order during the week containing several payments, then creating a payment file at the end of the week.
5. Creating a file for electronic payment which can be sent to a bank for execution.
6. Splitting payments depending on the balances available in your various bank accounts.

12.4.1 How to Manage your Payment Orders?

To use the tool for managing payments you must first install the module `account_payment`, or Go to menu *Settings → Configuration → Accounting* in eInvoicing & Payments section tick `Manage payment orders`. Supplier Payments are part of the core OpenERP system.

The system lets you enter a series of payments to be carried out from your various bank accounts. Once the different payments have been registered, you can validate the payment orders. During validation you can modify and approve the payment orders, sending the order to the bank for electronic funds transfer.

For example, if you have to pay a supplier's invoice for a large amount you can split the payments amongst several bank accounts according to their available balance. To do this, you can prepare several draft orders and validate them once you are satisfied that the split is correct.

This process can also be regularly scheduled. In some companies, a payment order is kept in `Draft` state and payments are added to the draft list each day. At the end of the week, the accountant reviews and confirms all the waiting payment orders.

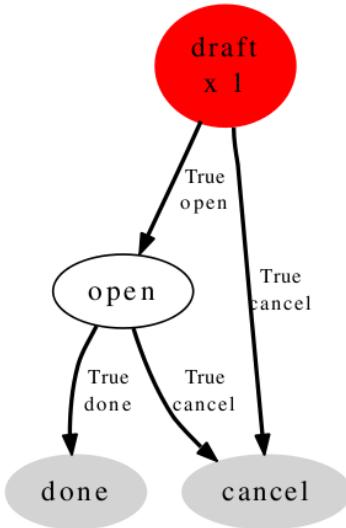
Once the payment order is confirmed, there is still a validation step for an accountant to carry out. You could imagine that these orders would be prepared by an accounts clerk, and then approved by a manager to go ahead with payment.

Tip:

Payment Workflow

An OpenERP workflow is associated with each payment order. Select a payment order, and if you are in the developer mode Click on `Debug View#` and then select `print workflow` to print the payment order workflow.

You can integrate more complex workflow rules to manage payment orders by adapting the workflow. For example, in some companies payments must be approved by a manager under certain cash flow or value limit conditions.



Workflow: Payment Order Workflow
OSV: payment.order

Figure 12.7: Payments Workflow

In small businesses it is usually the same person who enters the payment orders and who validates them. In this case you should just click the two buttons, one after the other, to confirm the payment.

12.4.2 Prepare and Transfer Orders

To enter a payment order, use the menu *Accounting → Payment → Payment Orders*.

The screenshot shows a list of payment orders. At the top, there are buttons for 'Confirm Payments' and 'Cancel Payments'. Below this, a header row includes fields for 'Invoice Ref.', 'Partner', 'Communication', 'Destination Bank Account', 'Due Date', 'Payment Date', 'Amount', 'Partner Currency', and 'Your Reference'. The first item in the list is EXJ/2012/0002, associated with Axelor.

Invoice Ref.	Partner	Communication	Destination Bank Account	Due Date	Payment Date	Amount	Partner Currency	Your Reference
EXJ/2012/0002	Axelor	EXJ20120002				2311.50	EUR (€)	002

Figure 12.8: Entering a Payment Order

OpenERP then proposes a reference number for your payment order.

You then have to choose a payment mode from the various methods available to your company. These have to be configured when you set up the accounting system using the menu *Accounting → Configuration → Miscellaneous → Payment Mode*. Some examples are:

- Cheques
- Bank transfer,
- Visa card on a bank account,
- Petty cash.

Then, you set the *Preferred date* for payment:

- Due date : each operation will be effected at the invoice deadline date,

- **Directly** : the operations will be effected when the orders are validated,
- **Fixed date** : you must specify an effective payment date in the *Scheduled date if fixed* field that follows.

The date is particularly important for the preparation of electronic transfers, because banking interfaces enable you to select a future execution date for each operation. So to configure your OpenERP, most simply you can choose to pay all invoices automatically by their deadline.

You must then select the invoices to pay. They can be entered manually in the field *Payment Line*, but it is easier to add them automatically. For that, click *Select Invoices to Pay* and OpenERP will then propose lines with payment deadlines. For each deadline you can see:

- the invoice *Payment Date*,
- the reference *Invoice Ref.*,
- the deadline for the invoice,
- the amount to be paid in the partner's default currency.

You can then accept the payment proposed by OpenERP, or select the entries that you will pay or not pay on that order. OpenERP gives you all the necessary information to make a payment decision for each line item:

- account,
- supplier's bank account,
- amount that will be paid,
- amount to pay,
- the supplier,
- total amount owed to the supplier,
- due date,
- date of creation.

You can modify the first three fields on each line: the account, the supplier's bank account and the amount that will be paid. This arrangement is very practical because it gives you complete visibility of all the company's trade payables. You can pay only a part of an invoice, for example, and in preparing your next payment order OpenERP automatically suggests payment of the remainder owed.

When the payment has been prepared correctly, click *Confirm Payments*. The payment then changes to the *Confirmed* state and a new button appears that can be used to start the payment process.

You can print the payment order to send it to the bank by clicking the *Print → Payment Order* at the top of the screen.

12.5 Asset Management

Financial and accounting asset management. To manage the assets owned by a company or an individual and to keep track of depreciation occurred on those assets. Also allows to create accounting moves of the depreciation lines.

You can manage your assets and accounting related to those assets using account_asset module. Using the menu *Settings → Accounting → Account*, Accounting & Finance tick *Assets management* and click on *Apply* button for install the account_asset module.

Accounting & Finance

Options	Default company currency: EUR Decimal precision on journal entries: 2 Tax calculation rounding method: Round per line
Features	<input type="checkbox"/> Allow multi currencies <input checked="" type="checkbox"/> Full accounting features: journals, legal statements, chart of accounts, etc. <input type="checkbox"/> Analytic accounting <input checked="" type="checkbox"/> Assets management <input type="checkbox"/> Budget management

Figure 12.9: Configuration for installation of account_asset module

Using the menu *Accounting → Assets → Assets*, you can store all information related to your assets like how much depreciation can be occurred, depreciation amount based on selected depreciation method, date on which the asset is purchased, purchase value of the asset, supplier of the asset etc.

You can also see different states of assets. If the asset is confirmed then the depreciation lines can be posted in the accounting. An asset can be closed manually when depreciation is over or it will be closed automatically when the last depreciation line is posted.

You can also see asset hierarchy by using menu *Accounting → Assets → Asset Hierarchy*.

The statistical report for assets can be seen using the menu *Reporting → Accounting → Assets Analysis*.

12.5.1 Define asset categories

You can create asset categories by using the menu: *Accounting → Configuration → Financial Accounting → Assets → Asset Categories* and click *Create*.

Asset Categ... / New

Save or Discard

Name	Journal
	Asset Account
	Depreciation Account
	Depr. Expense Account
Depreciation Dates	
Time Method	Number of Depreciations
Number of Depreciations	5
Period Length	12
Depreciation Method	
Computation Method	Linear
Prorata Temporis	<input type="checkbox"/>
Skip Draft State	<input type="checkbox"/>
Notes	
<div style="border: 1px solid #ccc; height: 40px; width: 100%;"></div>	

Figure 12.10: Asset categories form

You can configure the following information:

- *Name* : A name for asset category
- *Journal* : A journal to store the accounting entries mostly purchase or expense journal.
- *Asset Account* : This account will be credited when depreciation line is posted.
- *Depreciation Account* : Account, same as Asset Account or it can be different for storing depreciation separately.
- *Depr. Expense Account* : Account which will be debited when depreciation line is posted.
- *Time Method* : Either Number of Depreciations or Ending Date.

- *Number of Depreciations* : If time method is Number of Depreciations you must specify a number of depreciation lines.
- *Ending Date* : If time method is Ending Date then you must specify the ending date and the depreciation date won't go beyond this date.
- *Period Length* : Time duration between two depreciations, in months.
- *Computation Method* : Either Linear or Degressive.
- *Degressive Factor* : If computation method is Degressive then you must specify degressive factor. This is used to calculate depreciation lines by multiplying it with remaining depreciation value.
- *Prorata Temporis* : If True, first depreciation entry will be calculated from purchase date.
- *Skip Draft State* : If True, assets of this category will be automatically confirmed when created from invoice.

12.5.2 Manage assets and depreciation

You can create asset by using the menu *Accounting → Assets → Assets* and click *Create*.

The screenshot shows the 'Assets / New' form. At the top, there's a 'Save' button and a 'Discard' link. Below that is a 'Confirm Asset' button. The main area has tabs for 'General', 'Depreciation Board', 'History', and 'Notes'. Under 'General', there are fields for 'Asset Name' (with a placeholder 'Entries'), 'Asset Category' (dropdown), 'Purchase Date' (set to 04/05/2013), 'Reference' (text input), and 'Parent Asset' (dropdown). Under 'Depreciation Board', there are fields for 'Gross Value' (0.00 €), 'Salvage Value' (0.00 €), 'Residual Value' (0.00 €), and 'Partner' (dropdown). On the right side, under 'Computation Method', it says 'Linear' and 'Time Method' is set to 'Number of Depreciations'. Below that are fields for 'Prorata Temporis' (checkbox), 'Number of Depreciations' (set to 5), and 'Number of Months in a Period' (set to 12).

Figure 12.11: Assets form

You can configure the following information:

- *Asset* : A name for an asset.
- *Asset Category* : Select a category for the asset.
- *Gross Value* : Gross purchase amount of the asset.
- *Salvage Value* : Amount which we plan to have that cannot be depreciated.
- *Purchase Date* : Date on which asset is purchased.
- *Partner* : Supplier of the asset.

After computing the depreciation you get the following values in Depreciation board based on selected methods and period. Now you can confirm the asset by clicking on *Confirm Asset* button. The state of the asset will now be Running.

For the confirmed assets you can post the depreciation lines by clicking on *Create Move* button on depreciation

line. You can also see that *Depreciation Amount* on depreciation line is deducted from the *Residual Value*.

Depreciation Date	Amount Already Depreciated	Current Depreciation	Next Period Depreciation	Posted
01/01/2013	0.00	1000.00	9000.00	✓
01/01/2014	1000.00	1000.00	8000.00	✗
01/01/2015	2000.00	1000.00	7000.00	✗
01/01/2016	3000.00	1000.00	6000.00	✗
01/01/2017	4000.00	1000.00	5000.00	✗
01/01/2018	5000.00	1000.00	4000.00	✗
01/01/2019	6000.00	1000.00	3000.00	✗
01/01/2020	7000.00	1000.00	2000.00	✗
01/01/2021	8000.00	1000.00	1000.00	✗
01/01/2022	9000.00	1000.00	0.00	✗

Figure 12.12: *Depreciation board*

You can see the accounting entry for the posted depreciation lines on *History* tab as shown below:

General	Depreciation Board	History	Notes							
Journal	Period	Effective date	Name	Reference	Partner	Account	Journal Entry	Debit	Credit	Reconcile Ref
Expenses Journal - (test) (EUR)	X 04/2013	04/05/2013	CEO's Car	1/1		X2110 Expenses - (test)	*4	1000.00	0.00	

Date	History name	User	Time Method	Number of Depreciations	Period Length	Ending date

Figure 12.13: *Accounting entry for posted depreciation line*

You can get a complete report for account move entries of assets in the Balance Sheet report by using the menu *Accounting → Reporting → Legal reports → Accounting Reports → Balance Sheet*. You can select a related Chart of Accounts and check Landscape Mode field and click on *Print* to generate a PDF report with your

specifications. You will get the following report.

The screenshot shows a PDF document titled "Your Company Balance Sheet" dated 04/05/2013 at 08:55. The report includes a header with "Chart of Accounts", "Fiscal Year", and "Filter By" options. The main table displays the following data:

Name	Debit	Credit	Balance
Liability	1000.00 €	1850.00 €	-850.00 €
Profit (Loss) to report	1000.00 €	1850.00 €	-850.00 €
Liability	0.00 €	0.00 €	0.00 €
Assets	3900.00 €	3050.00 €	850.00 €
X10 Assets - (test)	3900.00 €	3050.00 €	850.00 €
X100 Fixed Assets - (test)	0.00 €	1000.00 €	-1000.00 €
X1000 Fixed Asset Account - (test)	0.00 €	1000.00 €	-1000.00 €
X101 Net Current Assets - (test)	3900.00 €	2050.00 €	1850.00 €
X1100 Current Assets - (test)	3900.00 €	2050.00 €	1850.00 €
X11003 Output VAT - (test)	0.00 €	100.00 €	-100.00 €
X11005 Cash - (test)	1950.00 €	0.00 €	1950.00 €

Figure 12.14: *Balance Sheet PDF report*

12.5.3 Analysis of Assets

Accounting → Reporting → Statistic Reports → Assets Analysis will give you the statistical report of assets. This report is enhanced by various filters and groupings to assist you in your search and required information.

The screenshot shows a web-based "Assets Analysis" report. The interface includes a search bar for "Asset Category" and "Asset" with a dropdown menu, and a page indicator "1-35 of 35". The table has columns: Group, # of Depreciation Lines, Gross Amount, Amount of Depreciation Lines, Posted Amount, and Unposted Amount. The data is grouped by asset category:

Group	# of Depreciation Lines	Gross Amount	Amount of Depreciation Lines	Posted Amount	Unposted Amount
Hardware - 3 Years (35)	35	514800.00	412800.00	1000.00	411800.00
CEO's Car (10)	10	12000.00	10000.00	1000.00	9000.00
V6 Engine and 10 inches tires (4)	4	2800.00	2800.00	0.00	2800.00
Office (21)	21	500000.00	400000.00	0.00	400000.00
	35		412800.00		

Figure 12.15: *Asset Analysis report*

FINANCIAL ANALYSIS

This chapter is dedicated to statutory taxation and financial reporting from OpenERP. Whether you need reports about customers and suppliers, or statements for various statutory purposes, OpenERP enables you to carry out a whole range of parametric analyses regarding the financial health of your company.

Whether you want to analyze the general health of your company or review the status of an Account Receivable in detail, your company's accounts are the place to define your various business indicators.

To show you the most accurate picture of your business, OpenERP's accounting reports are flexible, and the results are calculated in real time. This enables you to automate recurring actions and to change your operations quickly when a company-wide problem (such as cash reserves dropping too low or receivables climbing too high) or a local problem (a customer that has not paid, or a project budget overspend) occurs.

This chapter describes the various reports and financial statements supplied by OpenERP's accounting modules. It also describes how OpenERP handles purchase and sales taxation, and the related tax reporting.

For this chapter you should start with a fresh database that includes demo data, with `sale` and its dependencies installed and no particular chart of accounts configured.

13.1 General Ledger and Trial Balance

A general ledger includes accounts with their debits and credits, and shows all transactions in an account, for one period, for several periods or for a financial year.

To print the *General Ledger*, you can use the menu *Accounting → Reporting → Legal Reports → Accounting Reports → General Ledger*. You will find the following wizard which is used to filter the resulting report.

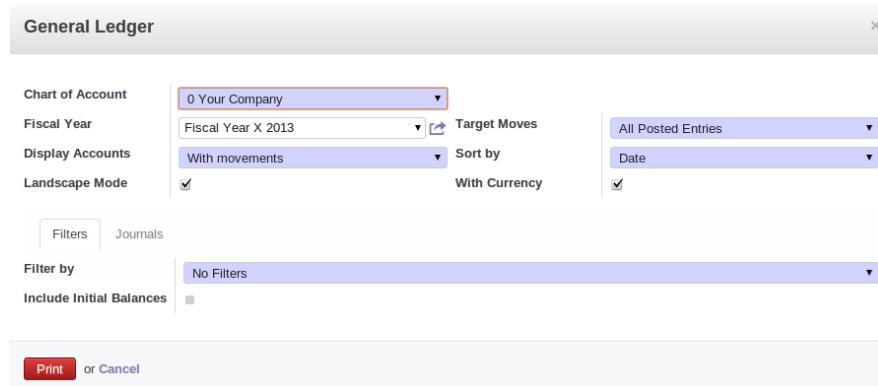


Figure 13.1: Preparing a General Ledger

Select the proper options and journal(s) from the above wizard to print the *General Ledger*. The report can also be filtered by date or by period. When you choose to print the general ledger from one date to another, or for one

or more periods, you can also have the initial balances printed for the periods preceding the periods you selected.
You can sort the report by date or by journal / partner.

Your Company General Ledger									1 / 1		
Chart of Accounts	Fiscal Year	Journals	Display Account	Filter By	Entries Sorted By	Target Moves					
Your Company	Fiscal Year X 2013	TSAL, TSCN, TEI, TECN, TMS, TOE, TUB, ECN, BNK, BNK3, BNK4, BNK5, TBNK, TCSH, SAL, EXI, SCN, TCM, TCM3, TCM4, TCM5, BNK2, SAJ, O, SCN, ENI, O, ECN, BNK-O, CHK-O, CSH-O, CSN-O, CTE-O, CTC-O, ECN, BNK-O, CHK-O, CSH-O, CSN-O, CTE-O, CTC-O, TCI, CHK, BNK3, BNK5	With movements	No Filters	Date	All Posted Entries					
Date	Period	JRNL	Partner	Ref	Move	Entry Label	Counterpart	Debit	Credit	Balance	Currency
								0.00	0.00	0.00 €	
								372.39	831.00	-458.61 €	
								0.00	800.00	-800.00 €	
								92.00	0.00	-708.00 €	
								0.00	31.00	-739.00 €	
								0.39	0.00	-738.61 €	
								75.00	0.00	-663.61 €	
								25.00	0.00	-638.61 €	
								180.00	0.00	-458.61 €	
								0.00	0.00	0.00 €	
								0.00	0.00	0.00 €	
								0.00	280.00	-280.00 €	
								75.00	0.00	-75.00 €	
								0.00	25.00	-100.00 €	
								0.00	180.00	-280.00 €	

Figure 13.2: General Ledger

Tip:

General Ledger for one or more accounts

When you want to print the general ledger for one or more accounts, go to the menu Accounting → Configuration → Accounts → Accounts. Select the account(s) for which you want to print the general ledger and click the Print → General Ledger report at the top of the screen.

While the general ledger displays transactions for an account, a trial balance will show one amount (either debit or credit) for each account. The aim of the trial balance is to prove that the total of all debit balances is equal to the total of all credit balances.

To print the *Trial Balance*, go to the menu Accounting → Reporting → Legal Reports → Accounting Reports → Trial Balance. This report allows you to print or generate a PDF of your trial balance, allowing you to quickly check the balance of each of your accounts in a single report. A trial balance may include all accounts (even the ones without balance), only accounts with transactions or accounts of which the balance is not equal to zero. You can print a trial balance for all posted entries (meaning entries with a Valid state) or all entries, in which case the report will also print entries in a draft state. This option is useful, for instance, when your new financial year has just been opened, and you are preparing miscellaneous entries in the previous financial year.

Trial Balance

Chart of Account: 0 Your Company
Fiscal Year: Fiscal Year X 2013
Display Accounts: With movements

Target Moves: All Posted Entries

Filters

Filter by: Periods

Periods

Start Period: X 01/2013
End Period: X 04/2013

Print or Cancel

Figure 13.3: Trial Balance

Tip:

Reporting for One or More Accounts

You can print the Trial Balance report directly from the Account form too.

13.2 Balance Sheet and Profit & Loss Report

OpenERP also offers a Balance Sheet and a Profit & Loss Report.

A *Balance Sheet* is a financial statement that summarises the assets, liabilities and shareholders' equity of a company at a specific point in time. These three balance sheet segments give investors an idea as to what the company owns and owes, as well as the amount invested by the shareholders.

The balance sheet complies with the formula below:

$$\text{Assets} = \text{Liabilities} + \text{Shareholders' Equity}$$

A balance sheet is often described as a snapshot of a company's financial condition.

The accounts displayed in the Balance Sheet are linked to an account type for which the P&L / Balance Sheet parameter is set to Balance Sheet (either Assets or Liabilities account). To configure *Account Types*, go to *Accounting → Configuration → Accounts → Account Types*.

The Balance Sheet can be printed from the menu *Accounting → Reporting → Legal Reports → Accounting Reports → Balance Sheet*. You can print this report in Landscape mode too.

Tip:

Reserve & Profit and Loss Account

A Balance Sheet needs a reserve & profit and loss account, but instead of entering it each time you start the report, you can add a default Reserve & Profit and Loss account through the menu Settings → Companies → Companies on the Configuration tab. This account will be used as a counterpart to balance your accounts.

The *Profit & Loss Report* is a financial statement which gives a summary of the revenues, costs and expenses during a specific period of time. Such a report provides information that shows the ability of a company to generate profit by increasing revenue and reducing costs. The P&L statement is also known as an "Income Statement".

The purpose of the Profit & Loss Report is to show managers and accountants whether the company earned or lost money during the report period.

In general, the Profit and Loss report will be used to determine profit ratios, to examine sales prices and costs, and to set marketing budgets, for instance.

The accounts displayed in the Profit and Loss Report are linked to an account type for which the "P&L / Balance Sheet parameter is set to Profit & Loss (either Expense or Income account). To configure Account types, go to *Accounting → Configuration → Accounts → Account Types*.

The Profit and Loss report can be printed from the menu *Accounting → Reporting → Legal Reports → Accounting Reports → Profit And Loss*.

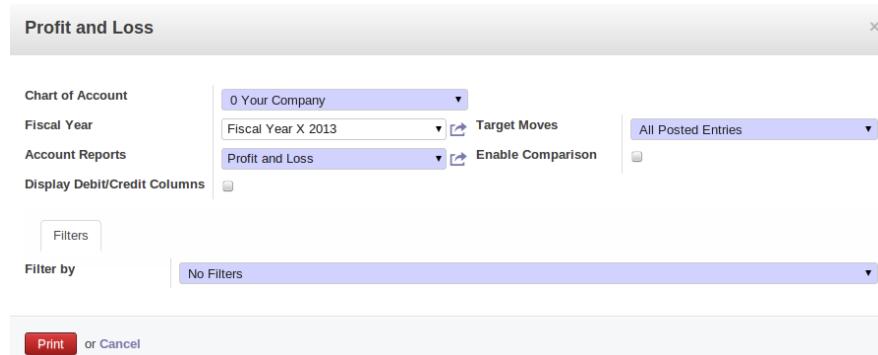


Figure 13.4: *Profit and Loss Wizard*

For printing report , you can click on Print button.

13.3 The Accounting Journals

A journal allows you to list entries in chronological order (by default according to date). Each entry posted in OpenERP is recorded in such a journal. To configure the different accounting journals, go to the menu *Accounting → Configuration → Journals → Journals*.

Figure 13.5: Defining a Journal

OpenERP provides three main reports regarding the journals:

- To print a *Journal*, use the menu *Accounting → Reporting → Legal Reports → Journals → Journals*. This report will show all entries per journal, e.g. sales entries, purchase entries, etc. Each transaction is mentioned, with date, reference, document number, account, partner, description and debit and credit amount. The *Journal* report can be printed per period and per journal.

Journal						
Chart of Accounts	Fiscal Year	Journal	Period	Entries Sorted By	Target Moves	
Your Company	Fiscal Year X 2013	Bank	X 04/2013	Date	All Posted Entries	
Move	Date	Account	Partner	Label	Debit	Credit
BNK2/2013/0004@08/2013	550002			test1	100.00 €	0.00 €
BNK2/2013/0004@08/2013	100000			test1	0.00 €	100.00 €
BNK2/2013/0004@08/2013	550002			test2	100.00 €	0.00 €
BNK2/2013/0004@08/2013	100100			test2	0.00 €	100.00 €
BNK2/2013/0004@08/2013	101000			test3	0.00 €	100.00 €
BNK2/2013/0004@08/2013	550002			test3	100.00 €	0.00 €
BNK2/2013/0004@08/2013	550002	ASUSTeK		test10	100.00 €	0.00 €
BNK2/2013/0004@08/2013	175111	ASUSTeK		test10	0.00 €	100.00 €
Total:				400.00 €	400.00 €	

Figure 13.6: Printing a Journal

- To print a *General Journal*, use the menu *Accounting → Reporting → Legal Reports → Journals → General Journals*. A General Journal will print a page per period for any journal entries posted in that period, and totalised per journal. The report will show the period, the journal, debit, credit and balance, but no details of the related entries.

General Journal				
Chart of Accounts	Fiscal Year	Journals	Filter By	Target Moves
Your Company	Fiscal Year X 2013	TSN, TSCN, TEX, TECN, TMIS, TOE, TURK, ECN, BNK, CHK, CSH, CSH-O, ST, SAI, EXJ, SCN, ECN, MISC, OPE, BNP, BNP-O, SAI-O, SCN-O, EXJ-O, ECN-O, BNK-O, CHK-O, CSH-O, CHK-O, SCN-O, EXJ-O, ECN-O, BNK-O, CHK-O, CSH-O, SAI-O, EXJ-O, BNK, TCHK, TCSH	No Filters	All Posted Entries
Code Journal Name Debit Credit Balance				
Total:		451.81	526.59	-74.78 €
X 04/2013 :		400.00	474.78	74.78 €
BNK2	Bank	400.00	400.00	0.00 €
TCSH	Cash Journal - (test)	0.00	22.97	22.97 €
TBNK	Bank Journal - (test)	0.00	51.81	51.81 €

Figure 13.7: Printing a General Journal

- To print a *Centralizing Journal*, use the menu *Accounting → Reporting → Legal Reports → Journals → Centralizing Journal*. A centralizing journal gives a summary per account for each journal and period of debit, credit and balance.

Centralized Journal				
Chart of Accounts	Fiscal Year	Journal	Filter By	Target Moves
Your Company	Fiscal Year X 2013	Bank	No Filters	All Posted Entries
A/C No. Account Name Debit Credit Balance				
Total:		400.00	400.00	0.00 €
175111	Fournisseurs C.E.E.	0.00	100.00	100.00 €
100100	Capital amorti	0.00	100.00	100.00 €
100000	Capital non amorti	0.00	100.00	100.00 €
550002	Bank	400.00	0.00	-400.00 €
101000	Capital non appelé	0.00	100.00	100.00 €

Figure 13.8: Printing a Centralizing Journal

13.4 Tax Declaration

Information required for a tax declaration is automatically generated by OpenERP from invoices. In the section on invoicing, you will have seen that you can get details of tax information from the area at the bottom left of an invoice.

You can also get the tax information when you open a journal entry by looking at the columns to the right of each line. In the following figure , you can see the example of Journal Entry with VAT, from menu *Accounting → Journal Entries → Journal Entries*

The screenshot shows the 'Journal Entries' screen for a journal entry with number 'SAJ/2013/001'. The top bar includes buttons for 'Save' and 'Discard', and status indicators '14 / 14', 'Unposted', and 'Posted'. The main area displays the journal entry details and a table of 'Journal Items'.

Invoice	Name	Partner	Account	Due date	Debit	Credit	Analytic Distribution	Amount	Currency	Tax Account	Tax/Base Amount	Status	Reconcile	Partial Reconcile
SAJ/2013/001	Test invoice 1	ASUSTek	X11002 Detectors - (test)	04/08/2013	1950.00	0.00		0.00			0.00	Balanced	A1	
SAJ/2013/001	Test Tax	ASUSTek	X11003 Output VAT - (test)		0.00	100.00		0.00			0.00	Balanced		
SAJ/2013/001	Lime server with raid 1 and 512ECC ram	ASUSTek	X2001 Product Sales - (test)		0.00	1600.00		0.00			0.00	Balanced		

Figure 13.9: Journal Entry with VAT Information

OpenERP keeps a tax chart that you can reach from the menu *Accounting → Charts → Chart of Taxes*. The wizard will propose to display entries for the current period only, but you can also leave the period empty to see a complete financial year. The structure of the chart is for calculating the VAT declaration, but all the other taxes can be calculated as well (such as the French DEEE).

* Journal Entr... / SAJ/2013/001 / Chart of Taxes:04/2013					
Your Company	Tax Case Name	Case Code	Period Sum	Year Sum	Company
▼ Opérations à la sortie		II	0.00	0.00	Your Company
▼ Opérations soumises à un régime particulier		II.A	0.00	0.00	Your Company
Opérations soumises à un régime particulier		00	0.00	0.00	Your Company
▼ TVA due par le déclarant		II.B	0.00	0.00	Your Company
Opérations avec TVA à 6%		01	0.00	0.00	Your Company
Opérations avec TVA à 12%		02	0.00	0.00	Your Company
Opérations avec TVA à 21%		03	0.00	0.00	Your Company
▼ TVA étrangère due par le cocontractant		II.C	0.00	0.00	Your Company
Opérations avec TVA étrangère due par les partenaires		44	0.00	0.00	Your Company
▼ Opérations avec TVA due par le cocontractant		II.D	0.00	0.00	Your Company
Opérations avec TVA due par le cocontractant		45	0.00	0.00	Your Company
▼ Livraisons intra-community/exemples		II.E	0.00	0.00	Your Company
Livraisons intra-community/exemples		46	0.00	0.00	Your Company
▼ Autres opérations exemptées		II.F	0.00	0.00	Your Company
Autres opérations exemptées		47	0.00	0.00	Your Company
▼ Notes de crédit délivrées et corrections négatives		II.G	0.00	0.00	Your Company
▼ Notes de crédit aux opérations grilles [44] et [46]		48	0.00	0.00	Your Company
Notes de crédit aux opérations grille [44]		48x44	0.00	0.00	Your Company
Notes de crédit aux opérations grille [46L]		48x46L	0.00	0.00	Your Company
Notes de crédit aux opérations grille [46T]		48x46T	0.00	0.00	Your Company
Notes de crédit aux opérations du point II		49	0.00	0.00	Your Company

Figure 13.10: Example of a Belgian VAT Structure

The tax chart represents the amount of each area of the VAT declaration for your country. It is presented in a hierarchical structure which lets you see the detail only of what interests you and hides the less interesting subtotals. This structure can be altered as you wish to fit your needs.

You can create several tax charts if your company is subject to different types of tax or tax-like accounts, such as:

- authors' rights,
- ecotaxes, such as the French DEEE for recycling electrical equipment.

By creating several charts of taxes, you can print different declarations from the menu *Accounting → Reporting → Generic Reporting → Taxes → Taxes Report*. Simply select the chart of taxes you want to print in the wizard.

Each accounting entry can then be linked to one of the tax accounts. This association is done automatically from the taxes which had previously been configured in the invoice lines.

Tip:

Tax Declaration

Some accounting software manages the tax declaration in a dedicated general account. The declaration is then limited to the balance in the specified period. In OpenERP, you can create an independent chart of taxes, which has several advantages:

- it is possible to allocate only a part of the tax transaction,
- it is not necessary to manage several general accounts depending on the type of sales and the type of tax,
- you can restructure your chart of taxes as required.

At any time, you can check your chart of taxes for a given period using the report.

Data is updated in real time. This is very useful because it enables you to preview at any time the tax that you owe at the start and end of the month or quarter.

Furthermore, for your tax declaration, you can click one of the tax accounts to investigate the detailed entries that make up the full amount. This helps you search for errors, such as when you have entered an invoice at full tax rate when it should have been zero-rated for an intracommunity trade or for charity.

13.5 Management Indicators

With OpenERP you can also create your own financial reports. This feature is now included in standard OpenERP. Go to *Accounting → Configuration → Financial Reports → Account Reports* and click *Create*.

Suppose we would like to create our company Balance Sheet. The first report to be created, should be a View report which will contain the final details. Keep the default Sequence 0.

Now create the Assets report, and set Balance Sheet as the parent for this report. Set the Sequence to 1.

Now create the Liabilities report, and set Balance Sheet as the parent for this report too. Set the Sequence to 2.

Both these reports are of the View type.

Apart from the View type, you can select three other types: Accounts, Account Type and Report Value.

- **Accounts:** here you can select view accounts or individual accounts that should be included in the report. View accounts offer the advantage that when new accounts are added as a child of such view account, they will automatically be printed on the report. When selecting individual accounts, you need to specifically add each newly created account to get the correct report.
- **Account Type:** selecting an account type means that all accounts related to the selected account type(s) will be printed on the report.
- **Report Value:** thanks to this value you can include the balance of existing reports in another report. Example: create a profit & loss report (view) including costs (account class 6) and income (account class 7). In the Balance Sheet, define a report Profit&Loss Balance, with Balance Sheet as the Parent. Set the type to Report Value and link it to the P&L view report you defined. This way, the balance sheet will print the Profit&Loss result.

Financial Reports		
	Type	Report Value
Assets	Account Type	
Balance Sheet	View	
Expense	Account Type	
Income	Account Type	
Liability	Account Type	
Liability	View	
Profit and Loss	View	
Profit (Loss) to report	Report Value	Profit and Loss

Figure 13.11: *Financial Reports*

Create a report to print the Asset accounts (class 2 from the Belgian ledger) on the Assets side of the report. As a Parent, define the Assets report; sequence 3, type Accounts. If you want to use all accounts of class 2, just select the class (view account). You can also select various asset accounts. You could also have set this report to Account Type, with type Immo.

If you just want the sum of the selected accounts to appear, you leave the settings as they are. Should you wish to print the account details as well, you can select the Display details checkbox. The report will then also print the selected account numbers.

To print the results, go to *Accounting → Reporting → Legal Reports → Accounting Reports → Financial Report*. Select the report you want to print (only reports of the View type will be displayed in the list). You can also print a report for specific periods or dates. If you select the Enable Comparison checkbox, an extra Comparison tab will appear in which you can, for instance, select periods from a previous financial year. You

have to give the comparison column a name through the Column Label field.

Balance Sheet		
Chart of Accounts	Fiscal Year	Filter By
Your Company	Fiscal Year X 2013	No Filters
Name		
Liability		Balance
		-451.81 €
Profit (Loss) to report		-42.82 €
Liability		-408.99 €
1 CLASSE 1		-400.00 €
10 CAPITAL		-300.00 €
100 Capital souscrit ou capital personnel		.200.00 €
100000 Capital non amorti		-100.00 €
100100 Capital amorti		-100.00 €
101000 Capital non appelé		-100.00 €
17 DETTES A PLUS D'UN AN		-100.00 €
175 Dettes commerciales		.100.00 €
1751 Effets à payer		-100.00 €
17511 Fournisseurs ordinaires		-100.00 €
175111 Fournisseurs C.E.E.		-100.00 €
451054 T.V.A. à payer		-8.99 €
Assets		377.03 €
400000 Clients		-22.97 €
550002 Bank		400.00 €

Figure 13.12: Example of a Financial Report

13.6 Good Management Budgeting

Budgets are important for a company to get a good grip on forecasted expenses and revenues. They allow you to measure your actual financial performance against the planned one.

OpenERP manages its budgets using both General and Analytic Accounts. Go to *Settings → Modules → Modules* and install *account_budget* to be able to do this, or you can go to *Settings → Configuration → Accounting* and select option *Budget management* and click on *Apply* button , it will install this module.

The first step in defining budgets is to determine the general accounts for which you want to keep budgets (typically expense or income accounts). That is what you will use *Budgetary Positions* for, from the menu *Accounting → Configuration → Budgets → Budgetary Positions*. Here you can select the general accounts for which you want to keep budgets. The aim is to group general accounts logically, according to sales or purchases, for instance. OpenERP has no limitations as to the account types that can be used for budgeting.

Name	Accounts	Budget Lines	Code	Name	Debit	Credit	Balance	Company Currency	Internal Type
X2001	Product Sales - (test)				0.00	1850.00	-1850.00	€	Regular

Figure 13.13: Budgetary Position for Sales

To define your budgets, go to the menu *Accounting → Budgets → Budgets*. Define a new budget by clicking the

Create button.

The screenshot shows the 'Budget Lines' section of the 'Budget 2014: Optimistic' screen. It lists budget items for different analytic accounts, categorized by budgetary position (Sales or Purchases) and duration (Start Date, End Date). The columns include Analytic Account, Budgetary Position, Start Date, End Date, Paid Date, Planned Amount, Practical Amount, Theoretical Amount, and Percentage.

Analytic Account	Budgetary Position	Start Date	End Date	Paid Date	Planned Amount	Practical Amount	Theoretical Amount	Percentage
Your Company / Our Super Product / Consultancy	Purchases	02/01/2014	02/28/2014		-250.00	0.00	0.00	0.00
Your Company / Our Super Product / Consultancy	Sales	02/07/2014	02/28/2014		900.00	0.00	0.00	0.00
Your Company / Our Super Product / Consultancy	Sales	03/01/2014	03/15/2014		300.00	0.00	0.00	0.00
Your Company / Our Super Product / Training	Sales	05/01/2014	05/31/2014	12/03/2014	375.00	0.00	0.00	0.00
Your Company / Our Super Product / Integration / Seagite P1	Purchases	07/01/2014	07/15/2014		-2000.00	0.00	0.00	0.00
Your Company / Our Super Product / Integration / Seagite P1	Sales	08/01/2014	08/15/2014		20000.00	0.00	0.00	0.00
Your Company / Our Super Product / Integration / Seagite P2	Purchases	09/01/2014	09/15/2014		-1000.00	0.00	0.00	0.00

Figure 13.14: *Optimistic Budget*

Tip:

Budget Revisions

Even though you can modify a budget at any time to make a revision, we recommend you to create a new budget, because otherwise you will have no history of changes.

Rather than edit an existing budget, make a new version so that you can keep your original estimates safe for comparison. This lets you analyse your changing perspectives of the company from revision to revision.

To define your budgets, start by entering a *Name*, a *Code*, a *Duration* for your new budget. Then you can define the budgeted amounts for each analytic account within a specified period, one by one (enter negative amounts for purchases, positive amounts for sales). For each, you define:

- an *Analytic Account*
- a *Budgetary Position*, for example *Sales* or *Purchases*,
- a *Duration* for the budget,
- a *Planned Amount* in the default currency of the chart of accounts.

Once this information is completed, save your budget.

A budget has various stages:

- *Confirmed*: the budget is to be reviewed, but it can still be changed before actual approval;
- *Approved*: the budget is approved by the budget holder; the name of the user approving the budget will be displayed in the *Validate User* field.

You can cancel a budget and reset it to draft for the two preceding steps.

- *Done*: the budget is fully approved and no changes will be allowed. You can no longer cancel the budget and reset it to draft.

The *Theoretical Amount* indicates the actual amount that might have been realised for the budget concerned according to the current date. When your budget is 1200 for 12 months, and today is the 30 October, the theoretical amount will be 1000, since this is the actual amount that could have been realised to date.

To print a budget and make calculations of expenditure through budget, use the menu *Accounting → Budgets → Budgets*. OpenERP then gives you a list of available budgets. Select one or more budgets and then click *Print Budgets* to create the report for each, in a date range of your choice.

The *Print Budget* report gives an overview of each analytic account included in your budget, according to the individual budgetary positions for that account. From the percentage and the comparison of planned (budgeted) and practical (actual) amounts, you have a good view on your situation.

From the same list of actions, you can also print the *Print Summary* report, which will give you a total per analytic account (without splitting by budgetary position).

Each of these reports can be printed from a specific date to a specific date. The End Date selected in the wizard determines how the theoretical amount will be calculated; if you select the last day of your financial year, the theoretical amount will be calculated as a function of that date (thus considering a complete financial year). Note that the theoretical amount will be zero when the *Paid Date* entered is equal to or greater than the *End Date* for the budget.

The percentage for a budget is calculated as follows: (practical amount / theoretical amount) x 100. This way you get a view on how much of the forecasted amount has been actually realised in your accounting.

The figure *Printing a Budget* gives an example of a budget produced by OpenERP.

Budget				
Analysis from	Budget		Currency	
	Budget 2014: Optimistic		EUR	
Description	Theoretical Amt	Planned Amt	Practical Amt	Perc(%)
Consultancy	0.00 €	950.00 €	0.00 €	0.00%
Purchases	-0.00 €	-250.00 €	0.00 €	0.00%
Sales	0.00 €	1200.00 €	0.00 €	0.00%
Training	0.00 €	375.00 €	0.00 €	0.00%
Sales	0.00 €	375.00 €	0.00 €	0.00%
Seagate P2	0.00 €	9000.00 €	0.00 €	0.00%
Purchases	-0.00 €	-1000.00 €	0.00 €	0.00%
Sales	0.00 €	10000.00 €	0.00 €	0.00%
Seagate P1	0.00 €	18000.00 €	0.00 €	0.00%
Purchases	-0.00 €	-2000.00 €	0.00 €	0.00%
Sales	0.00 €	20000.00 €	0.00 €	0.00%
Total :	0.00 €	28325.00 €	0.00 €	0.00%

Figure 13.15: *Printing a Budget*

You can Print the Summarised Budget from selecting *Print Summary* option in Print button Option.

Budget				
Analysis from	Budget		Currency	
	Budget 2014: Optimistic		EUR	
Description	Theoretical Amt	Planned Amt	Practical Amt	Perc(%)
Consultancy	0.00 €	950.00 €	0.00 €	0.00%
Training	0.00 €	375.00 €	0.00 €	0.00%
Seagate P2	0.00 €	9000.00 €	0.00 €	0.00%
Seagate P1	0.00 €	18000.00 €	0.00 €	0.00%
Total :	0.00 €	28325.00 €	0.00 €	0.00%

Figure 13.16: *Summarised Budget*

You could also use the menu *Accounting → Reporting → Generic Reporting → Budgets → Budget Lines*. This gives an analysis of each budget line.

Note:

Print Reports

You can also print budgets from the menu Accounting → Configuration → Analytic Accounting → Analytic Accounts.

13.7 The Accounting Dashboard

You can open the *Accounting Dashboard* from the menu *Reporting → Dashboards → Accounting*.

Group	# of Items	Debit	Credit	Balance
Banka (4)	4	400.00	0.00	400.00
Obveznosti do virov sredstev (4)	4	0.00	400.00	-400.00
Obveznosti do virov sredstev - obveznosti (4)	4	0.00	22.99	-22.99
Sredstva (6)	6	2024.78	100.00	1924.78
Sredstva - terjatve (10)	10	2199.81	2024.78	175.03
Uspeh - odhodki (2)	2	14.00	0.00	14.00
Uspeh - prihodki (8)	8	0.00	2090.82	-2090.82
	38			

Figure 13.17: Accounting Dashboard

OpenERP gives you an accounting dashboard that will be presented to your accounting staff as they sign in to the Accounting system . This dashboard provides an analysis of the company's financial health at a glance. Company Analysis gives the list of debit , credit and balance of all account types.

The Change Layout button at the top right allows you to change the way the dashboard is displayed; you can choose among several options, such as one column, two columns, etc.

13.8 Analytic Analysis

There are various reports designed for financial analysis based on the analytic accounts. Most of these reports are available directly from the tree of analytic accounts or from the form view of the analytic account.

From the *Accounting → Configuration → Analytic Accounting → Analytic Accounts* menu, select one or more analytic accounts and then click one the *Print* button at the centre of the screen. OpenERP provides the following financial analyses from the analytic accounts (and maybe more, depending on the additional installed modules):

- *Cost Ledger*,
- *Inverted Analytic Balance*,
- *Cost Ledger (only quantities)*.
- *Analytic Balance*,

13.8.1 The Cost Ledger

The cost ledger provides the entries in general accounts for the selected analytic account(s). It enables you to make a detailed analysis of each operation carried out on one or several projects.

Period from		Period to		Printing date
01/01/2013		04/09/2013		04/09/2013 11:29:03
Cost Ledger				
Date/Code	J.C. /Move name	Debit	Credit	Balance
Total:		0.00	30.00	-30.00 €
AA020	Your Company / Our Super Product / Consultancy	0.00	30.00	-30.00 €
X2110	Expenses - (test)	0.00	30.00	-30.00 €
04/09/2013 TS	Delivery and maintenance	0.00	30.00	-30.00 €

Figure 13.18: Cost Ledger

13.8.2 Inverted Analytic Balance

The inverted analytic balance provides a summary report relating general accounts and analytic accounts. This report shows the balances of the general accounts broken down by the selected analytic accounts from date / to date.

Your Company		1 / 1	
Inverted Analytic Balance - EUR			
Code	Name	Debit	Credit
Total		0.00	30.00
X2110	Expenses - (test)	0.00	30.00
AA020	Your Company / Our Super Product / Consultancy	0.00	30.00
		-30.00 €	100.00

Figure 13.19: *Inverted Analytic Balance*

This enables you to analyse your costs by general account. For example, if you examine your general account for staff salaries, you can obtain all your salary costs broken down by the different analytic (or project) accounts.

13.8.3 The Cost Ledger (Quantities Only)

This report gives the details of entries for an analytic account and a list of selected journals. Only quantities are reported for this analysis, not costs and revenues. In the wizard you can select from period and to period and one or more journals.

Your Company		1 / 1	
Cost Ledger			
Period from	Period to	Printing date	
01/01/2013	04/09/2013	04/09/2013 11:22:36	
Code/Date J.C./Move name	Quantity	Total	
Total:		5.00	
AA045 E-Learning Integration	Max Qty: 0.00	5.00	
600000 Achats de matières premières		5.00	

Figure 13.20: *Cost Ledger with Quantities Only*

The report is often used to print the number of hours worked on a project, without exposing the costs and revenues. So you can show it to a customer as a record of the hours worked on a particular project.

To restrict the report to hours worked, without including sales and purchases, select only the services journal in the printing options.

Tip:

Multiple Printing

To print several analytic accounts at once, you can make a multiple selection on the different accounts in the list of accounts. Then click the appropriate Report in the Print dropdown' button, to export the whole selection into a single PDF document.

13.8.4 Analytic Balance

The analytic balance is a summary report that relates the analytic accounts to the general accounts. It shows the balances of the analytic accounts broken down by general account for a selected period. The analytic balance allows you to display a breakdown of each project by operation in the general accounts. Quantities are printed too. You can choose to include accounts without a balance as well.

When you select the analytic chart itself (the main analytic account), you can print the analytic balance for the entire analytic chart of accounts.

Your Company						1 / 1
Analytic Balance - EUR						
Code	Account Name	Debit	Credit	Balance	Quantity	
Total		0.00	30.00	-30.00 €	100.00	
AA020	Your Company / Our Super Product / Consultancy	0.00	30.00	-30.00 €	100.00	
X2110	Expenses - (test)	0.00	30.00	-30.00 €	100.00	

Figure 13.21: Analytic Balance

This report gives you the profitability of a project for the different operations that you used to carry out the project.

Tip:

Multi-company

In a multi-company environment, each company can have its own general chart of accounts on the same database. The two general charts of accounts are independent, but can be linked in a third chart using a view account to do the consolidation.

If the different companies collaborate on joint projects, they may all share the same analytic chart of accounts. In this environment, the cross-related reports like the balance and inverted balance are extremely useful, because they enable you to make an analysis per company by linking up to the general accounts.

13.8.5 Analytic Journals

From the *Accounting → Configuration → Analytic Accounting → Analytic Journals*, select one or more analytic journals and click the *Print → Analytic Journal* report at the top of the screen. This prints a report per analytic journal from debit and credit (general account versus analytic account).

Your Company						1 / 1
Analytic Journal						
Period from	Period to	Currency				
01/01/2013	04/09/2013				EUR	
Date	Code	Move Name	Account n°	General	Analytic	
- Sales				-500.00	500.00	
		[CPUa8] Processor AMD 8-Core K1	701000 Ventes en Belgique	-500.00		
04/09/2013		[CPUa8] Processor AMD 8-Core	AA015 - Consultancy		500.00	

Figure 13.22: Analytic Sales Journal

13.8.6 Analytic Entries Analysis

You can have the statistical analysis on all analytic entries from the menu *Reporting → Accounting → Analytic Entries Analysis*. By default, analytic entries are grouped by analytic account and month, but you have many options to sort and regroup analytic entries. You can, for instance, first group the information by general account,

then by analytic account.

Group	#Entries	Quantity	Amount
▼ Your Company / Internal / Administrative (4)			
April (4)	4	7.00	-210.00
▼ Your Company / Our Super Product / Consultancy (1)			
April (1)	1	100.00	-30.00
	1	100.00	-30.00
	5	107.00	-240.00

Figure 13.23: *Statistical Report for Analytic Entries*

Tip:

Graph

You can easily turn this analysis screen into a graph by clicking the Graph view at the top right of the screen.

CONFIGURING ACCOUNTS FROM A TO Z

Accounts have been configured to meet your company's needs. This chapter explains how to modify your chart of accounts, journals, access rights, initial account balances and default values for the initial configuration of your OpenERP accounts.

Good accounting software requires great usability and simplicity of data entry, as well as flexibility in configuring its different components. You should be able to easily modify the accounting module to meet your own needs, so that you can optimise it for the way you want to use it.

OpenERP lets you adapt and reconfigure many functions to ease the task of data entry:

- adding controls for data entry,
- customising the screens,
- filling fields automatically during data entry with data that is already known to the system.

14.1 Chart of Accounts

When configuring the software, OpenERP allows you to choose predefined charts of accounts, which include all basic configuration, such as tax codes and fiscal positions. Of course, you can also define your own chart of accounts.

14.1.1 Using a Preconfigured Chart of Accounts

The software allows you to select a default chart of accounts from a huge list of predefined charts. To install the chart of accounts as well as the tax definitions for your own country (in most cases), select the chart corresponding to your country from the menu *Settings → Configuration → Invoicing*. The Configurable Account Chart Template offers a default (but limited) set of accounts which can be used as a basic chart in any country. The list also includes a lot of localised charts of accounts.

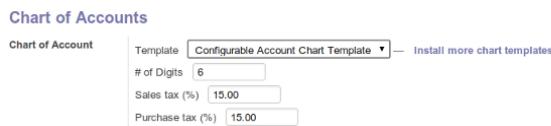


Figure 14.1: Starting from a Configurable Account Chart Template

Then click on **Install more chart templates**. offers different counties chart of account. for instance,

the chart named Belgium – Accounting.

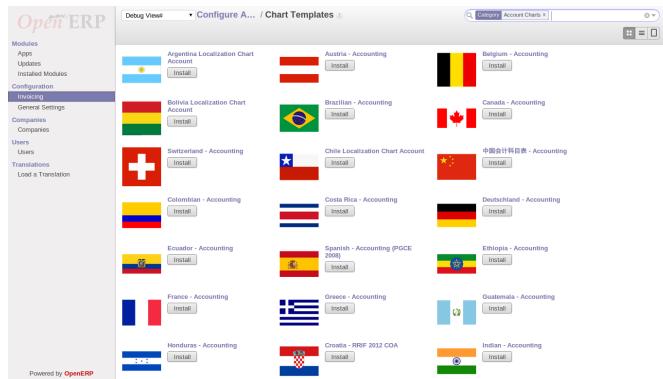


Figure 14.2: Set Your Accounting Options

Please keep in mind that even when you use a default chart of accounts, you can still modify it to fit your needs.

Note:

Modules

You can install a chart from the list of modules too. The module name will be like `110n_XX` where `XX` represents your country code in two letters. For example, to get the chart of accounts for Belgium, go to Settings → Modules → Modules and install the module `110n_be`.

Some of these pre-defined charts of accounts are comprehensive and accurate, others rather have a more tentative status and are simply indicators of the possibilities. You can modify these, or build your own accounts onto the default chart, or replace it entirely with a custom chart.

14.1.2 Creating a Chart of Accounts

Start by creating *Account Types*, which determine the kind of account and the way in which accounts will be treated at financial year closing.

Tip:

Account Type

For Access the Account Type, you have to assign Technical Features from Settings → Users → Users, Access Right.

To add, modify or delete existing account types, go to the menu *Accounting* → *Configuration* → *Accounts* → *Account Types*.

Figure 14.3: Defining Account Types

The fields used to define an account type are the following:

- *Account Type*: the name of the account type.
- *Code*: the code of the account type.

- *PL/BS Category*: this category determines where in a report the account will be printed (i.e. Balance Sheet and Profit and Loss). There are five types you can use: No type at all (/), Balance Sheet (Assets Accounts = active), Balance Sheet (Liabilities Accounts = passive), Profit & Loss (Income) and Profit & Loss (Expense).
- *Deferral Method*: this field indicates how and whether the account will be transferred at financial year closing.
 - None means that the account will not be transferred. Typically used for profit and loss accounts.
 - Balance means that the account balance will be transferred at year closing. Typically used for balance sheet accounts.
 - Detail means that every single entry will be transferred to the next financial year.
 - Unreconciled means that only unreconciled (outstanding) entries will be transferred to the next financial year. Typically used for centralisation accounts.

Use the *View* type for accounts that make up the structure of the charts and have no account data inputs of their own.

To add, modify or delete existing accounts, use the menu *Accounting → Configuration → Accounts → Accounts*.

Figure 14.4: Defining Accounts

The main account fields are:

- *Account Code and Name*: the code length is not limited to a specific number of digits. Use code 0 to indicate the root account and the account name.
- *Parent*: determines which account is the parent of this one, to create the tree structure of the chart of accounts.
- *Internal Type*: internal types have special effects in OpenERP. By default, the following types are available: *View* can be used to create a hierarchical structure for your accounts (grouping), *Regular* any account that does not fit into one of the other types; most of the accounts will have this type, *Receivable - Payable*: these types are used to indicate the centralisation accounts (for customers and suppliers) that will be set for each partner, *Liquidity* used to indicate financial accounts (bank and cash accounts), *Consolidation* to create a virtual (or consolidation) chart of accounts, *Closed* to indicate accounts that are no longer used.
- *Account Type*: it is important to select the corresponding account type, as explained above. This will have an impact at year closing and also when printing reports.
- *Secondary Currency*: forces all the moves for this account to have this secondary currency. Note that you can also define exchange rates from the menu *Accounting → Configuration → Miscellaneous → Currencies*.
- *Outgoing Currencies Rate*: to be selected only when you add a secondary currency. You have two options for outgoing transactions: *At Date* or *Average Rate*. Incoming transactions are always calculated *At Date*, according to the date of the transaction.

- *Allow Reconciliation*: determines if you can reconcile the entries in this account. Activate this field for receivable and payable accounts and any other account that need to be reconciled other than by bank statements.
- *Default Taxes*: this is the default tax applied to purchases or sales using this account. It enables the system to propose tax entries automatically when entering data in a journal manually.

The tree structure of the accounts can be altered as often and as much as you wish without recalculating any of the individual entries. So you can easily restructure your account during the year to reflect the reality of the company better.

You can have a look at active charts of accounts using the menu *Accounting → Charts → Chart of Accounts*, and *Open Charts* for the selected year, account moves and periods. Click an account to drill down to its details.

Note:

Hierarchical Charts

Most accounting software packages represent their charts of accounts in the form of a list. You can do this in OpenERP as well if you want to, but its tree view offers several advantages:

- *it lets you show in detail only the accounts that interest you,*
- *it enables you to get a global view of accounts (when you show only summary accounts),*
- *it is more intuitive, because you can search for accounts on the basis of their classification,*
- *it is flexible because you can easily restructure them.*

The structure of the chart of accounts is hierarchical, with account subtotals calculated from the View accounts. You can develop a set of view accounts to contain only those elements that interest you.

To get the details of the account entries that are important to you, all you need to do is click the account's code or name.

Displaying the chart of accounts can take several seconds, because OpenERP calculates the debits, credits and balance for each account in real time.

14.1.3 Virtual Charts of Accounts

The structure of a chart of accounts is imposed by the legislation in effect in the country concerned. Unfortunately, that structure does not always correspond to the view that a company needs.

In OpenERP, you can use the concept of virtual charts of accounts to manage several representations of the same accounts simultaneously. These representations can be shown in real time with no additional data entry.

So your general chart of accounts can be the one imposed by the statutes of your country, and your CEO can then have other virtual charts as necessary, based on the accounts in the general chart. For example, you can create a view per department, a cash-flow and liquidity view, or consolidated accounts for different companies.

The most interesting thing about virtual charts of accounts is that they can be used in the same way as the default chart of accounts for the whole organization. For example, you can establish budgets from your consolidated accounts or the accounts from one of your companies.

Tip:**Virtual Accounts**

Virtual accounts enable you to provide different representations of one or several existing charts of accounts. Creating and restructuring virtual accounts has no impact on the accounting entries. You can then use the virtual charts with no risk of altering the general chart of accounts or future accounting entries.

Because they are used only to get a different representation of the same entries, they are very useful for:

- consolidating several companies in real time,
- reporting to a holding according to their chart of accounts,
- depreciation calculations,
- cash-flow views,
- getting more useful views than those imposed,
- presenting summary charts to other users that are appropriate to their general system rights.

So there are good reasons for viewing the impact of financial transactions through virtual charts, such as budgets and financial indicators based on special views of the company.

To create a new chart of accounts you should create a root account using the menu *Accounting → Configuration → Accounts → Accounts*. Your top level account should have a name, a code (different from any other code in your current chart), an *Internal Type* and *Account Type View*. Then you can choose your structure by creating other accounts of *Account Type View* as necessary. The *Internal Type* should be of the *Consolidation* type if you want to map accounts. Check your virtual structure using the menu *Accounting → Charts → Charts of Accounts* and select the corresponding chart in the drop-down list at the top of the screen.

To be able to map your virtual chart of accounts to your general chart of accounts, you have to set *Internal Type* as *Consolidation*. From the *Consolidated Children* you can then map accounts or make accounts consolidate. In the *Consolidated Children*, you can add *View* accounts or normal accounts. If you add a *View* account to the consolidated children, OpenERP will automatically include all existing and future linked accounts.

The screenshot shows the configuration interface for a virtual account named 'BDG - Budgets'. The account is mapped to a virtual chart of accounts ('VC Virtual chart') with an internal type of 'Consolidation'. It is defined as a 'Root/View' account and is active. The account is associated with 'Your Company'. There are no default taxes or reconciliation settings applied. The 'Consolidated Children' field lists '6 CLASSE 6. - CHARGES'. The secondary currency and outgoing currencies rate are not specified. The 'Internal Notes' section is empty.

Figure 14.5: Virtual Accounts Mapped to View Account

You can then run reports such as *Trial Balance* and *General Ledger* for both your general chart of accounts and your virtual chart(s) giving you another representation of the company. All the actions and states in your general account are also available in the virtual accounts.

Finally, you can also make virtual charts of accounts from other virtual charts. That can give an additional dimension for financial analysis. You can create an unlimited number of virtual (consolidation) charts of accounts.

14.2 Periods and Financial Years

Note:

Periods and Fiscal Years

A fiscal year (or financial year) corresponds to twelve months for a company. In many countries, the fiscal year corresponds to a calendar year. That may not be the case in other countries.

The financial year can be divided into monthly or three-monthly accounting periods (when you have a quarterly declaration).

OpenERP's management of the fiscal year is flexible enough to enable you to work on several years at the same time. This gives you several advantages, such as the possibility to create three-year budgets.

14.2.1 Defining a Period or a Financial Year

To define your fiscal year, use the menu *Settings → Configuration → Invoicing*, If there is no fiscal year define for your company then this form offer you to configure fiscal year for your company under the label *No Fiscal Year Define for This Company* you have to define your company fiscal year range and period and click on *Apply* button.

No Fiscal Year Defined for This Company

Figure 14.6: Defining a Financial Year configuration

You can create several years in advance to define long-term budgets, use the menu *Accounting → Configuration → Periods → Fiscal Years*, click on *Create* First enter the date of the first day and the last day of your fiscal year.

Then, to create the periods, click one of the two buttons depending on whether you want to create twelve 1-month or four 3-months periods:

Figure 14.7: Defining a Financial Year and Periods

- *Create Monthly Periods*,
- *Create 3 Months Periods*.

OpenERP automatically creates an opening period to allow you to post your outstanding balances from the previous fiscal year. Notice the *Opening/Closing Period* checkbox for such a period.

To close a fiscal year you can also use the menu *Accounting* → *Periodical Processing* → *End of Period* → *Close a Period*.

14.2.2 Closing a Period

To close a financial period, for example when a tax declaration has been made, go to the menu *Accounting* → *Configuration* → *Periods* → *Periods*, Select those period(s) which you want to close and from top centered *More* button click on *Close a Period* then select *Check this box* and on *Close Period* button. You can also close period from form view of Periods by clicking on *Close Period* button.

Tip:

Opening Closed Periods

The system administrator can re-open a period, which have been closed by mistake.

When a period is closed, you can no longer create or modify any transactions in that period. Closing a period is not obligatory, and you could easily leave periods open.

To close an accounting period you can also use the menu *Accounting* → *Periodical Processing* → *End of Period* → *Close a Period*.

14.3 Managing your Tax Structure

This section deals with statutory taxes and accounts which are legally required from the company:

- the taxation structure provided by Open ERP,

You can attach taxes to transactions so that you can:

- add taxes to the amount you pay or receive,
- report on the taxes in various categories that you should pay the tax authorities,
- track taxes in your general accounts,
- manage the payment and refund of taxes using the same mechanisms OpenERP uses for other monetary transactions.

Since the detailed tax structure is a mechanism for carrying out governments policies, and the collection of taxes so critical to their authorities, tax requirements and reporting can be complex. OpenERP has a flexible mechanism for handling taxation that can be configured to meet the requirements of many tax jurisdictions.

The taxation mechanism can also be used to handle other tax-like financial transactions, such as royalties to authors based on the value of transactions through an account.

From the menu *Accounting* → *Configuration* → *Taxes* → *Taxes* you can define your tax structure. Note that when you use a predefined (localised) chart of accounts, taxes will be configured as well in most cases.

OpenERP's tax system runs around three major concepts:

- *Tax Code* (or *Tax Case*), used for tax reporting, can be set up in a hierarchical structure so that multiple codes can be formed into trees in the same way as a *Chart of Accounts*. The Tax Codes structure is used to define your VAT return; it can be numeric and alphanumeric. You can define tax codes from the menu *Accounting* → *Configuration* → *Taxes* → *Tax Codes*.
- *Taxes*, the basic tax object that contains the rules for calculating tax on the transaction it is attached to, linked to the General Accounts and to the Tax Codes. A tax can contain multiple child taxes and base its calculation on those taxes rather than on the base transaction, providing considerable flexibility.
- the *General Accounts*, which record the taxes owing and paid. Since the general accounts are discussed elsewhere in this part of the book and are not tax-specific, they will not be detailed in this section.

You can attach zero or more *Purchase Taxes* and *Sale Taxes* items to products, so that you can account separately for purchase and sales taxes (or Input and Output VAT – where VAT is Value Added Tax). Because you can attach more than one tax, you can handle a VAT or Sales Tax separately from an Eco Tax on the same product.

To create a new *Tax Code*, use the menu *Accounting* → *Configuration* → *Taxes* → *Tax Codes*. You should define the following fields:

Tax codes / Tax Received Rate S (15%)	
Tax Case Name	Tax Received Rate S (15%)
Parent Code	Tax Received
Reporting Configuration	
Not Printable in Invoice	<input checked="" type="checkbox"/>
Coefficient for parent	1.00
Statistics	
Period Sum	0.00
Year Sum	0.00
Description	

Figure 14.8: *Tax Code*

- *Tax Case Name*: a unique name required to identify the tax case, usually taken from your VAT return,
- *Case Code*: an optional short code for the case,
- *Parent Code*: a link to a parent Tax Code to create a tree structure which can be displayed from the menu *Accounting* → *Charts* → *Chart of Taxes*,
- *Not Printable in Invoice*: a checkbox allowing you to indicate that any taxes linked to the tax code concerned should not be printed on the invoice,
- *Coefficient for parent*: choose 1.00 to add the total to the parent account or -1.00 to subtract it,
- *Description*: a free text field for documentation purposes.

You can also see two read-only fields:

- *Period Sum*: a single figure showing the total accumulated on this case for the current financial period.
- *Year Sum*: a single figure showing the total accumulated on this case for the financial year.

You will probably need to create two tax codes for each different tax rate that you have to define, one for the tax itself and one for the invoice amount (the so-called base code) the tax is computed from. And you will create tax codes that you will not link to any tax objects (similar to General Account View types) just to organise the tree (or hierarchical) structure.

To have a look at the structure you have constructed, you can use the menu *Accounting* → *Charts* → *Chart of Taxes*. This tree view reflects the structure of the *Tax Codes* and shows the current tax situation for the selected period, or for the complete financial year.

The *Taxes* defined are used to compute taxes on the transactions they are attached to, and they are linked to the corresponding General Accounts (usually VAT accounts) and to Tax Codes, both for the base amount and the tax amount.

To create a new Tax, use the menu *Accounting* → *Configuration* → *Taxes* → *Taxes*.

The screenshot shows the 'Taxes / ITAX R' configuration screen. At the top, there are 'Save' and 'Discard' buttons, and a navigation bar with '5 / 8'. The main area is divided into several sections:

- Tax Computation:** Shows 'Tax Type' set to 'Percentage' with a value of '0.0500 %'. There is also a checkbox for 'Tax Included in Price'.
- Misc:** Includes fields for 'Sequence' (set to 1), 'Included in base amount' (unchecked), and 'Tax on Children' (unchecked).
- Invoices:** Contains fields for 'Invoice Tax Account' (121000 Tax Received), 'Invoice Tax Analytic Account', 'Account Base Code' (Taxable Sales Rated R (5%)), 'Base Code Sign' (1.00), 'Account Tax Code' (Tax Received Rate R (5%)), and 'Tax Code Sign' (1.00).
- Refunds:** Contains fields for 'Refund Tax Account' (121000 Tax Received), 'Refund Tax Analytic Account', 'Refund Base Code' (Taxable Sales Rated R (5%)), 'Base Code Sign' (1.00), 'Refund Tax Code' (Tax Received Rate R (5%)), and 'Tax Code Sign' (1.00).
- Children/Sub Taxes:** A table with columns 'Sequence', 'Tax Name', 'Tax Included in Price', and 'Tax Code'. It has a header row and a single data row labeled 'Add an item'.

Figure 14.9: Defining Taxes

You define the following fields:

- **Tax Name:** a unique name required for this tax (such as 21% Purchase VAT),
- **Tax Code:** an optional code for this tax (such as VAT IN IC),
- **Tax Application:** defines whether the tax is applicable to Sale, Purchase or All transactions,
- **Tax Included in Price:** when checked, the price shown in the product or invoice is inclusive of this tax,
- **Tax Type:** a required field indicating how tax should be calculated: Percentage, Fixed Amount, None, Balance or Python Code, (the latter is found in the *Compute Code* field in the *Special Computation* tab),
- **Amount:** a required field whose meaning depends on the Tax Type, being a multiplier of the base amount when the *Tax Type* is Percentage and a fixed amount added to the base amount when the *Tax Type* is Fixed Amount,
- **Invoice Tax Account:** a General Account used to record invoiced tax amounts, which may be the same for several taxes or split according to percentage so that one tax is allocated to one account,
- **Refund Tax Account:** a General Account used to record invoiced tax refunds, which may be the same as the Invoice Tax Account or, in some tax jurisdictions, has to be separated,
- **Tax on Children:** when checked, the tax calculation is applied to the output from other tax calculations specified in the *Child Tax Accounts* field (so you can have taxes on taxes), otherwise the calculation is applied to the base amount of the transaction,
- **Include in base amount:** when checked, the tax is added to the base amount and not shown separately, such as Eco taxes,
- **Child Tax Accounts:** other taxes that can be used to supply the figure for taxation.

Tip:

Using Child Taxes

You can use child taxes when you have a complex tax situation requiring several tax codes to be used.

The fields above apply the taxes that you specify and record them in the general accounts, but do not provide you with the information that your tax authorities might need. Use the *Tax Definition* tab, parts Tax Declaration:

Invoices and Credit Notes to define to which tax codes the tax should be assigned:

- *Account Base Code*: tax code to record the invoiced amount (exclusive of taxes) the tax is calculated on,
- *Account Tax Code*: tax code to record the calculated tax amount,
- *Refund Base Code*: tax code to record the refund amount (exclusive of taxes) the tax is calculated on,
- *Refund Tax Code*: tax code to record the refund tax amount.

When you have created a tax structure consisting of taxe codes and taxes, you can use the taxes in your various business objects so that transactions can be associated with taxes and tax-like charges, such as Eco Taxes (Recupel and Bebat, for instance).

Tip:

Retail Customers

When you are retailing to end users rather than selling to a business, you may want to (or be required to) show tax-inclusive prices on your invoicing documents rather than a tax-exclusive price plus tax.

You can assign multiple taxes to a Product. Assuming you have set up the appropriate taxes, you would use the menu *Sales → Products → Products* to open and edit a *Product* definition, then:

- select one or more *Sale Taxes* for any products that you might sell, which may include a Sales Tax or Output VAT and a Sales Eco Tax ,
- select one or more *Purchase Taxes* for any products that you might purchase, which may include a Purchase Tax or Input VAT and a Purchase Eco Tax .

Generally, when you make a purchase or sales, the taxes assigned to the product are used to calculate the taxes owing or owed.

You can also assign multiple taxes to an account, so that when you transfer money through the account you attract a tax amount. This principle can easily be used when posting purchase invoices for which no products are required.

Taxes on Products and Accounts will usually be national taxes. OpenERP is capable of automatically converting national taxes to intracomunal or export taxes through the concept of *Fiscal Positions*.

Go to the menu *Accounting → Configuration → Taxes → Fiscal Positions*. You can use the fiscal positions to automatically convert national taxes to the required intracomunal or export taxes, according to the fiscal position specified for the customer or supplier.

Fiscal positions allow you to make a mapping from national taxes to intracomunal or export taxes, or to map your accounts according to these criteria. You can link fiscal positions to your customers and suppliers to ensure automatic and easy VAT conversion when posting entries.

14.4 Journals

All your accounting entries need to appear in an accounting journal. So you should create a Sales Journal for customer invoices, a Sales Refund journal for customer credit notes, a Purchase Journal for supplier invoices, a Purchase Refund journal for supplier credit notes and a Bank Journal for bank transactions.

14.4.1 Configuring a Journal

To view, edit or create new journals use the menu *Accounting → Configuration → Journals → Journals*.

The screenshot shows the 'Journals / Sales Journal - (test) (EUR)' configuration screen. It includes fields for 'Journal Name' (Sales Journal - (test)), 'Code' (TSAJ), 'Type' (Sale), 'Default Debit Account' (X2001 Product Sales - (test)), 'Default Credit Account' (X2001 Product Sales - (test)), 'Currency' (not specified), 'Company' (Your Company), and other settings like 'Centralized Counterpart', 'Skip 'Draft' State for Manual Entries', 'Check Date In Period', and 'Group Invoice Lines'. There are tabs for 'Advanced Settings', 'Entry Controls', and 'Cash Registers'.

Figure 14.10: Defining an Accounting Journal

Blue fields are mandatory fields. When you select a journal type, some configuration parameters will be preset. The journal type will tell the system where the journal concerned can be used.

Each journal has a specific way of displaying data. The type of journal determines the journal view, which indicates the fields that need to be visible and are required to enter accounting data in that journal. The view determines both the order of the fields and the properties of each field. For example, the field *Statement* has to appear when entering data in the bank journal, but not in the other journals.

You can also create your own journal views. However, before creating a new view for a journal, check whether there is nothing similar already defined. You should only create a new view for new types of journals.

You can create a sequence for each journal. This sequence determines the automatic numbering for accounting entries. Several journals can use the same sequence if you want to define one for them all, and if your legislation allows this.

Tip:

Sequences

Sequences can also be created from the Settings → Technical → Sequences & Identifiers → Sequences. By default, OpenERP has only one sequence in the journal definition. If you need two separate sequences to be kept for the journal, you can install the module account_sequence.

The default credit and debit account allow the software to automatically generate counterpart entries when you are entering data through *Journal Items*. In some journals, debit and credit accounts are mandatory. For example, in a bank journal you should put an associated bank account, so that you do not have to create counterparts for each transaction manually.

A journal can be marked as being centralised. When you do this, the counterpart entries will not be owned by each entry, but will be global for the given journal and period. You will then have a credit line and a debit line centralized for each entry in one of these journals, meaning that both credit and debit appear on the same line. This option is used when posting opening entries in a situation journal.

Note:

Bank Journal, Easy Configuration

A bank journal can automatically be created from the bank account(s) you define for your company. Go to Accounting → Configuration → Accounts → Setup your Bank Accounts. Here you create the bank account or IBAN number of your company's bank account(s). Fill in the Bank Name, and when you save the entry, your Bank Journal will automatically be created with the Bank Name and the Account Number. The general ledger account for this bank will also be created for you.

14.4.2 Controls and Tips for Data Entry

You can have control on journals in OpenERP – controls over the accounts.

To avoid entering account data in wrong accounts, you can put conditions on the general accounts about which journal can use a given account. To do this, you have to list all the accounts or valid account types in the second tab, *Entry Controls*. If you have not added any accounts there, OpenERP applies no restriction on the accounts for that journal. If you list accounts and/or the types of accounts that can be used in a journal, OpenERP prevents you from using any account or account type not in that list. This verification step starts from the moment you enter data. You can only select allowed accounts or account types.

This functionality is useful for limiting possible data entry errors by restricting the accounts to be used in a journal.

Tip:

Control of Data Entry

In accounting it is not a good idea to allow a data entry directly from bank account A to bank account B. If you enter a transaction from bank A to bank B, the transaction will be accounted for twice.

To prevent this problem, pass the transaction through intermediate account C. At the time of data entry, the system checks the type of account that is accepted in the bank journal: only accounts that are not of type Bank are accepted.

If your accountant defines this control properly, non-accounting users are prevented from transferring payments from one bank to another, reducing your risks.

14.5 Payment Terms

You can define whatever payment terms you need in OpenERP. Payment terms determine the due dates for paying an invoice.

To define new payment terms, use the menu *Accounting → Configuration → Miscellaneous → Payment Terms* and then click *Create*.

The figure below represents the following payment term: 5000 within 5 days, 50% payment at the last day of current month, Remaining on 15th of next month.

Computation	Amount To Pay	Number of Days	Day of the Month
Percent	0.500000	0	-1
Fixed Amount	5000.000000	5	0
Balance	0.000000	0	15

Figure 14.11: Configuring payment terms

To configure new conditions, start by giving a name to the *Payment Term* field. Text that you put in the field *Description on invoices*, is used on invoices, so enter a clear description of the payment terms there.

Then create individual lines for calculating the terms in the section *Payment Term*.

The *Amount to pay* field enables you to calculate the amount to pay for each line:

- **Percent** : the line corresponds to a percentage of the total amount, the factor being given in *Value Amount*. The number indicated in *Value Amount* must take a value between 0 and 1.
- **Fixed Amount** : this is a fixed value given by the *Value Amount* box.
- **Balance** : indicates the balance remaining after accounting for the other lines.

Think carefully about setting the last line of the calculation to `Balance`, to avoid rounding errors. The highest sequence number is evaluated last.

The two last fields, *Number of Days* and *Day of the Month*, enable the calculation of the delay in payment for each line. The delay *Day of the Month* can be set to `-1`, `0` or any positive number. For example, if today is 20th December 2012, and if you want to set payment terms like this:

- *5000 within 5 days*: set *Valuation Fixed Amount*, *Number of Days* `5` and *Day of the Month* `0`. That creates journal entry for date 25th December 2012.
- *50% payment at the last day of current month*: set *Valuation Percent*, *Number of Days* `0` and *Day of the Month* `-1`. That creates journal entry for date 31st December 2012.
- *Remaining on 15th of next month*: set *Valuation Balance*, *Number of Days* `0` and *Day of the Month* `15`. That creates journal entry for date 15th January 2013.

You can then add payment terms to a Partner through the tab *Accounting* on the partner form.

14.6 Opening and Closing a Financial Year

At the end of a financial year, you will have to transfer the closing balance of that year as an opening balance to the new financial year. OpenERP allows you to automatically post such an entry. You can transfer the new opening balance numerous times, because it is impossible to close a year at once. Correction entries will have to be made, due to which balances will change. The new balance can easily be transferred through a wizard, so you do not have to keep track of each correction entry made in the previous financial year.

Note:

OpenERP Accounting

The procedure below is valid if you already have a financial year with entries in OpenERP.

14.6.1 Steps to Open a New Financial Year in an Existing OpenERP Configuration

Before generating the opening balance for your various accounts, you have to go through several steps.

1. Create the new Financial Year

Create the new financial year as explained in *Defining a Period or a Financial Year*.

2. Define an Opening Period

Go to *Accounting* → *Configuration* → *Periods* → *Periods* and create a new period for the financial year you wish to open (in case it has not been generated automatically). Make sure to link the period to the newly defined financial year. Select the *Opening/Closing Period* checkbox to indicate that this period should be used for opening entries. Both dates typically match the first day of your financial year (e.g. 01/01/YYYY).

3. Check the Account Types

Before generating the opening entries, make sure to check the defined account types, more specifically the *Deferral Method*. The deferral method determines whether and how account entries will be transferred to the new financial year. There are four possible deferral methods: None, Balance, Detail, Unreconciled.

Deferral Method	Action
None	Nothing will be transferred (typically P&L accounts)
Balance	Account balance will be transferred (typically Balance Sheet accounts)
Detail	All entries are transferred, also reconciled entries
Unreconciled	Only entries that are not reconciled on the first day of the new financial year will be transferred (typically receivable and payable)

4. Check the Link between Account and Account Type.

Check whether each account is linked to the correct account type to avoid generating an incorrect opening entry.

5. Create an Opening/Closing Journal

Go to *Accounting → Configuration → Journals → Journals*. Create a new journal to post your opening entries. Make sure to respect the following settings:

1. *Type* should be *Opening/Closing Situation*.

2. *Standard debit/credit account* could be something like 140000 Benefits.

3. *Centralised counterpart* will be checked automatically when select the journal type, to avoid a counterpart on each line, and instead have one debit and one credit entry on the corresponding opening account.

4. The *Entry Sequence* will also be created automatically on save.

6. Create a Purchase and/or Sales Journal for Outstanding Entries

We recommend you to create separate purchase and sales journals to post the outstanding entries from your previous accounting system. This will allow you to easily keep track of your opening entries.

Go to *Accounting → Configuration → Journals → Journals*. Create a new purchase and sales journal to post your outstanding entries. Make sure to respect the following settings:

1. *Type* should be *Purchase or Sales*.

2. The *Entry Sequence* will also be created automatically on save.

Now you can start entering your outstanding customer and supplier entries according to your list of open entries at the end of the year.

Go to the menu *Accounting → Customers → Customer Invoices* to post your outstanding sales entries. To post your outstanding purchase entries, Go to the menu *Accounting → Suppliers → Supplier Invoices*.

We recommend you to use suspense accounts instead of expense or income accounts. Indeed, your expense and income accounts have already been posted in the previous financial year, and there is no need to transfer these balances. The outstanding entries from previous financial years should not contain any VAT entries; they only get the balance the customer still has to pay you, or the balance you have to pay to the supplier.

7. Enter the Opening Balance (Miscellaneous Entry)

For each account that needs to be reopened, enter account data (debit or credit) in the journal. For this operation, go to the menu *Accounting → Journal Entries → Journal Entries* and select a miscellaneous journal.

Tip:

Import

You can also use OpenERP's generic import tool if you load the balance of each of your accounts from other accounting software.

14.6.2 Generating the Opening Entry

To automatically generate the opening entries based on your actual books, OpenERP provides a wizard. Go to *Accounting → Periodical Processing → End of Period → Generate Opening Entries*.

In the wizard, enter the financial year for which you want to transfer the balances (*Fiscal Year to close*). Select the *New Fiscal Year* (the year in which you want to generate the opening entry). You also have to select the journal and the period to post the opening entries. The description for the opening entry is proposed by default,

but of course you can enter your own description, such as *Opening Entry for financial year YYYY*. Then you click the *Create* button to generate the opening entry according to the settings defined.



Figure 14.12: *Generating Opening Entries*

To have a look at the draft opening entry that has been generated, go to *Accounting → Journal Entries → Journal Entries*. And with the help of new filter Click on the *Unposted* to filter only draft entries. Open the corresponding entry and verify the data. Click the *Post* button to confirm the entry.

Note:

Changes in Previous Financial Year

As long as the audit is ongoing, extra entries may be added to the financial year to close. To automatically have the correct balances, OpenERP allows you to use the Cancel Opening Entries wizard. This wizard will automatically cancel the existing opening entry.

To update the balances to show the correct results, you should run the Generate Opening Entries wizard again. The new opening entry will contain the correct balances. This way, you can generate your opening entry as many times as required.

14.6.3 Closing a Financial Year

To close a financial year, use the menu *Accounting→Periodical Processing → End of Period → Cancel Closing Entries*. A wizard opens asking you for the financial year to close.

When the year is closed, you can no longer create or modify any transactions in that year. So you should always make a backup of the database before closing the fiscal year. Closing a year is not mandatory, and you could easily do that sometime in the following year, when your accounts are finally sent to the statutory authorities, and no further modifications are permitted.

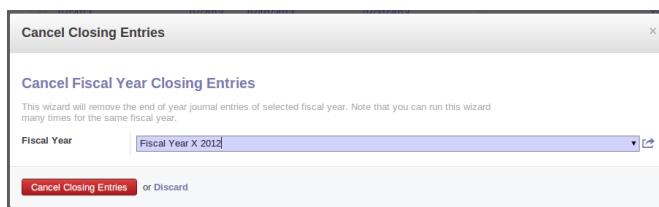


Figure 14.13: *Closing a Financial Year*

14.7 Putting Analytic Accounts in Place

For the initial setup of good analytic accounts you should:

- set up the chart of accounts,
- create the different journals,
- link the analytic journals to your accounting journals.

14.7.1 Setting up the Chart of Accounts

Start by choosing the most suitable analytic representation for your company before entering it into OpenERP. To create the different analytic accounts, use the menu *Accounting* → *Configuration* → *Analytic Accounting* → *Analytic Accounts* and click the *Create* button. Note that the data you see when creating an analytic account will depend upon the business applications installed.

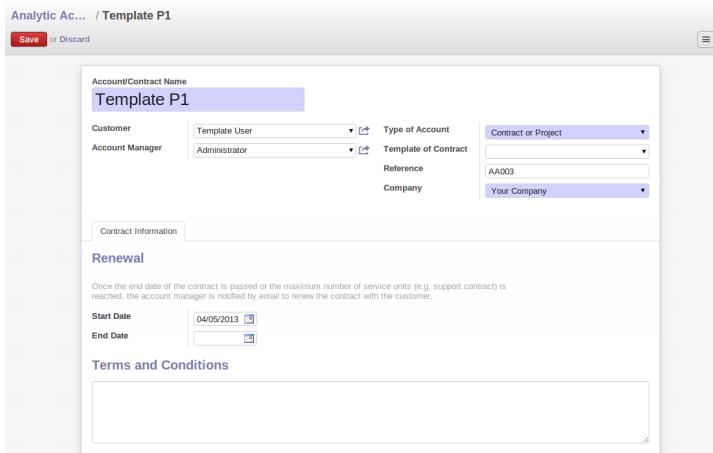


Figure 14.14: Setting up an Analytic Account

To create an analytic account, you have to complete the main fields:

- the *Account Name*,
- the *Reference*: used as a shortcut for selecting the account,
- the *Account Type*: just like general accounts, the *Analytic View* type is used for virtual accounts which are used only to create a hierarchical structure and for subtotals, and not to store accounting entries. The *Analytic Account* type will be used for usual accounts that you only want to use in accounting. If you select *Contract or Project*, it offers you the possibility to manage the validity and the invoicing options for this account. The special type *Template of Project* allows you to define a template with default data that you can reuse easily.
- the *Parent Analytic Account*: use this field to define the hierarchy between the accounts.

If an analytic account (e.g. a project) is for a limited time, you can define a start and end date here.

The *Maximum Time* can be used for contracts with a fixed limit of hours to use.

Tip:

Invoicing

You have several methods available to you in OpenERP for automated invoicing:

- Service companies usually use invoicing from purchase orders, analytic accounts or project management tasks.
- Manufacturing and trading companies more often use invoicing from deliveries or customer purchase orders.

For more information about invoicing from projects, we refer to the book (soon to be released) about Project and Services Management.

Once you have defined the different analytic accounts, you can view your chart through the menu *Accounting* → *Charts* → *Chart of Analytic Accounts*. You can display analytic accounts for one or more periods or for an entire

financial year.

Full Name	Reference	Debit	Credit	Balance	Type of Account
Your Company / Internal / Your Company / Internal / Administrative	AA008	0.00	210.00	-210.00	Analytic View
Your Company / Internal / Commercial & Marketing	AA039	0.00	210.00	-210.00	Analytic Account
↳ Your Company / Internal / Our Super Product Development	AA040	0.00	0.00	0.00	Analytic Account
↳ Your Company / Internal / Training	AA041	0.00	0.00	0.00	Analytic View
↳ Your Company / Leaves / Paid	AA012	0.00	0.00	0.00	Analytic View
Your Company / Leaves / Unpaid	AA007	0.00	0.00	0.00	Analytic Account
↳ Your Company / Our Super Product	AA044	0.00	0.00	0.00	Analytic Account
Your Company / Our Super Product / Consultancy	AA045	0.00	0.00	0.00	Analytic Account
↳ Your Company / Our Super Product / Integration	AA009	0.00	30.00	-30.00	Analytic View
↳ Your Company / Our Super Product / Support	AA020	0.00	30.00	-30.00	Contract or Project
Your Company / Our Super Product / Training	AA019	0.00	0.00	0.00	Analytic View
↳ Your Company / Project 1 / Development	AA015	0.00	0.00	0.00	Analytic View
Your Company / Project 1 / Training	AA021	0.00	0.00	0.00	Contract of Project
↳ Your Company / Project 2 / Development	AA010	0.00	0.00	0.00	Analytic View
Your Company / Project 2 / Support	AA038	0.00	0.00	0.00	Analytic Account
↳ Your Company / Project 2 / Support	AA037	0.00	0.00	0.00	Analytic Account
Your Company / Project 2 / Development	AA031	0.00	0.00	0.00	Analytic View
Your Company / Project 2 / Support	AA036	0.00	0.00	0.00	Analytic Account
	AA035	0.00	0.00	0.00	Analytic Account

Figure 14.15: Analytic Chart of Accounts

Tip:

Setting up an Analytic Account

The setup screen for an analytic account can vary according to the modules installed in your database. For example, you will see information about recharging services only if you have the module `hr_timesheet_invoice` installed.

Some of these modules add helpful management statistics to the analytic account. The most useful is probably the module `account_analytic_analysis`, which adds such information as indicators about your margins, invoicing amounts, and latest service dates and invoice dates.

14.7.2 Creating Journals

Once the analytic chart has been created for your company, you have to create the different journals. These journals enable you to categorise the different accounting entries by their type, such as:

- services,
- expense reimbursements,
- purchases of materials,
- miscellaneous expenditure,
- sales.

Note:

Minimal Journals

At a minimum, you have to create one analytic journal for Sales and one for Purchases. If you do not create these two, OpenERP will not validate invoices linked to an analytic account, because it would not be able to create an analytic accounting entry automatically.

Journal Name	Sales	Journal Code	SAL
Type	Sale	Active	<input checked="" type="checkbox"/>
Company	Your Company		

Figure 14.16: Creating an Analytic Journal

To define your analytic journals, use the menu `Accounting → Configuration → Analytic Accounting → Analytic Journals` then click the `Create` button.

It is easy to create an analytic journal. Just give it a `Journal Name`, a `Journal Code` and a `Type`. The types available are:

- Sale, for sales to customers and for credit notes,

- Purchase, for purchases and expenses,
- Cash, for financial entries,
- Situation, to adjust accounts when starting an activity, or at the end of the financial year,
- General, for all other entries.

The analytic journal now has to be linked to your general journals to allow OpenERP to post the analytic entries. For example, if you enter an invoice for a customer, OpenERP will automatically search for the analytic journal of type Sales linked to your Sales Journal. Go to *Accounting → Configuration → Journals → Journals* and select for instance the Sales journal. In the *Analytic Journal* select the analytic sales journal.

Figure 14.17: Linking an Analytic Journal to a Journal

14.7.3 Working with Analytic Defaults

You can work with analytic default accounts in OpenERP by installing the `account_analytic_default` module. Notice that this module is also linked with the `sale`, `stock` and `procurement` modules.

The system will automatically select analytic accounts according to the following criteria:

- Product
- Partner
- User
- Company
- Date

You can configure these criteria using the menu *Accounting → Configuration → Analytic Accounting → Analytic Defaults* and clicking the *Create* button. According to the criteria you define here, the correct analytic account will be proposed when creating an order or an invoice.

Figure 14.18: Specify Criteria to Automatically Select Analytic Account

Part V

Effective Management of Operations

Your company is a closely interlinked jumble of people and processes that form the whole system. If you want it to be efficient, and to be able manage it effectively, you have to organize it, make it systematic, and optimize its major operations. Isolated spots of poor management can disturb the whole value-added chain.

This part presents an approach to greater efficiency, showing concrete solutions by applying OpenERP to different problems in a services company. For each enterprise function, OpenERP enables you to automate the recurring tasks, systematize complex processes, simplify the transmission of information and control all your operations.

ANALYTIC ACCOUNTS

Sitting at the heart of your company's processes, analytic accounts (or cost accounts) are indispensable tools for managing your operations well. Unlike your financial accounts, they are for more than accountants - they are for general managers and project managers, too.

You need a common way of referring to each user, service, or document to integrate all your company's processes effectively. Such a common basis is provided by analytic accounts (or management accounts, or cost accounts, as they are also called) in OpenERP.

Analytic accounts are often presented as a foundation for strategic enterprise decisions. But because of all the information they pull together, OpenERP's analytic accounts can be a useful management tool, at the center of most system processes.

There are several reasons for this:

- they reflect your entire management activity,
- unlike the general accounts, the structure of the analytic accounts is not regulated by legal obligations, so each company can adapt it to its needs.

Note:

Independence from General Accounts

In some software packages, analytic accounts are managed as an extension of general accounts – for example, by using the two last digits of the account code to represent analytic accounts.

In OpenERP, analytic accounts are linked to general accounts but are treated totally independently. So you can enter various different analytic operations that have no counterpart in the general financial accounts.

While the structure of the general chart of accounts is imposed by law, the analytic chart of accounts is built to fit a company's needs closely.

Just as in the general accounts, you will find accounting entries in the different analytic accounts. Each analytic entry can be linked to a general account, or not, as you wish. Conversely, an entry in a general account can be linked to one, several, or no corresponding analytic accounts.

You will discover many advantages of this independent representation below. For the more impatient, here are some of those advantages:

- you can manage many different analytic operations,
- you can modify an analytic plan on the fly, during the course of an activity, because of its independence,
- you can avoid an explosion in the number of general accounts,
- even those companies that do not use OpenERP's general accounts can use the analytic accounts for management.

Tip:

Who Benefits from Analytic Accounts?

Unlike general accounts, analytic accounts in OpenERP are not so much an accounting tool for Accounts as a management tool for everyone in the company. (That is why they are also called management accounts.) The main users of analytic accounts should be the directors, general managers and project managers.

Analytic accounts make up a powerful tool that can be used in different ways. The trick is to create your own analytic structure for a chart of accounts that closely matches your company's needs.

For this chapter, you should start with a fresh database that includes demo data, with `sale` and its dependencies installed, and no particular chart of accounts configured.

15.1 To Each Enterprise its own Analytic Chart of Accounts

To illustrate analytic accounts clearly, you will follow three use cases, each in one of three different types of company:

1. Industrial Manufacturing Enterprise,
2. Law Firm,
3. IT Services Company.

15.1.1 Case 1: Industrial Manufacturing Enterprise

In industry, you will often find analytic charts of accounts structured into departments and products the company itself is built on.

So the objective is to examine the costs, sales and margins by department and by product. The first level of the structure comprises the different departments, and the lower levels represent the product ranges the company makes and sells.

Note:

Analytic Chart of Accounts for an Industrial Manufacturing Company

1. Marketing Department
2. Commercial Department
3. Administration Department
4. Production
 - Product Range 1
 - Sub-groups
 - Product Range 2

In daily use, it is useful to mark the analytic account on each purchase invoice. The analytic account is the one to which the costs of that purchase should be allocated. When the invoice is approved, it will automatically generate the entries for both the general and the corresponding analytic accounts. So, for each entry on the general accounts, there is at least one analytic entry that allocates costs to the department which incurred them.

Here is a possible breakdown of some general accounting entries for the example above, allocated to various analytic accounts:

Table 15.1: Breakdown of general and analytic accounting entries (Case 1)

General accounts				Analytic accounts	
Title	Account	Debit	Credit	Account	Value
Purchase of Raw Material	600	1500		Production / Range 1	-1 500
Subcontractors	602	450		Production / Range 2	-450
Credit Note for defective materials	600		200	Production / Range 1	200
Transport charges	613	450		Production / Range 1	-450
Staff costs	6201	10000		Marketing	-2 000
				Commercial	-3 000
				Administrative	-1 000
				Production / Range 1	-2 000
				Production / Range 2	-2 000
PR	614	450		Marketing	-450

The analytic representation by department enables you to investigate the costs allocated to each department in the company.

So, the analytic chart of accounts shows the distribution of the company's costs using the example above:

Table 15.2: Analytic chart of accounts
(Case 1)

Account	Total
Marketing Department	-2 450
Commercial Department	-3 000
Administration Department	-1 000
Production	-6 200
Product Range 1	-3 750
Product Range 2	-2 450

In this example of a hierarchical structure in OpenERP, you can analyse not only the costs of each product range, but also the costs of the whole production. The balance of a summary account (*Production*) is the sum of the balances of the child accounts.

A report that relates both general accounts and analytic accounts enables you to get a breakdown of costs within a given department. An analysis of the Production / Product Range 1 department is shown in this table:

Table 15.3: Report merging both general and analytic accounts for a department (Case 1)

Production / Product Range 1	
General Account	Amount
600 – Raw Materials	- 1 300
613 – Transport charges	- 450
6201 – Staff costs	-2 000
Total	-3 750

The examples above are based on a breakdown of the costs of the company. Analytic allocations can be just as effective for sales. That gives you the profitability (sales - costs) of different departments.

Note:

Representation by Unique Product Range

This analytic representation by department and by product range is generally used by trading companies and industries.

A variant of this, is not to break it down by sales and marketing departments, but to assign each cost to its corresponding product range. This will give you an analysis of the profitability of each product range.

Choosing one over the other depends on how you look at your marketing effort. Is it a global cost allocated in some general way, or is each product range responsible for its own marketing costs?

15.1.2 Case 2: Law Firm

Law firms generally adopt management by case, where each case represents a current client file. All of the expenses and products are then attached to a given file.

A principal preoccupation of law firms is the invoicing of hours worked, and the profitability by case and by employee.

Mechanisms used for encoding the hours worked will be covered in detail in *Human Resources*. Like most system processes, hours worked are integrated into the analytic accounting. Every time an employee enters a timesheet for a number of hours, that automatically generates analytic accounts corresponding to the cost of those hours in the case concerned. The hourly charge is a function of the employee's salary.

So a law firm will opt for an analytic representation which reflects the management of the time that employees work on the different client cases.

Note:

Example Representation of an Analytic Chart of Accounts for a Law Firm

1. *Absences*
 - *Paid Absences*
 - *Unpaid Absences*
2. *Internal Projects*
 - *Administrative*
 - *Others*
3. *Client Cases*
 - *Client 1*
 - *Case 1.1*
 - *Case 1.2*
 - *Client 2*
 - *Case 2.1*

All expenses and sales are then attached to a case. This gives the profitability of each case and, at a consolidated level, of each client.

Billing for the different cases is a bit unusual. The cases do not match any entry in the general account nor do they come from purchase or sales invoices. They are represented by the various analytic operations and do not have exact counterparts in the general accounts. They are calculated on the basis of the hourly cost per employee. These entries are automatically created when billing worksheets.

At the end of the month when you pay salaries and benefits, you integrate them into the general accounts but not in the analytic accounts, because they have already been accounted for in billing each account. A report that relates data from the analytic and general accounts then lets you compare the totals, so you can readjust your estimates of hourly cost per employee depending on the time actually worked.

The following table shows an example of different analytic entries that you can find for your analytic account:

Table 15.4: Analytic Entries for the Account Chart (Case 2)

Title	Account	Amount	General Account	Debit	Credit
Study the file (1 h)	Case 1.1	-15			
Search for information (3 h)	Case 1.1	-45			
Consultation (4 h)	Case 2.1	-60			
Service charges	Case 1.1	280	705 – Billing services		280
Stationery purchase	Administrative	-42	601 – Furniture purchase	42	
Fuel Cost -Client trip	Case 1.1	-35	613 – Transports	35	
Staff salaries			6201 – Salaries		3 000

Such a structure allows you to make a detailed study of the profitability of various transactions. In this example, the cost of Case 1.1 is 95.00 (the sum of the analytic costs of studying the files, searching for information and fuel costs), but has been invoiced at 280.00, which gives you a gross profit of 185.00.

But an interest in analytical accounts is not limited to a simple analysis of the profitability of different cases.

The same data can be used for automatic recharging of the services to the client at the end of the month. To invoice clients, just take the analytic costs in that month and apply a selling price factor to generate the invoice. Invoicing mechanisms for this are explained in greater detail in *Services & Project Management*. If the client requires details of the services used on the case, you can print the service entries in the analytic account for this case.

Tip:

Invoicing Analytic Costs

Most software that manages billing enables you to recharge hours worked. In OpenERP, these services are automatically represented by analytic costs. But many other OpenERP documents can also generate analytic costs, such as credit notes and purchases of goods.

So when you invoice the client at the end of the month, it is possible for you to include all the analytic costs, and not just the hours worked. So, for example, you can easily recharge the whole cost of your journeys to the client.

15.1.3 Case 3: IT Services Company

Most IT service companies face the following problems:

- project planning,
- invoicing, profitability and financial follow-up of projects,
- managing support contracts.

To deal with these problems, you would use an analytic chart of accounts structured by project and by contract. A representation of that is given in the following example:

Note:

Example Analytic Representation of a Chart of Accounts for an IT Services Company

1. *Internal Projects*
 - *Administrative and Commercial*
 - *Research and Development*
2. *Client Projects*
 - *Client 1*
 - *Project 1.1*
 - *Project 1.2*
 - *Client 2*
 - *Project 2.1*
 - *Project 2.2*
3. *Support Contracts – 20h*
 - *Customer X*
 - *Customer Y*

The management of services, expenditures and sales is similar to that presented above for lawyers. Invoicing and the study of profitability are also similar.

But now look at support contracts. These contracts are usually limited to a prepaid number of hours. Each service posted in the analytic accounts shows the remaining hours of support. To manage support contracts, you would use the quantities and not the amounts in the analytic entries.

In OpenERP, each analytic line lists the number of units sold or used, as well as what you would usually find there – the amount in currency units (USD or GBP, or whatever other choice you make). So you can sum the quantities sold and used on each analytic account to determine whether any hours of the support contract remain.

To differentiate services from other costs in the analytic account, you use the concept of the analytic journal. Analytic entries are then allocated into the different journals:

- service journal,

- expense journal,
 - sales journal,
 - purchase journal.

To obtain the detailed breakdown of a support contract, you only have to look at the service journal for the analytic account corresponding to the contract in question.

Finally, the analytic account can be used to forecast future needs. For example, monthly planning of staff on different projects can be seen as an analytic budget limited to the service journal. Accounting entries are expressed in quantities (such as number of hours, and numbers of products), and in amounts in units of currency (USD or GBP for instance).

So you can set up planning on just the basis of quantities. Analysing the analytic budget enables you to compare the budget (that is, your plan) to the services actually carried out by month end.

Tip:

Cash Budgets

Problems of cash management are amongst the main difficulties encountered by small growing businesses. It is really difficult to predict the amount of cash that will be available when a company is young and rapidly growing. If the company adopts management by case, then staff planning can be represented in the analytic accounts report, as you have seen.

But since you know your selling price for each of the different projects, you can see that it is easy to use the plan in the analytic accounts to more precisely forecast the amounts that you will invoice in the coming months.

15.2 Analytic Entries

15.2.1 Integrated with General Accounting

Just as in general accounting, analytic entries should be related to an account and an analytic journal.

Analytic records can be distinguished from general records by the following characteristics:

- they are not necessarily legal accounting documents,
 - they do not necessarily belong to an existing accounting period,
 - they are managed according to their date and not an accounting period,
 - they do not generate both a debit and a credit entry, but a positive amount (income) or a negative amount (cost).

Analytic Journal Items									<input type="text"/>		
Create or Import									1-5 of 5		
Date	Ref.	Description	User	Analytic Journal	Amount	Quantity	Analytic account/project	Invoiceable	General Account		
04/09/2013		Requirements analysis and specification	Administrator	Timesheet Journal	-60.00	2.00	Your Company / Internal / Administrative	X210 Expenses - (test)			
04/09/2013		Design and specification	Administrator	Timesheet Journal	-30.00	1.00	Your Company / Internal / Administrative	X210 Expenses - (test)			
04/09/2013		Coding and module testing	Administrator	Timesheet Journal	-90.00	3.00	Your Company / Internal / Administrative	X210 Expenses - (test)			
04/09/2013		Integration and system testing	Administrator	Timesheet Journal	-30.00	1.00	Your Company / Internal / Administrative	X210 Expenses - (test)			
04/09/2013		Delivery and maintenance	Administrator	Timesheet Journal	-30.00	100.00	Your Company / Our Super Product / Consultancy	Yes (100%)	X210 Expenses - (test)		
									-240.00	107.00	

Figure 15.1: Analytic Account Records for a Customer Project

The figure *Analytic Account Records for a Customer Project* represents the entries in an analytic account for a customer project , you can see this list view of Analytic Journal Items from this menu *Accounting → Journal Entries → Analytic Journal Items* .

You can see there:

- the service costs for staff working on the project,

- the costs for reimbursing the expenses of a return journey to the customer,
- purchases of goods that have been delivered to the customer,
- sales for recharging these costs.

15.2.2 Manual Entries

Even though most analytic entries are produced automatically by the other OpenERP documents, it is sometimes necessary to record manual entries. It is usually needed for certain analytic operations which have no counterpart in the general accounts.

To record manual entries, go to the menu *Accounting → Journal Entries → Analytic Journal Items* and click the *Create* button.

Note:

Analytic Entries

To make an analytic entry, OpenERP asks you to specify a general account. This is given only for information in the different cross-reports. It will not create any new entries in the general accounts.

Select a journal and complete the different fields. Write an expense as a negative amount and income as a positive amount.

Tip:

Entering a Date

To enter a date in the editable list you can use the calendar widget.

Note:

Example Cost Redistribution

One of the uses of manual data entry for analytic operations is reallocation of costs. For example, if a development has been done for a given project, but can be used again for another project, you can reallocate part of the cost to the other project.

In this case, make a positive entry on the first account and a negative entry for the same amount on the account of the second project.

15.2.3 Automated Entries

Analytic accounting is totally integrated with the other OpenERP modules, so you never have to re-enter the records. They are automatically generated by the following operations:

- confirmation of an invoice generates analytic entries for sales or purchases connected to the account shown in the invoice line,
- the entry of a service generates an analytic entry for the cost of this service to the given project,
- the manufacturing of a product generates an entry for the manufacturing cost of each operation in the product range.

Other documents linked to one of these three operations produce analytic records indirectly. For example, when you are entering a customer sales order, you can link it to the customer's analytic account. When you are managing by case or project, mark the project with that order. This order will then generate a customer invoice, which will be linked to the analytic account. When the invoice is validated, it will automatically create general and analytic accounting records for the corresponding project.

Expense receipts from an employee can be linked to an analytic account for reimbursement. When a receipt is approved by the company, a purchase invoice is created. This invoice represents a debit on the company in favour

of the employee. Each line of the purchase invoice is then linked to an analytic account which automatically allocates the costs for that receipt to the corresponding project.

To visualise the general entries following these different actions, you can use one of the following menus:

1. To see all of the entries, *Accounting → Journal Entries → Analytic Journal Items*
2. To see the entries per account, per user, per product or per partner, you can use the menu *Reporting → Accounting → Analytic Entries Analysis*.

The screenshot shows a table titled 'Analytic Entries Analysis'. At the top, there are search and filter fields for 'Account' and 'Month'. The table has columns for 'Group', '#Entries', 'Quantity', and 'Amount'. The data is organized into groups like 'Your Company / Internal / Administrative (4)' and 'Your Company / Our Super Product / Consultancy (3)'. Within each group, there are further sub-groups by month ('April (4)' and 'April (1)'). The total number of entries is 5, with a total amount of -240.00.

Group	#Entries	Quantity	Amount
▼ Your Company / Internal / Administrative (4)	4	7.00	-210.00
April (4)	4	7.00	-210.00
▼ Your Company / Our Super Product / Consultancy (3)	1	100.00	-30.00
April (1)	1	100.00	-30.00
	5	107.00	-240.00

Figure 15.2: *Analytic Entries Analysis*

15.2.4 Analytic Models

Standard OpenERP allows you to post analytic entries to one chart at a time. Using the *Analytic Model* concept (install the module *Multiple Analytic Plans* from the module list), you can distribute your income or expenses to one or several analytic charts of account at the same time. You can define the combination of analytic plans through the menu *Accounting → Configuration → Analytic Accounting → Multi Plans → Analytic Plan*.

The screenshot shows the 'Analytic Plan / Analytic Plan for Client Project' configuration screen. It includes tabs for 'Save' or 'Discard', 'Plan Name', 'Sequence', 'Root Account', 'Minimum Allowed (%)', and 'Maximum Allowed (%)'. There is a table with rows for 'Project' and 'Consultancy', both mapped to 'Consultancy' under 'Root Account' with a value of 100.00. A button 'Add a row' is visible at the bottom.

Figure 15.3: *Definition of Analytic Plan*

Save the plan , after you can create Distribution Models from *More* button at the top of the *Analytic Plan* form, you can define the distribution of either your expenses while creating a supplier invoice, or revenue when defining customer invoices. Thanks to these models, you can have one amount distributed amongst several analytic accounts. Models can be reused, and they can be applied to one analytic chart of accounts, but also to a combination of various charts of account, such as projects and cost centers.

The screenshot shows the 'Analytic Plan / Analytic Pl... / Distribution ... / Analytic distribution' configuration screen. It includes tabs for 'Edit' and 'Create', 'Attachment(s)', and 'More'. There are sections for 'Analytic Distribution Model's Plan', 'Analytic distribution for client project', 'Distribution Code', and 'DOC'. Below, there is a table for 'Rate (%)' and 'Analytic Account' mapping, with rows for 20.00 (Administrative), 30.00 (Consultancy), and 50.00 (Development).

Figure 15.4: *Definition of Distribution Models*

For example, when you create the invoice (suppose 1000 EUR) for the product *Client Project* with the analytic distribution defined above.

When the invoice has been validated, you can find the Analytic Journal Entries with the amount distributed amongst the analytic accounts through the menu *Accounting → Journal Entries → Analytic Journal Items*.

The screenshot shows the 'Analytic Journal Items' report. It includes a 'Create' button and search/filter fields. The table has columns for Date, Ref., Description, Analytic Journal, Amount, Quantity, Analytic account/project, Type of Invoicing, General Account, and Company. Three entries are listed: 09/27/2012 SAJ20120001 for client project Sales, amount 500.00, quantity 1.00, analytic account Development, general account 701000 Ventes en Belgique, company Your Company; 09/27/2012 SAJ20120001 for client project Sales, amount 300.00, quantity 1.00, analytic account Consultancy, general account 701000 Ventes en Belgique, company Your Company; and 09/27/2012 SAJ20120001 for client project Sales, amount 200.00, quantity 1.00, analytic account Administrative, general account 701000 Ventes en Belgique, company Your Company. The total amount is 1000.00 and quantity is 3.00.

Date	Ref.	Description	Analytic Journal	Amount	Quantity	Analytic account/project	Type of Invoicing	General Account	Company
09/27/2012	SAJ20120001	client project	Sales	500.00	1.00	Development		701000 Ventes en Belgique	Your Company
09/27/2012	SAJ20120001	client project	Sales	300.00	1.00	Consultancy		701000 Ventes en Belgique	Your Company
09/27/2012	SAJ20120001	client project	Sales	200.00	1.00	Administrative		701000 Ventes en Belgique	Your Company

Figure 15.5: *Journal Entries with Distributed Amount*

You can also specify a default *Analytic Distribution* for a particular product, partner, user and company for a specific time interval using the menu *Accounting* → *Configuration* → *Analytic Accounting* → *Analytic Defaults*.

KEY FEATURES HR

This chapter describes OpenERP’s main Human Resources and Employee Services features. Most of the solutions discussed after this chapter concern management by business or by project, and depend mostly on analytic accounting, with each business or project represented by an analytic account.

A company’s effectiveness depends on its employees’ good work. OpenERP’s Human Resources modules enable you to manage important aspects of staff work efficiently, such as their skills, contracts, and working time.

Start with a fresh database that includes demo data and install Employee Directory application.

16.1 Managing Human Resources

To establish a system that is integrated into the company’s management, you need to start with a current list of collaborators.

Note:

Do not confuse employees and users

For OpenERP, “employee” represents all of the physical people who have a work contract with the company. This includes all types of contracts: contracts with both fixed and indeterminate time periods, and also independent and freelance service contracts.

A “user” is a physical person who is given access to the company’s systems. Most employees are users but some users are not employees: external partners can have access to parts of the system.

Here are some examples of functions which depend on the accuracy of the employee list:

- the cost of a service, which depends on the employee’s working contract,
- project planning, which depends on the work pattern of the project contributors,
- the client billing rate, which probably depends on the employee’s job function,
- the chain of command, or responsibilities, which is related to the hierarchical structure of the company.

16.1.1 Link employees and OpenERP users to facilitate the management of rights

To define a new employee in OpenERP, use the menu *Human Resources → Employees*.

The screenshot shows the 'Employees / Quentin De Paoli' form. At the top, there is a 'Save' button and a 'Discard' button. To the right, there are navigation icons for '11 / 13' and other document-related functions. The main area is divided into sections: 'Contact Information' and 'Position'. In 'Contact Information', fields include Working Address (Grand-Rosière), Work Email (qdp@openerp.com), Work Phone (+3281813700), Work Mobile, Office Location (Grand-Rosière), and Related User (Demo User). In 'Position', fields include Department (Research & Development), Job (Developer), Manager (Antony Lesuisse), and Coach. Below these sections is a large 'Other Information ...' text area.

Figure 16.1: Form describing an employee

Start by entering the employee's name in *Name* and the employee category i.e. *Tags*. You can then create a new user of the OpenERP system linked to this employee by filling in a new *User* form through the *Related User* field. And the company that this employee works for in *Company*.

Even if the employee is not a user, it is best if you create a system access for most of your staff just so that you can control their access rights from the outset (and you can do that through this field if you need to).

Tip:

Employee and User link.

If the employee has a user account on the system, you always link his or her user account to the employee form. Creating this link enables automatic completion to be done on the Employee field in the relevant forms, such as services and expense records.

Then enter the employee's address.

This appears in the partner contact form in OpenERP. Since employees are people that have contracts with your company, it is logical that they have entries like any other partner in your database. So enter the name of the employee as a new partner Name and the address. Then all of the functions that apply to a partner can also be applied to an employee. This is particularly useful for tracking debits and credits in the accounts – so you can track salary payments, for example.

To help employees encode and validate timesheets and attendances, you can install `hr_timesheet_sheet` by going to the menu *Settings → Modules → Apps..* You can then set both an analytic journal and linked a product to an employee in the *HR Settings* tab of employee form. If you do it that way, then this information can be used to track services. For now, just complete the form with the following information:

- *Analytic Journal* : usually a Timesheet Journal,
- *Product* : a service product that describes how this employee would be charged out, for example as Service on Timesheet.

At the top right of the form you can find button which will lead you to the *Timesheets* associated with that employee.

16.1.2 Define employees' billing prices and costs

To be able to use the timesheets at all, you must first define those employees who are system users. The employee definition forms contain the information necessary to use that sheet, such as the job title, and hourly costs.

Two fields will be of particular interest to you for managing timesheets: the *Analytic Journal* and the *Product*.

All the analytic entries about the costs of service times will be stored in the analytic journal. These enable you to isolate the cost of service from other company costs, such as the purchase of raw materials, expenses receipts and subcontracting. You can use different journals for each employee to separate costs by department or by function.

The employee is also associated with a product in your database in OpenERP. An employee is linked with a product, so they can be ‘bought’ (subcontracting) or ‘invoiced’ (project management). You have to create a product for each job type in your company.

The following information is important in the product form:

- *Name* : Secretary , Salesperson or Project Manager
- *Product Type* : Service
- *Unit of Measure* : Hour or Day
- *Cost Price*
- *Sale Price*
- *Costing Method* : either Standard Price or Average Price

Tip:

Price Indexation

When the Costing Method is Average Price in the Product form, you can have a button Update, beside the Cost Price field, that opens up a wizard for changing the cost price.

In summary, each company employee corresponds, in most cases, to:

- a *Partner*
- an *Employee* form,
- a *System User*.

And each company job position corresponds to a *Product*.

Note:

Time Charge Rates

By default, the hourly cost of an employee is given by the standard cost of the product linked to that employee. But if you install the *hr_contract* module, it is possible to manage contracts differently. The hourly cost of the employee is then automatically calculated from their employment contract when they enter their timesheet data. To do this, the software uses a factor defined in the contract (for example, contract type, wages, working schedule, etc). Ideally, this factor should take into account the salary costs, taxes, insurances and other overheads associated with pay.

16.1.3 Define employee categories to assign different Holiday's rights to different employee groups

You must create and assign employee categories for employees in order to be able to assign and manage leave and allocation requests by category. You can define employee categories from *Human Resources* →

Configuration → Employee Tags. For a new category, define its name in *Category*. A category may also be assigned a *Parent Category*.

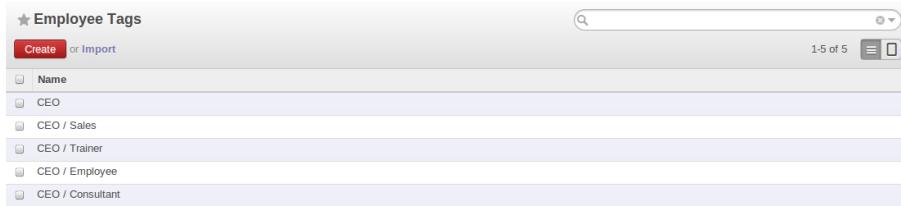


Figure 16.2: Example of categories defined for employees

To link an employee to a category, open the employee form through *Human Resources → Human Resources → Employees*. In the *Tags*, you can assign more than one category to an employee.



Figure 16.3: Assign categories to an employee in the Employee form

Now, when you create a new leave or allocation request from the menuitems under *Human Resources → Leaves*, if your *Allocation Mode* is *By Employee Category*, then you must choose a pre-defined *Category*. The request will then be applicable to all those employees who belong to the category selected. For example, you can create an allocation request for employees belonging to the *Trainee* category, entitling them to fewer leaves than the rest of the employees.

16.1.4 Define contract types with start and end dates for contracts as well as trial periods

If you install the `hr_contract` module you can link contract details to the employee record. Go to the menu *Settings → Configuration → Human Resources*. And then tick the *Record contracts per employee*.

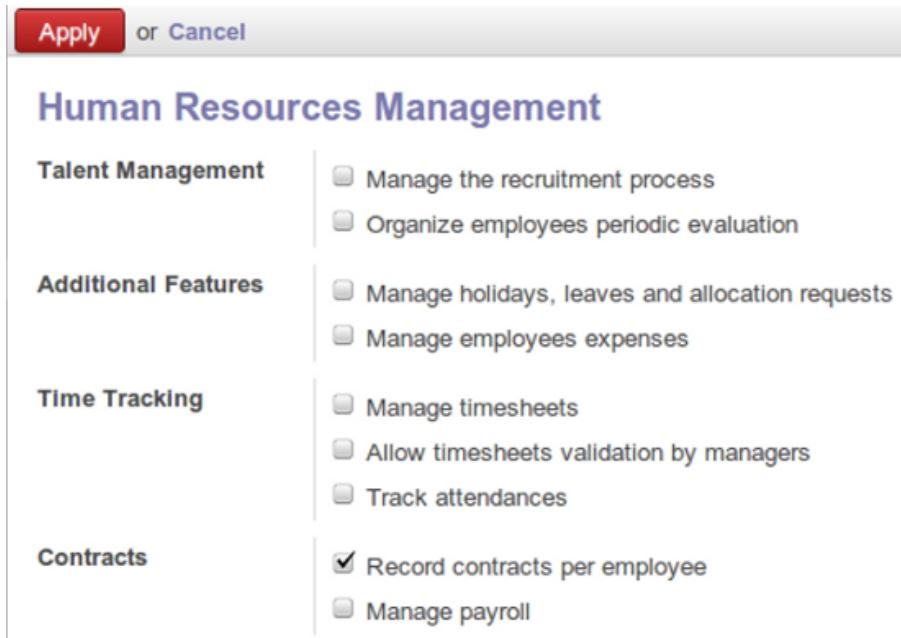


Figure 16.4: Install `hr_contract`

Define new contract types at *Human Resources* → *Configuration* → *Contract* → *Contract Types*.

Contract Types	
Create	<input type="text"/> <input type="button"/>
<input type="checkbox"/> Contract Type	1-3 of 3
<input type="checkbox"/> Employee	<input type="button"/>
<input type="checkbox"/> Worker	<input type="button"/>
<input type="checkbox"/> Subcontractor	<input type="button"/>

Figure 16.5: *Contract Types list*

Using *Human Resources* → *Human Resources* → *Contracts* you can create and edit contracts.

Contracts / Contract for Quentin Paolino

[Save](#) or [Discard](#)

Contract for Quentin Paolino	
Employee	Quentin De Paoli
Job Title	
Information	Work Permit
Salary and Advantages	
Wage	5000.00
Advantages...	
Duration	
Trial Period Duration	<input type="button"/> - <input type="button"/>
Duration	10/03/2012 <input type="button"/> - 10/31/2012 <input type="button"/>
Working Schedule	45 Hours/Week
Notes	
This is Quentin Paolino's contract	

Figure 16.6: *Definition of a working contract for a given employee*

You can enter information about the employment contract for the employee, such as:

- *Employee* : Employee for whom you want to define a contract.
- *Job Title* : Select job position.
- *Contract Type* : Select one from pre-defined contract types.
- *Working Schedule*: For example 45 Hours/Week.
- *Duration*: Start date and end date, since the employee started working where Start date is mandatory.
- *Wage* : Basic salary of the employee.
- *Trial Period Duration* : Start date & End date for the contract trial period, if any.
- *Work Permit tab* : Information regarding the Visa No, Visa Expire date and Work Permit No.

16.1.5 Manage attendance (Sign in / Sign out)

In some companies, staff have to sign in when they arrive at work and sign out again at the end of the day. If each employee has been linked to a system user, then they can sign into OpenERP by clicking on the icon at top-right.

Human Resources Reporting Settings			
Attendances			
Create			<input type="text"/> <input type="button"/>
<input type="checkbox"/> Employee	Date	Action	Sheet
<input type="checkbox"/> Fabien Pinckaers	10/03/2012 16:02:00	Sign Out	
<input type="checkbox"/> Administrator	10/03/2012 14:44:26	Sign Out	
<input type="checkbox"/> Administrator	10/03/2012 14:27:40	Sign In	
<input type="checkbox"/> Fabien Pinckaers	10/03/2012 13:02:00	Sign In	

Figure 16.7: *Sign In/Out*

If an employee has forgotten to sign out on leaving, the system proposes that they sign out manually and type in the time that they left when they come in again the next day. This gives you a simple way of managing forgotten sign-outs.

Find employee attendance details from their forms in *Human Resources → Employees*.

To get the detail of attendances from an employee's form in OpenERP, you can use the available reports:

- *Attendances By Month*
- *Attendances By Week*
- *Attendance Error Report*

The last report highlights errors in attendance data entry. It shows you whether an employee has entered the time of entry or exit manually and the differences between the actual and expected sign out time and the sign in time.

The first and second report shows the attendance data for the selected month and week respectively.

16.2 Talent Acquisition

Using OpenERP, you can efficiently manage the process of hiring new people for your organization. It is a well managed recruitment process from initial contact to hiring the applicant.

You need to install `hr_recruitment` module to efficiently manage the recruitment process or Go to menu *Settings → Configuration → Human Resources* tick Manage the recruitment process and click on apply button.

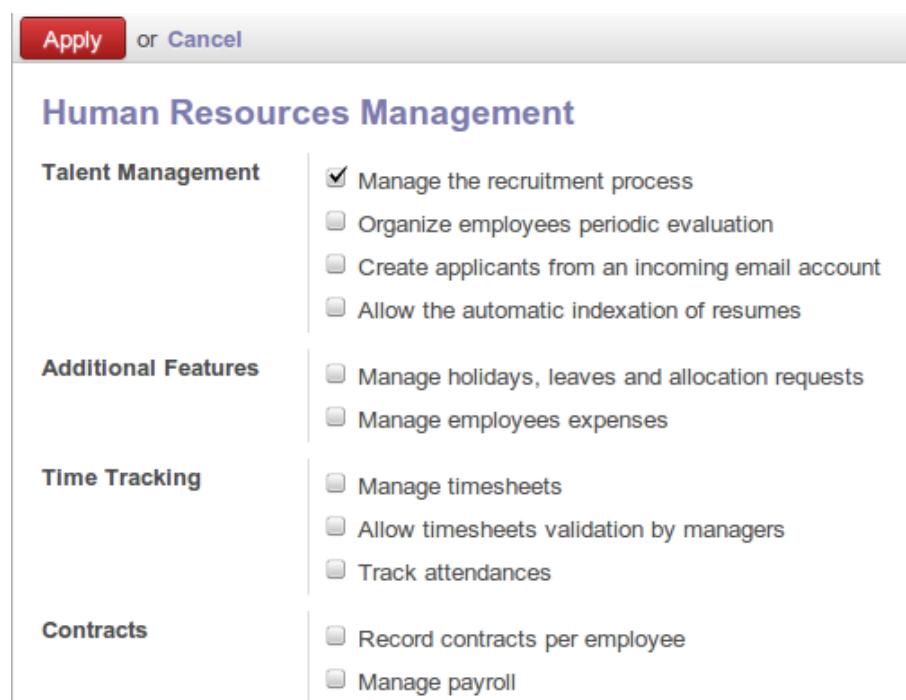


Figure 16.8: Configuration to install `hr_recruitment` module

The *Applications* form can be seen from the menu *Human Resources* → *Recruitment* → *Applications*.

The screenshot shows the 'Applications / Programmer' form for an applicant named 'Meera'. The 'Contact' section includes fields for Email, Phone, Mobile, and Degree. The 'Job' section shows the applied job as 'Developer' in 'Research & Development' department, available 20 Day(s). The 'Contract' section lists Expected Salary (35000.00) and Proposed Salary (0.00). Buttons for 'Schedule Meeting', 'Start Interview', and 'Print Interview' are visible. A navigation bar at the top shows steps: Initial Qualification, First Interview, Second Interview, Contract Proposed, Contract Signed, and a 'More' dropdown.

Figure 16.9: *Applications recruitment form*

You can manage the following information using the Applicants form:

- *Applicant's Name*
- *Applied Job*
- *Department*
- *Stage*: can be Initial Qualification, First Interview, ...
- *Responsible*: Responsible person who conducts the interview
- *Contact* information
- *Contract Data*: including Availability, Expected Salary, Proposed Salary
- *Qualification* of the applicant
- *State*: reflects the actual status of the recruitment process like New, In Progress, Pending, Refused or Hired

Initially, the applicant state is New, after that it can be converted to In Progress. If the applicant is at one of the different stages like it may be in *Waiting for approval by human resource department* or *Waiting for offer acceptance by applicant*, in these cases, the applicant state should be Pending. When the status is Hired, you can find that applicant's detail from the list of employees.

The information about the *Job Position* can be maintained by the menu *Human Resources* → *Configuration* → *Job Positions*.

The screenshot shows the 'Job Positions' list. It includes columns for Group, Job Name, Department, Company, Total Employees, Number of Employees, Expected in Recruitment, and Status. The data is organized into groups: Management (1), Research and Development (2), Professional Services (1), Administration (1), Sales (1), and Undefined (1). For example, under Management, there is a Chief Executive Officer position in the Management department with 1.00 total employees and 1.00 expected in recruitment.

Figure 16.10: *Job Positions in the organization*

The key features of OpenERP for the process of hiring new people using `hr_recruitment` module are:

- It manages job positions and the recruitment process.
- It is integrated with the `survey` module to allow you to define interviews for different jobs.
- This module is integrated with the mail gateway to automatically track emails sent to `jobs@yourcompany.com`.

- It is also integrated with the document management system to store and search CVs in your CV base.

You can analyse data of recruitment process through the menu *Reporting → Human Resources → Recruitment Analysis*.

16.2.1 Create applicants automatically based on incoming mail and keep track of attachments such as resumes and cover letters

You have seen how to create new applicants from the *Applicants* form. You can also configure your email server in OpenERP to create new applicants based on incoming mails. For example, if you have an e-mail ID `jobs@yourcompany.com`, you can configure it such that all emails received at this ID automatically generate new job applicants.

For this, you have to install the `fetchmail` module from module list and For configuring *Fetch Emails* Go to menu *Settings → Configuration → Human Resources* tick *Create applicants from an incoming email account* and click on *Configure* button or Navigate to *Setting → Technical → Email → Incoming Mail Servers* and click *Create*. Supply the following information in the *Email Servers* form:

- *Name* : A name for the server configuration.
- *Server Type* : Either POP Server or IMAP Server.
- *Keep Attachment* : Set to True, to be able to retrieve attachments like CVs, cover letters, etc.
- *Server* : Server name.
- *Port* : Server port.
- *User Name* : The username on this e-mail server.
- *Password* : The password for access to this e-mail account.
- *Model* : The object model for which you wish to generate a record. Select *Applicant* (`hr.applicant`) in this case.

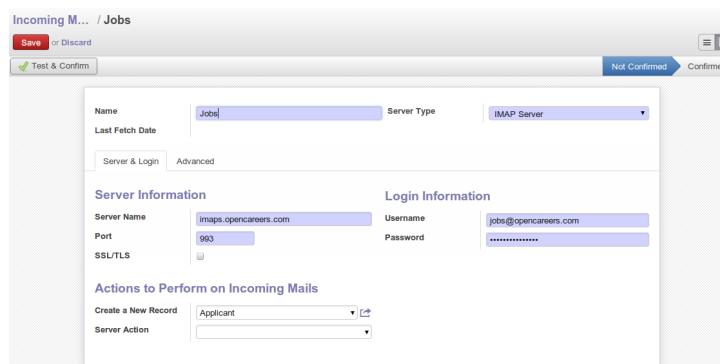


Figure 16.11: Configuring an e-mail server

After configuring your server, click the *Test & Confirm* button to enable this configuration and click on *Fetch Now* button to start receiving e-mails.

Whenever you receive a new e-mail at the configured e-mail address, a new applicant record is created having the same subject name as the e-mail subject. The applicants e-mail details are stored too, for future correspondence.

You can add more details to this job application. You can view these newly created applicants from *Human Resources → Recruitment → Applications*. In the figure *Job applicants automatically created from e-mails*, the

Initial Qualification applicants have been created automatically from received e-mails.

Figure 16.12: Job applicants automatically created from e-mails

Because you have configured your server to add attachments, if an incoming applicant e-mail contains attachments, it will be linked to the corresponding applicant record. You can find it in the *Attachments* section at the top of the applicant form. You can click on the attachment name to open it.

Figure 16.13: Applicant form with its corresponding attachments

16.2.2 Define stages to track the progress in the recruitment process

Rarely will a recruitment process end after just a single meeting or a phone call. It is in fact a string of stages through which a recruitment progresses in order to bear a favourable outcome. You can define the stages which a recruitment process would undergo. Use the menu *Human Resources* → *Configuration* → *Recruitment* → *Stages* to define various stages.

Figure 16.14: Defining recruitment stages

You must give the stage a *Name*. Use the *Sequence* field to give a sequence order when displaying a list of stages. You may also associate the stage with a *Department* and *State*. The stages are now conveniently placed on the top right hand of each of Applications. Using this, you can qualify an ongoing recruitment process from one stage to another by just one click.

16.2.3 Define next action and next action dates

The *Next Action Date* and *Next Action* fields on the *Applicants* form let you define an action you would like to initiate on a given date. It serves as a reminder to the recruitment officer regarding what step he must take next and on which date.

16.2.4 E-mail communication with the applicant

In version 7 you can send message or email easily.

OpenChatter provides a simple communication tool to discuss amongst colleagues or external contacts, either with an individual or with a group.

You can see it, as 2 links below the applicants form (Send a message or Log a note) and you can send message or mail via that chatter. If you click on Send a message , you can see following figure,

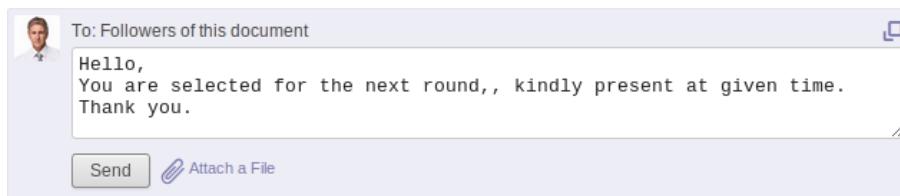


Figure 16.15: *Send a message to the applicant*

Here too , You may also add attachments through the OpenChatter. Click *Send* button to send the message.

And for send a mail throgh Openchatter , the full window seems like follow:

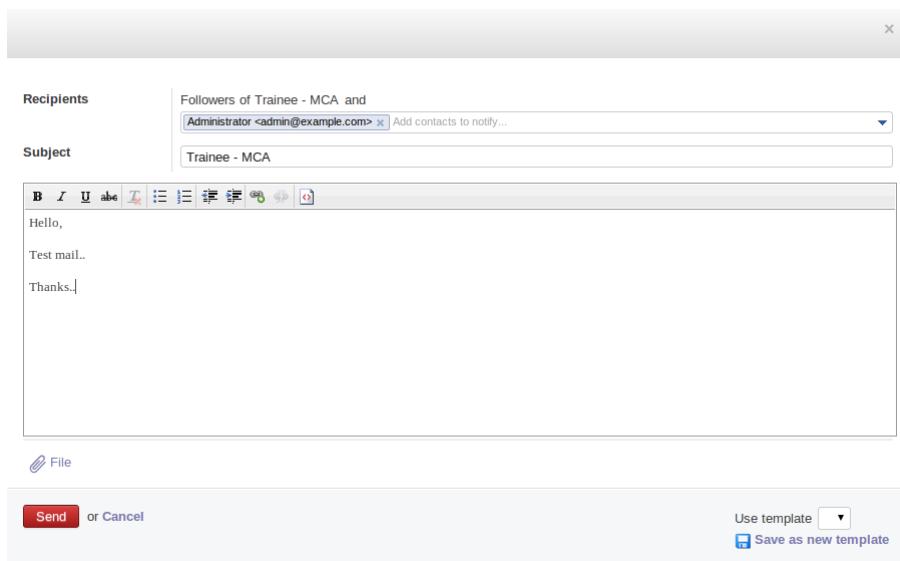


Figure 16.16: *Send an e-mail to the applicant*

You can also schedule meetings with an applicant. To do this, click the *Schedule Meeting* button on the *Applicants* form. A calendar of meetings opens in the *Meetings* form. Here, you click an empty area on a date for which you wish to schedule the meeting. It shows as follow:

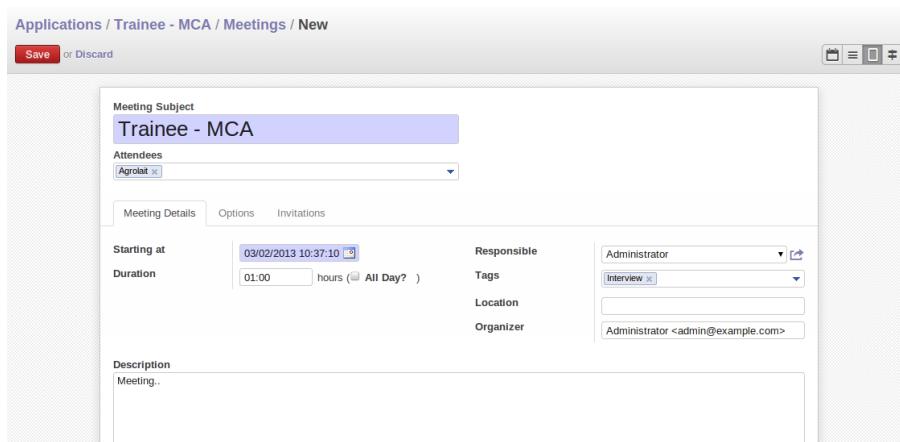


Figure 16.17: Schedule a meeting with an applicant

You can manage the following details from this form:

- **Start Date** : The scheduled start date and time.
- **Duration** : The duration of the meeting in hours.
- **Location** : Location of the meeting.
- **Reminder** : If you want to be reminded about the meeting, you can select an alarm time before the event occurs.
- **Description** : You may specify the agenda of the meeting here.

On the *Invitation Detail* tab, you also have the choice to invite people for the meeting. Click *Save* once you have entered the necessary details. You can then see the meeting appear in the calendar as shown below:

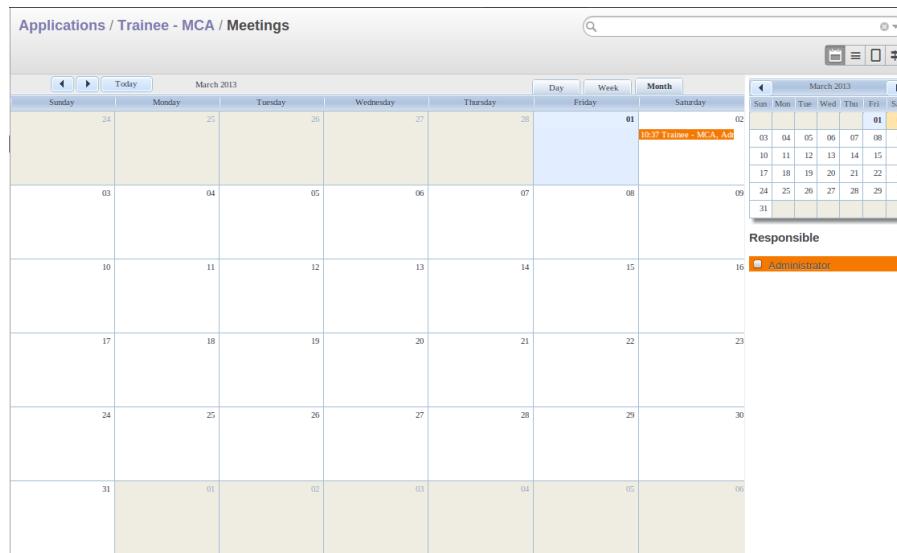


Figure 16.18: The scheduled meeting “Trainee - MCA” with the applicant as seen in the calendar

You can track and edit your meetings with applicants from the menu *Sales* → *Meetings* → *Meetings*. By default, you will see the month-wise calendar view of meetings.

16.2.5 Fill questionnaires for each applicant (for instance preliminary questionnaires)

You can use questionnaires as a tool to interview a job applicant. To be able to use questionnaires for a job applicant you must first define one through *Tools* → *Surveys* → *Surveys*. Click *Create* to open a new survey form. You may enter the *Survey Title* and the *Responsible* user for the survey.

The screenshot shows the "Surveys / Job Survey" creation form. The survey title is "Job Survey". The responsible user is set to "Administrator". The survey type is "Human Resources". The maximum answer limit is 20, and the maximum answer per user is 5. The survey details section lists three sections: "Default Section" (Job Survey, 3 records), "Education & Activities" (Job Survey, 4 records), and "Importance" (Job Survey, 1 record). There is a note field at the bottom for "Survey description...".

Figure 16.19: The survey form

A survey may have multiple pages. Each page may contain multiple questions and each question may have multiple answers. Different users may give different answers to the questions. You can define these in the *Survey* tab of the form. When you have entered the necessary details in the form, click *Save*. Since you will use this survey in a job interview, click the *Open* button to change the survey's state from *Draft* to *Open*.

Then, go to *Human Resources* → *Configuration* → *Job Positions* and select the job position that the applicant has applied for, or create a new job position. In the *Interview Form* field of the *Job Positions* form, enter the name of the survey you have just created, thus linking a questionnaire with this job profile and making it available for use during the interview.

You can now open the form of the applicant whose interview you wish to initiate. If an *Applied Job* is specified to which a survey is linked, the *Start Interview* button becomes accessible. Click it to initiate the survey, and fill in the applicant's response as you proceed. After the questionnaire has been completed, you can click the *Print Interview* button on the *Applicants* form to view the applicant's response in a PDF file.

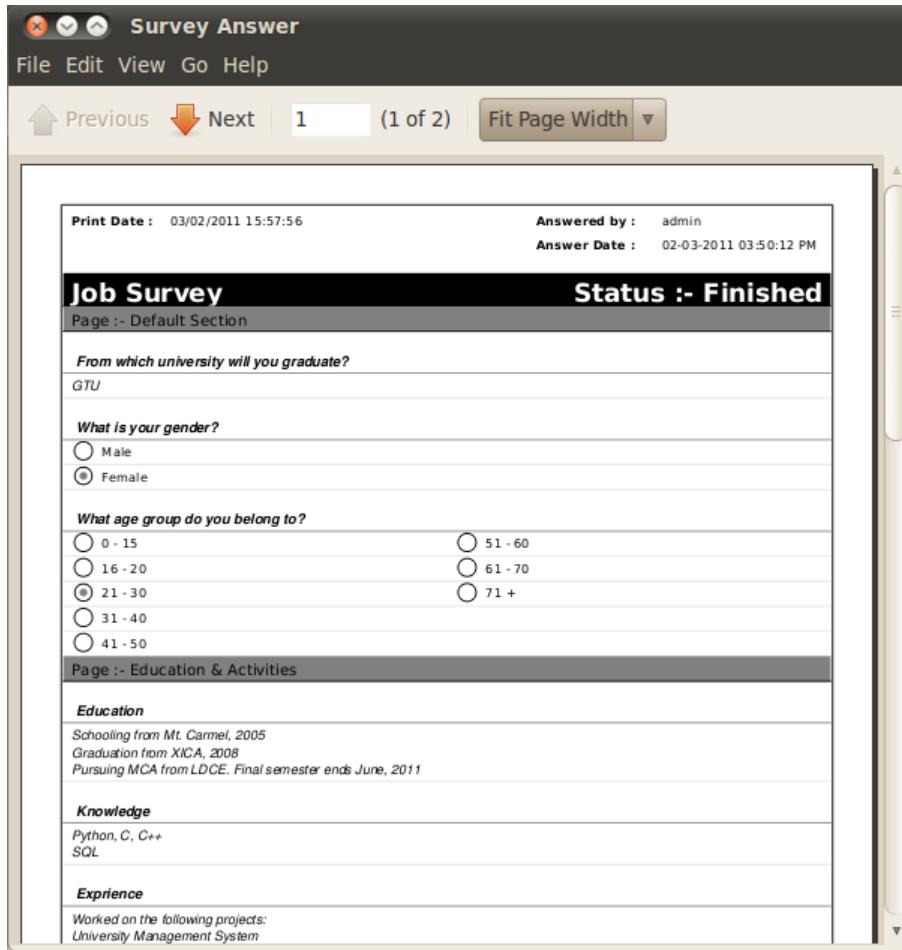


Figure 16.20: The applicant's response in a PDF file

16.3 Holiday Management

You can manage leaves taken by employees using the `hr_holidays` module. Go to the menu *Settings* → *Configuration* → *Human Resources*. Then in Additional Features tick the *Manage holidays, leaves and*

allocation requests. And then click on the Apply button.

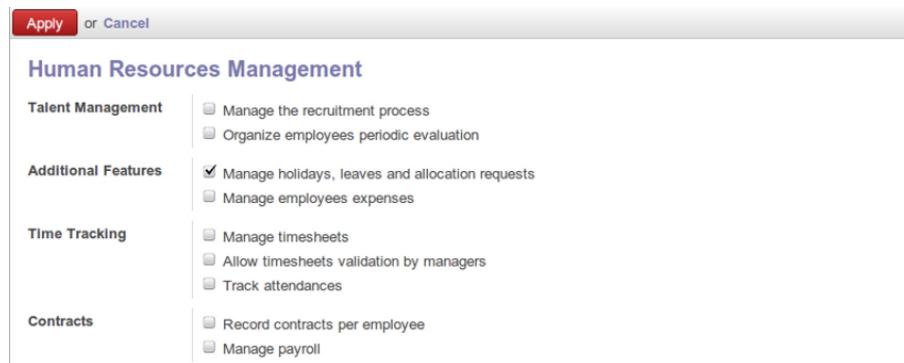


Figure 16.21: *Install hr_holidays module*

Using the menu *Human Resources → Leaves → Leave Requests* an employee can request a leave.

Leaves requests can be recorded by employees and validated by their managers. Once a leave request is validated, it appears automatically in the agenda of the employee. You can define several leave types (paid holidays, sickness, etc.) and manage allocations per type.

OpenERP can provide the following features for efficient holiday management process:

- It helps you to manage leaves and leave requests.
- Synchronisation with an internal agenda (use of CRM) is possible: in order to automatically create a case when a holiday request is accepted, you have to link the holidays status to a case section.
- You can set up colour preferences according to your leave type, for example, *Sick Leave* should be red in reports.
- An employee can request for more days off, by making a new Allocation Request through *Human Resources → Leaves → Allocation Requests*.

The statistical report for leaves can be seen using the *Reporting → Human Resources → Leaves Analysis* menu.

16.3.1 Define different leave types

You can define various leave types which can be availed of by an employee during a request for leave. To define a new leave type, navigate to *Human Resources → Configuration → Leaves Types* and click *Create*.

Figure 16.22: *Leave Type form*

You can configure the following information:

- *Leave Type* : A name for the leave type.
- *Colour in Report* : A colour that will be used in the leaves summary report.
- *Meeting* : If you select a meeting, once a leave is validated, an event will be created in the calendar.
- *Apply Double Validation* : If True, then the request will require a second validator.
- *Allow to Override Limit* : If True, the employee will be allowed to take more leaves than the maximum limit.

After entering the leave type information, click *Save*.

16.3.2 Manage Holiday requests and approvals

An employee can request for leave from *Human Resources* → *Leaves* → *Leave Requests*. In a new *Leave Requests* form, you may enter the following:

- *Description* : Reason for leave.
- *Mode* : Either *By Employee* or *By Employee Category*.
- *Employee* : If leave category is *By Employee*, you must select an employee who places this request.
- *Category* : If leave category is *By Employee Category*, you must select an employee category which places this request.
- *Leave Type*: Select a pre-defined type of leave.
- *Duration* : Leave start date and end date.
- *days* : It is calculated based on the *Start Date* and the *End Date*.

The screenshot shows a screenshot of the 'Leave Requests' form. At the top, there's a header bar with buttons for 'Save' (highlighted in red), 'Discard', and 'Approve/Refuse'. Below the header, the form has several sections: 'Description' (set to 'Trip with Family'), 'Leave Type' (set to 'Compensatory Days'), 'Mode' (set to 'Employee'), 'Employee' (set to 'Fabien Pinckaers'), 'Duration' (set to '02/01/2013 05:30:00' to '02/03/2013 05:30:00'), and 'days' (set to '3.00'). On the right side of the form, there are buttons for 'To Submit', 'To Approve' (highlighted in blue), and 'Approved'. The status of the request is shown as 'Approved'.

Figure 16.23: *Leave Requests* form

The employee can then *Save* the request which will also make it available to his manager for approval. The employee's manager can find leave requests awaiting approval by navigating to *Human Resources* → *Leaves* → *Leave Requests to Approve*. The manager can select a pending request to open its form view and click *Refuse* to reject the request or *Approve* to accept the request. If the selected leave type has *Apply Double Validation* set to True, then another action by a second manager will be required to give the request its final state, from *Waiting Second Approval* to either *Approved* or *Refused*.

16.3.3 Track previous Holiday requests

Previous holidays can be tracked in a number of ways in OpenERP. You can get a report of your(currently logged in user) leave requests from *Human Resources* → *Leaves* → *Leave Requests*. Click *Validated* in the *Filters* to see a list of your approved leave requests. To see refused requests, clear your filters and see the records marked with the colour red.

To see your(currently logged in user) allocation requests, navigate to *Human Resources* → *Leaves* → *Allocation Requests* and follow the same procedure as above.

Through *Human Resources* → *Leaves* → *Leaves Summary*, you can track previous leaves as well as allocation requests in the same manner, but only for the currently logged in user. By default, you can see the requests grouped by leave type and which are validated.

Reporting → *Human Resources* → *Leaves Analysis* will give you the statistical report of leaves and allocations grouped by year, employee and leave type.

All the above statistical reports are enhanced by various filters and groupings to assist you in your search for required information. You can filter requests by their *State* (*Validated*, *To Confirm*, *To Approve*), *Year*, *My Leaves* and *My Department Leaves*. You can also view requests placed in *This Month*. You can group by *Employee*, *Manager*, *Department*, *Type*, *Category*, *Start Date* and *State*.

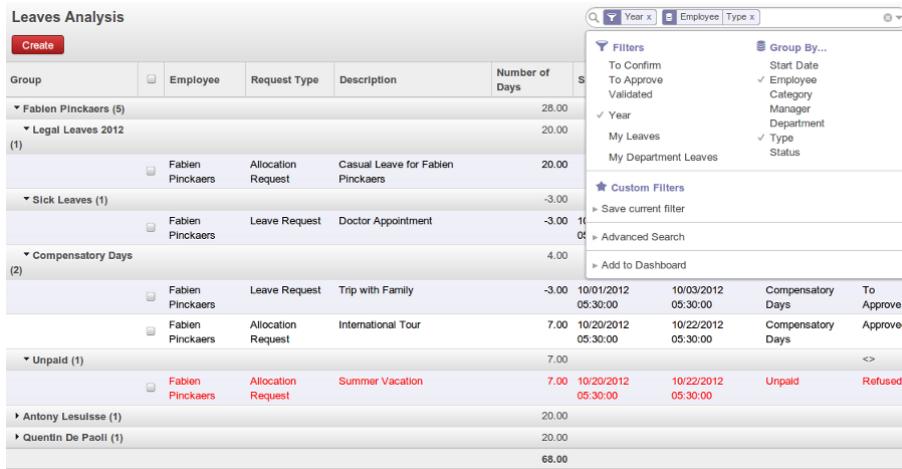


Figure 16.24: Leaves Analysis statistical report

To get an overview of leaves by department, go to *Reporting* → *Human Resource* → *Reports* → *Leaves by Department*. You may select a *From* date, a *Leave Type* (*Approved*, *Confirmed* or *Both Approved and Confirmed*) and select at least one department. Click *Print* to generate a PDF report based on your specifications.

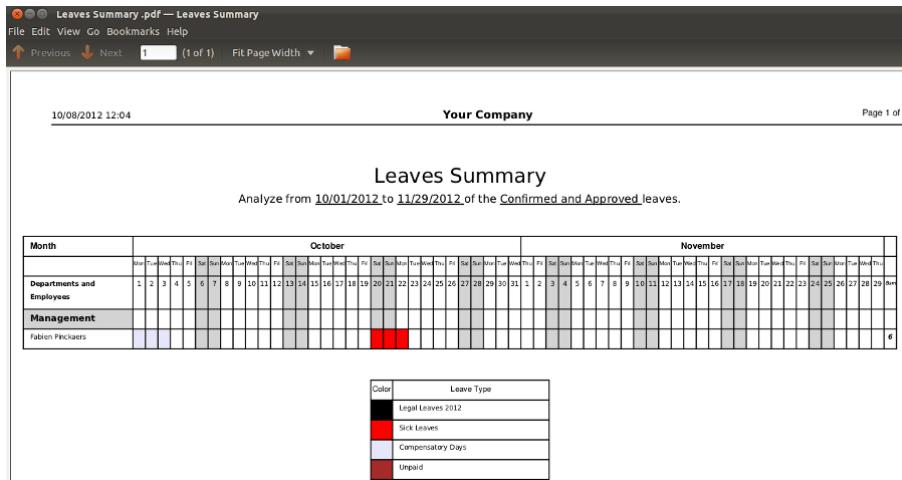


Figure 16.25: Leaves by Department PDF report

16.3.4 Allow employees to enter their own allocation requests

To be able to request leaves at all, an employee must be allocated some leaves which he can avail of. Usually the management makes an allocation of leaves for its employees. But, for instance, when an employee has been working on an exceptional basis on weekends, he might be entitled to extra leaves. In such a case, the employee himself can be allowed to place a request for allocation, which can then be approved or rejected by his manager. If approved, the employee can request leaves based on the type and limit of this allocation too.

Leave allocations can be requested from *Human Resources* → *Leaves* → *Allocation Requests*. In its form view you can fill the following details:

- *Description* : A name for the request.
- *Allocation Mode* : Either *By Employee* or *By Employee Category*.

- *Employee* : If allocation category is By Employee, you must select an employee for whom this allocation is made.
- *Category* : If allocation category is By Employee Category, you must select an employee category for whom this allocation is made.
- *Leave Type* : Select a pre-defined leave type.
- *Number of Days* : The number of days requested for allocation.
- *Reasons* : Specify the reason of request.

The employee can click *Save*.

Description	Casual Leave for Fabien Pinckaers	Allocation Mode	By Employee
Leave Type	Legal Leaves 2013 (0/0)	Employee	Fabien Pinckaers
Allocation	20.00 days	Department	Management

Figure 16.26: Allocation Requests form

The manager will then find this request in his list of allocation requests. He can then either click *Refuse* to reject the request or click *Approve* to accept the request.

16.4 Inspire your People through Assessments

A motivated workforce of people can give the best outcome for an organization. OpenERP can maintain this motivational process by periodical evaluation of employees' performance.

The regular assessment of human resources can benefit your people as well your organization. For efficient periodical evaluation of employees' performance, you need to install the `hr_evaluation` module. Go to the menu Settings → Configuration → Human Resources. And then tick the *Organize employees periodic*

evaluation.

The screenshot shows a configuration interface for the 'Human Resources Management' module. At the top, there are 'Apply' and 'Cancel' buttons. Below them, the title 'Human Resources Management' is displayed. The interface is divided into several sections: 'Talent Management', 'Additional Features', 'Time Tracking', and 'Contracts'. Each section contains a list of checkboxes representing different features or modules. In the 'Talent Management' section, the checkbox for 'Organize employees periodic evaluation' is checked. Other checked items include 'Manage the recruitment process' and 'Create applicants from an incoming email account'. In the 'Additional Features' section, 'Manage holidays, leaves and allocation requests' is checked. In the 'Time Tracking' section, 'Manage timesheets' and 'Allow timesheets validation by managers' are checked. In the 'Contracts' section, 'Record contracts per employee' is checked.

Figure 16.27: *install hr_evaluation module*

To create and manage new evaluations, you can use the menu *Human Resources → Appraisal → Appraisals*.

The screenshot shows the 'Employee Appraisal form' interface. At the top, there is a toolbar with 'Save' and 'Discard' buttons, and tabs for 'Validate Appraisal', 'Cancel Appraisal', 'New', 'Plan in Progress', 'Waiting Appreciation', and 'Done'. The main area is titled 'Appraisal / Manager's Appraisal Plan'. It displays an 'Employee' dropdown set to 'Fabien Pinckaers' and a 'Plan' dropdown set to 'Manager's Appraisal Plan'. Below this, there is a section for 'Appraisal Forms' with columns for 'Deadline Date', 'Survey', 'Interviewer', 'Employee to Interview', and 'Status'. A status bar indicates '04/22/2013', 'Self Appraisal', 'Administrator', 'Fabien Pinckaers', and 'Waiting Answer'. There are also buttons for 'Add an Item', 'Print', 'Email', and 'Delete'. Below the forms, there are sections for 'Internal Notes' (with a field for 'Appraisal Summary...') and 'Public Notes' (with a field for 'Action Plan...').

Figure 16.28: *Employee Appraisal form*

Each employee can be assigned an appraisal plan. These plans define the frequency and the way you manage your periodic personal appraisal. You will be able to define steps and attach interview forms to each step. OpenERP manages all kinds of Appraisals: bottom-up, top-down, self appraisal and final appraisal by the manager.

The main features of the appraisal process covered by OpenERP are as follows:

- Ability to create employees appraisal.
- An appraisal can be created by an employee for subordinates, juniors as well as his manager.
- The appraisal is done under a plan in which various surveys can be created. Each survey can be answered by a particular level of employee hierarchy. The final review and appraisal is done by the manager.
- Every appraisal filled by employees can be viewed through a PDF form.
- Interview Requests are generated automatically by OpenERP according to employees appraisal plans. Each user receives automatic emails and requests to perform appraisal of their colleagues periodically.

You can analyse appraisal data through the menu *Reporting → Human Resources → Appraisal Analysis*.

16.4.1 Define different appraisal categories

You can create new appraisal plans from *Human Resources* → *Configuration* → *Appraisal Plans*. Click *Create* and fill in the following details:

- *Appraisal Plan* : A name for the appraisal plan.
- *First Appraisal in (months)* : This will be used to schedule the first appraisal date of the employee when selecting an appraisal plan.
- *Periodicity of Appraisal (months)* : This depicts the delay between each appraisal of this plan (after the first one).

Sequence	Phase	Action	Appraisal Form	Wait Previous Phases
1	Send to Subordinates	Bottom-Up Appraisal Requests	Employee Opinion	<input checked="" type="checkbox"/>
2	Send to managers	Top-Down Appraisal Requests	Employee Opinion	<input checked="" type="checkbox"/>
3	Send to Employee	Self Appraisal Requests	Employee Opinion	<input checked="" type="checkbox"/>
4	Final Interview with manager	Final Interview	Job Survey	<input checked="" type="checkbox"/>

Figure 16.29: *Appraisal Plans* form

You must also create *Appraisal Plan Phases*, to let your plan evolve from one stage to another and be able to take appropriate action at every stage, like sending an e-mail. You can configure the following settings in an appraisal plan phase:

- *Phase* : A name for the appraisal plan phase.
- *Wait Previous Phases* : Set to True if you want all preceding phases to finish before launching this phase.
- *Sequence* : The sequence number of this phase.
- *Action* : Select an action, either Top-Down Appraisal Requests, Bottom-Up Appraisal Requests, Self Appraisal Requests or Final Interview.
- *Appraisal Form* : The survey to link to this phase.

Here you will be able to customize more settings, like whether you would like to send an e-mail for this phase and the corresponding layout for it. You can also choose to send the results (answers) of this phase to the managers and employees.

16.4.2 Plan assessment dates

Once an appraisal plan is created, you can use it in an appraisal of an employee. Create a new appraisal from *Human Resources* → *Appraisal* → *Appraisals*. Select an *Employee* for whom this appraisal is being designed and select a *Plan* too. Here you must specify a deadline for the appraisal in the *Date* field.

Although, appraisal reminders are sent based on the *First Appraisal in (months)* and *Periodicity of Appraisal (months)* fields in *Appraisal Plans* form. You can use these to regulate assessment dates of Appraisals that utilize a corresponding plan.

16.4.3 Link survey and job evaluations

An appraisal plan is a sequence of phases, and each phase is linked to an appraisal form. This appraisal form is nothing but a survey, a tool for assessment through a questionnaire. Surveys are defined at *Tools* → *Surveys* → *Surveys*. When an appraisal is started, interview requests are automatically created based on appraisal plans. If you create additional interview requests, there too you have to link the interview to a *Survey*. You may link to a survey that is any state (even Draft), but in order to start the interview, the linked survey must be in Open state.

16.5 Attendances and Timesheet Management

In most service companies where OpenERP has been integrated, service sheets, or timesheets, have revolutionized management practices. These service sheets are produced by each employee as they work on the different cases or projects that are running. Each of these is represented by an analytic account in the system.

Throughout the day, when employees work on one project or another, they add a line to the timesheets with details of the time used on each project. At the end of the day, each employee must mark all the time worked on client or internal projects to make up the full number of hours worked in the day. If an account is not in the system, then the time is added to the hours that have not been assigned for the day.

Timesheet Activities					
Date	User	Description	Analytic Account	Duration	Invoiceable
02/26/2013	Administrator	Delivery and maintenance	Your Company / Our Super Product / Consultancy	100:00	Yes (100%)
02/26/2013	Administrator	Integration and system testing	Your Company / Internal / Administrative	01:00	
02/26/2013	Administrator	Coding and module testing	Your Company / Internal / Administrative	03:00	
02/26/2013	Administrator	Design and specification	Your Company / Internal / Administrative	01:00	
02/26/2013	Administrator	Requirements analysis and specification	Your Company / Internal / Administrative	02:00	

Figure 16.30: *Timesheet for a working day*

The figure *Timesheet for a working day* gives an example of a timesheet for an employee.

Note:

Do not confuse timesheets and attendance compliance

The timesheet system is not intended to be a disguised attendance form. There is no control over the service times and the employee is free to encode 8 or 9 hours or more of services each day if they want.

If you decide to put such a system into place, it is important to clarify this point with your staff. The objective here is not to control hours, because the employees decide for themselves what they will be entering – but to track the tasks running and the allocation of costs between them is the responsibility of the management.

To enable your system with all the features related to *Timesheet*, you need to install Timesheet module from module list or Go to menu Settings → Configuration → Human Resources tick *Manage timesheets* and click on apply button..

Apply or **Cancel**

Human Resources Management

Talent Management	<input type="checkbox"/> Manage the recruitment process <input type="checkbox"/> Organize employees periodic evaluation <input type="checkbox"/> Create applicants from an incoming email account <input type="checkbox"/> Allow the automatic indexation of resumes
Additional Features	<input type="checkbox"/> Manage holidays, leaves and allocation requests <input type="checkbox"/> Manage employees expenses
Time Tracking	<input checked="" type="checkbox"/> Manage timesheets <input type="checkbox"/> Allow timesheets validation by managers <input checked="" type="checkbox"/> Track attendances <input type="checkbox"/> Track attendances
Contracts	<input type="checkbox"/> Record contracts per employee <input type="checkbox"/> Manage payroll

Figure 16.31: *Install Timesheet Module*

Amongst the many uses of such a timesheet system for a company, here are some of the most important:

- enabling tracking of the true costs of a project by accounting for the time used on it,
- tracking the services provided by different employees,
- comparing the hours really used on a project with the initial planning estimates,
- automatically invoicing based on the service hours provided,
- obtaining a list of the service hours for a given client,
- knowing the costs needed to run the company, such as the marketing costs, the training costs for a new employee, and the invoicing rates for a client.

Timesheet Categories

You will need to install the *Manufacturing* application (*mrp*) in order to access timesheet categories. The different timesheet categories (working time sessions) can be defined through the menu *Manufacturing* → *Configuration* → *Resources* → *Working Time* and selecting one of the groups there such as *45 Hours/Week*.

Name	Day of Week	Work from	Work to	Starting Date
Monday morning	Monday	08:00	12:00	
Monday evening	Monday	13:00	18:00	
Tuesday morning	Tuesday	08:00	12:00	
Tuesday evening	Tuesday	13:00	18:00	
Wednesday morning	Wednesday	08:00	12:00	
Wednesday evening	Wednesday	13:00	18:00	
Thursday morning	Thursday	08:00	12:00	
Thursday evening	Thursday	13:00	18:00	
Friday morning	Friday	08:00	12:00	
Friday evening	Friday	13:00	18:00	

Figure 16.32: Timesheet category for full time 45 hours per week

Entering Timesheet Data

To be able to use timesheets fully, install the module *hr_timesheet_sheet* from module list or Go to menu *Settings* → *Configuration* → *Human Resources* tick ‘Allow timesheets validation by managers’ and click on apply button.. Once this module has been installed and the employees configured, the different system users can enter their timesheet data in the menu *Human Resources* → *Time Tracking* → *Timesheet Activities*, then click *Create*.

Tip:

Shortcut to Timesheets

It is a good idea if all employees who use timesheets place this menu in their shortcuts. That is because they will need to return to them several times each day.

For a new entry:

1. The *User* : proposed by default, but you can change it if you are encoding the first timesheet for another company employee.
2. The *Date* : automatically proposed as today’s date, but it is possible to change it if you are encoding the timesheet for a prior day.
3. *Analytic Account* : for the project you have been working on - obviously it should be predefined.
4. *Description* : a free text description of the work done in the time.
5. *Duration* : number of units of time (the units are defined as part of the product).

The other fields are automatically completed, but can be modified: the *Product* which is the service product such as consultancy, the *Unit of Measure* (predefined, and could perhaps be minutes, hours or days), the *Cost* of the service (which is calculated by default), and the associated *General Account*.

The hours are then encoded throughout the day by each employee. It helps to revisit the list at the end of the day to verify that the number of hours of attendance in the company has been properly accounted for. The total entered is shown at the bottom right of the list of service hours.

Tip:

Hiding Service Costs

By default, OpenERP is configured to show the amount of each service when an employee encodes the number of hours per project. You can modify this field by adding the attribute invisible=True in the timesheet view. (And the way to do that is either to modify the view on the file system, or click on the logged in user at top-right and select About OpenERP and then select Activate the developer mode. Now go to the HR → Time Tracking → Timesheet Activities menu. Click on Debug View# and then select Edit TreeView.

If you have sufficient permissions, you can edit the XML that defines the current view.)

The value in the Amount field shows employees the cost of their time used in the company, so masking this field might not always be the best option.

The accuracy of the services entered is crucial for calculating the profitability of the different jobs and the recharging of services. Different reports are therefore available for verifying employees' data entry. Employees can verify their own timesheet using the following reports:

- Printing the particular employee's timesheet, using the menu *Reporting → Human Resources → Employee Timesheet*.
- Printing more than one employees' timesheet, using the menu *Reporting → Human Resources → Reports → Employees Timesheet*. You can print a summary in the form of a table per user and per day.

The screenshot shows a web-based report titled 'Employees Timesheet' for 'OpenERP S.A.' dated 03/09/2011 12:29. The report is on page 1 of 1. At the top, there are navigation buttons for 'Previous' and 'Next', a page number '1 (1 of 1)', and a 'Fit Page Width' button. Below the header is a table titled 'Employees Timesheet' with a monthly grid for March 2011. The grid shows hours worked for various employees across the days of the month. The table includes columns for the year (2011), month (March), and days of the month (1 through 31). The last column is labeled 'Total'. The data shows several employees working different hours each day, with totals for each day and the month.

2011	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Total										
March	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31				
Administrator	0	0	0	0	0	0	0	144	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	144		
Patient Processor	0	0	0	0	0	0	0	0	144	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	144	
Quarantine Doctor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Analyst/Programmer	0	0	0	0	0	0	0	0	144	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	144	
Total	0	0	0	0	0	0	0	0	432	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	432

Figure 16.33: *Employees' monthly summary timesheet*

- Reviewing profit of timesheet, using the menu *Reporting → Human Resources → Reports → Timesheet Profit*.
- You can then use the statistical reports to analyze your services by period, by product or by account using the menu *Reporting → Human Resources → Timesheet Analysis* and *Reporting → Human Resources → Timesheet Sheet Analysis*.

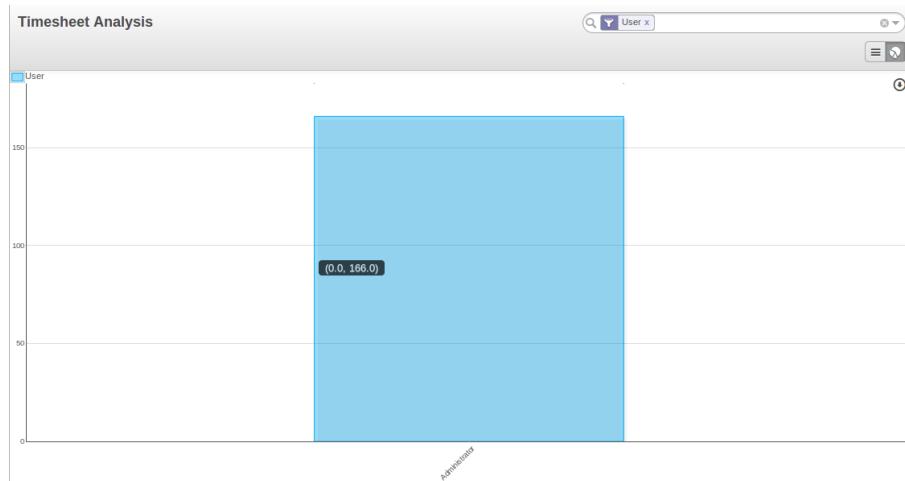


Figure 16.34: Chart of timesheet by account

Evaluation of Service Costs

You already know that timesheets are closely linked with analytic accounts. The different projects reported on the timesheets correspond to analytic accounts. The timesheet entries themselves are analytic entries.

These entries comprise various analytic operations that do not correspond to any of the general accounts. Therefore all operations that modify and create timesheet lines automatically impact the corresponding analytic line and, conversely are automatically modified by changes in that line.

Note:

Timesheets and Analytical Data

The implementation of timesheets in OpenERP relating to analytic entries is managed by an inheritance mechanism: the timesheet object inherits the analytic entry object.

The information is therefore not encoded into the database as two separate events, which avoids many synchronization problems. They are stored in two different tables, however, because a service is an analytical entry, but an analytical entry is not necessarily a service.

This is not a classical approach, but it is logical and pragmatic. Employee timesheets are a good indication of how the costs of a service enterprise are spread across different cases, as reported in the analytic accounts.

An analytic account should be reflected in the general accounts, but there is no direct counterpart of these analytic accounts in the general accounts. Instead, if the hourly costs of the employees are correctly accounted for, the month's timesheet entries should be balanced by the salary + benefits package paid out to all the employees at the end of the month.

Despite all this, it is quite difficult to work out the average hourly cost of an employee precisely, because it depends on:

- the extra hours that they have worked,
- holidays and sickness,
- salary variations and all the linked costs, such as social insurance charges.

The reports that enable you to relate general accounts to analytic accounts are valuable tools for improving your evaluation of different hourly costs of employees. The difference between product balances in the analytic account and in the general accounts, divided by the total number of hours worked, can then be applied to the cost of the product. Some companies adjust for that difference by carrying out another analytic operation at the end of the month in an account created for that purpose. This analytic account should have a balance that tends towards zero.

Because you have got a system with integrated timesheets, you can then:

- track the profitability of projects in the analytic accounts,

- look at the history of timesheet entries by project and by employee,
- regularly adjust hourly costs by comparing your rates with reality,

Important:

Project Cost Control

Controlling the costs and the profitability of projects precisely is very important.

It enables you to make good estimates and to track budgets allocated to different services and their projects, such as sales and, R&D costs. You can also refine your arguments on the basis of clear facts rather than guesses if you have to renegotiate a contract with a customer following a project slippage.

The analyses of profitability by project and by employee are available from the analytic accounts. They take all of the invoices into account, and also take into account the cost of the time spent on each project.

16.5.1 Manage attendance through Sign in / Sign out

In some companies, staff have to sign in when they arrive at work and sign out again at the end of the day. If each employee has been linked to a system user, then they can sign in on OpenERP by using the menu *Human Resources → Attendances → Sign in / Sign out*.

If an employee has forgotten to sign out on leaving, the system proposes that they sign out manually and type in the time that they left when they come in again the next day. This gives you a simple way of managing forgotten sign-outs.

Find employee attendance details from their forms in *Human Resources → Employees*.

To get the detail of attendance from an employee's form in OpenERP, you can use the available reports:

- *Attendances By Month*
- *Attendances By Week*
- *Attendance Error Report*

The last report highlights errors in attendance data entry. It shows you whether an employee has entered the time of entry or exit manually and the differences between the actual and expected sign out time and the time.

16.5.2 Keep track of differences between timesheets and attendance

When they are used properly, timesheets can be a good control tool for project managers and can provide awareness of costs and times.

When employee teams are important, a control system must be implemented. All employees should complete their timesheets correctly because this forms the basis of planning control, and the financial management and invoicing of projects

You will see in *Deliver Quality Services* that you can automatically invoice services at the end of the month based on the timesheet. But at the same time, some contracts are limited to prepaid hours. These hours and their deduction from the original limit are also managed by these timesheets.

In such a situation, hours that are not coded into the timesheets represent lost money for the company. So it is important to establish effective follow-up of the services timesheets and their encoding. To set up a structure for control using timesheets you should install the module *hr_timesheet_sheet* (*Timesheets* in the *Reconfigure*

wizard).

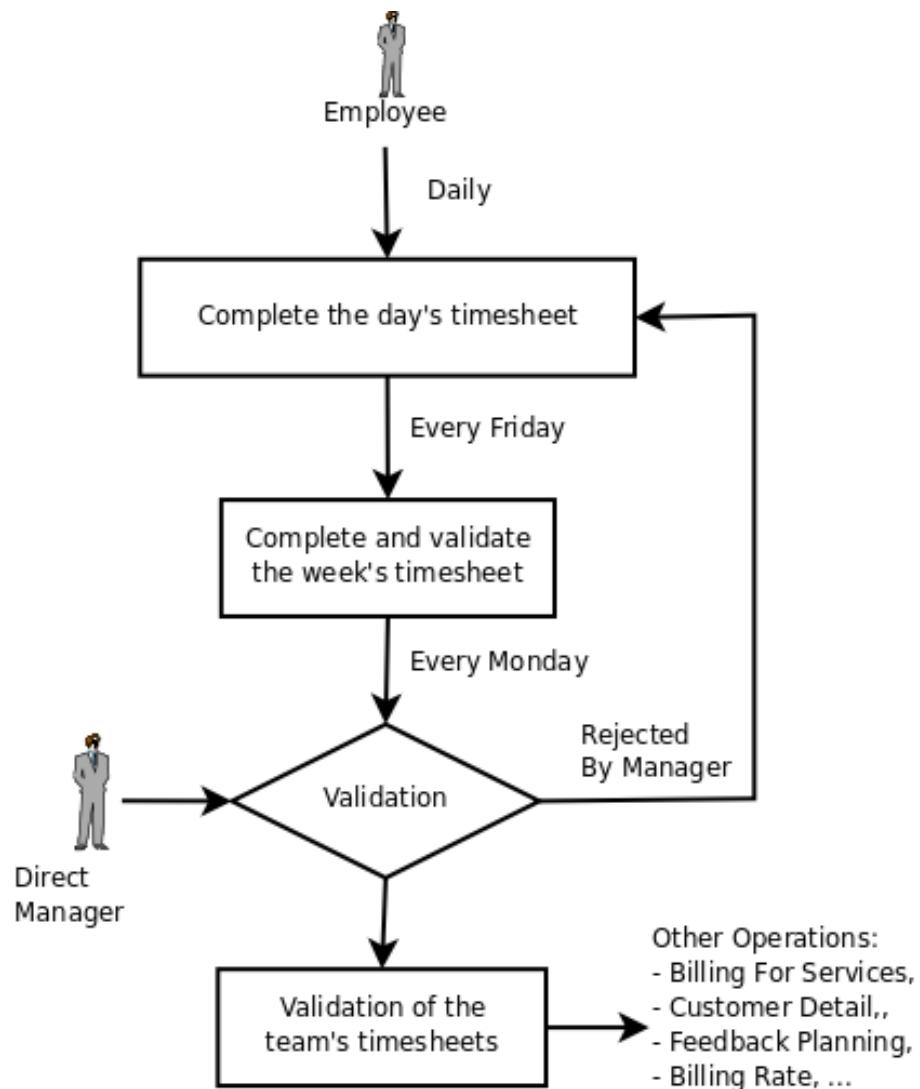


Figure 16.35: Process of approving a timesheet

This module supplies a new screen enabling you to manage timesheets by period. Timesheet entries are made by employees each day. At the end of the week, employees validate their week's sheet and it is then passed to the services manager, who must approve his team's entries. Periods are defined in the company forms, and you can set them to run monthly or weekly.

To enter timesheet data each employee uses the menu *Human Resources → Time Tracking → My Current*

Timesheet.

Employee: Administrator

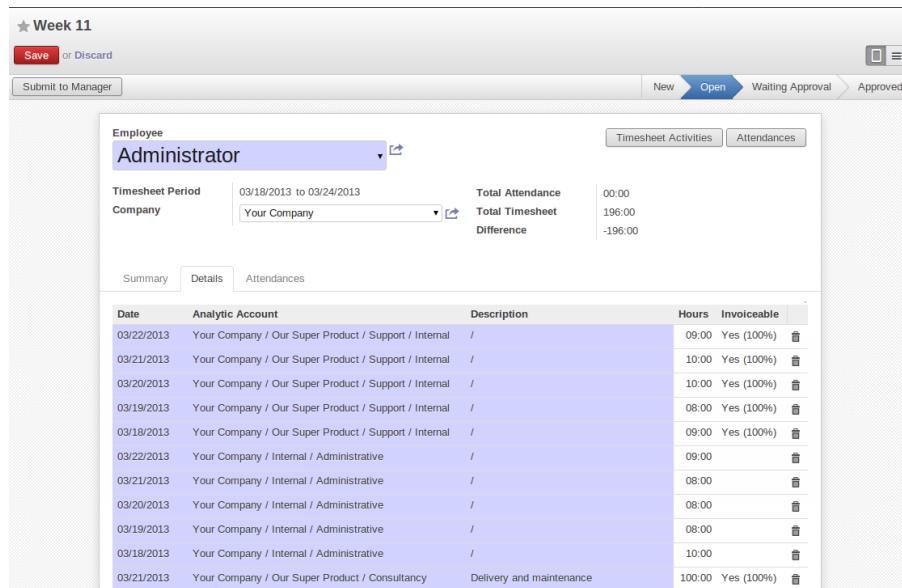
Timesheet Period: 03/18/2013 to 03/24/2013

	Mon Mar 18	Tue Mar 19	Wed Mar 20	Thu Mar 21	Fri Mar 22	Sat Mar 23	Sun Mar 24	Total
Your Company / Internal / Administrative	10	8	8	15	9	0	0	50
Your Company / Our Super Product / Consultancy	0	0	0	100	0	0	0	100
Your Company / Our Super Product / Support / Internal	9	8	10	10	9	0	0	46
Total	19	16	18	125	18	0	0	196

Figure 16.36: Form for entering timesheet data

This form describes summary of attendance (total hours) of employee.

The second tab of the timesheet, *Details*, gives the number of hours worked on the different projects.



Date	Analytic Account	Description	Hours	Invoiceable
03/22/2013	Your Company / Our Super Product / Support / Internal	/	09:00	Yes (100%)
03/21/2013	Your Company / Our Super Product / Support / Internal	/	10:00	Yes (100%)
03/20/2013	Your Company / Our Super Product / Support / Internal	/	10:00	Yes (100%)
03/19/2013	Your Company / Our Super Product / Support / Internal	/	08:00	Yes (100%)
03/18/2013	Your Company / Our Super Product / Support / Internal	/	09:00	Yes (100%)
03/22/2013	Your Company / Internal / Administrative	/	09:00	
03/21/2013	Your Company / Internal / Administrative	/	08:00	
03/20/2013	Your Company / Internal / Administrative	/	08:00	
03/19/2013	Your Company / Internal / Administrative	/	08:00	
03/18/2013	Your Company / Internal / Administrative	/	10:00	
03/21/2013	Your Company / Our Super Product / Consultancy	Delivery and maintenance	10:00	Yes (100%)

Figure 16.37: Detail of hours worked on different projects for an employee

The third tab of timesheet, *Attendances*, shows when there is a gap between the attendance and the timesheet entries, you can use the third tab to detect the days or the entries that have not been correctly entered.

The user starts with the sign-in and sign-out times. The system enables the control of attendance day by day. The two buttons *Sign In* and *Sign Out* enable the automatic completion of hours in the area to the right. These hours

can be modified by employee, so it is not a true management control system.

Date	Attendance	Total Timesheet	Difference
03/18/2013	00:00	19:00	-19:00
03/19/2013	00:00	16:00	-16:00
03/20/2013	00:00	18:00	-18:00
03/21/2013	00:00	125:00	-125:00
03/22/2013	01:00	18:00	-17:00
	01:00	196:00	-195:00

Figure 16.38: Detail of hours worked by day for an employee

The button *Timesheet Activities* shows the time worked on all the different projects. That enables you to step back to see an overview of the time an employee has worked spread over different projects.

At the end of the week or the month, the employee can submit his/her timesheet to manager by clicking on button *Submit to Manager*.

Each manager can then look at a list of his department's timesheets waiting for approval using the menu *Reporting* → *Human Resource* → *Timesheet Sheet Analysis* by applying the proper filters. He then has to approve them or return them to their initial state.

To define the departmental structure, use the menu *Human Resources* → *Configuration* → *Human Resources* → *Departments*.

Tip:

Timesheet Approval

At first sight, the approval of timesheets by a department manager can seem a bureaucratic hindrance. This operation is crucial for effective management, however. We have too frequently seen companies in the situation where managers are so overworked that they do not know what their employees are doing.

So this approval process supplies the manager with an outline of each employee's work at least once a week. And this is carried out for the hours worked on all the different projects.

Once the timesheets have been approved, you can then use them for cost control and for invoicing hours to clients.

Contracts and their rates, planning, and methods of invoicing are the object of the following chapter, *Deliver Quality Services*.

16.6 Keeping Track of Expenses

Employee expenses are charges incurred on behalf of the company. The company then reimburses these expenses to the employee. The receipts encountered most frequently are:

- car travel, reimbursed per unit of distance (mile or kilometer),
- subsistence expenses, reimbursed based on the bill,
- other purchases, such as stationery and books, destined for the company but carried out by the employee.

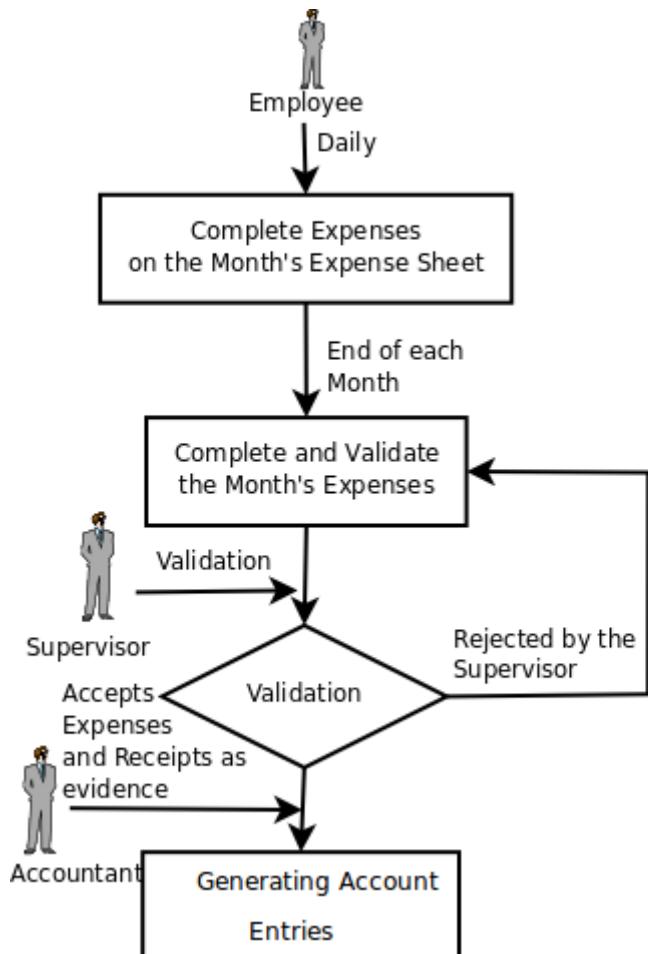


Figure 16.39: Process for Dealing with Expense Reimbursements

Expenses generated by employees are grouped into periods of a week or a month. At the end of the period, the employee confirms all of his expenses and a summary sheet is sent to the department manager. The manager is responsible for approving all the expense requests generated by his team. The expense sheet must be signed by the employee, who also attaches its receipts to the expense sheet.

Once the sheet has been approved by the head of department, it is sent to the Accounting department, which registers the company's liability to the employee. Accounting can then pay this invoice and reimburse the employee who originally advanced the money.

Some receipts are for project expenses, so these can then be attached to an analytic account. The costs incurred are then added to the supplementary cost of the analytic account when the invoice is approved.

You often need to invoice expenses to a customer, depending on the precise contract that has been negotiated. Travelling and subsistence expenses are generally handled this way. These can be charged to the customer at the end of the month if the contract price has been negotiated inclusive of expenses.

If you have to go through many steps to reclaim expenses, it can all quickly become too cumbersome, especially for those employees who claim large numbers of different expense lines. If you have got a good system that integrates the management of these claims, such as the one described, you can avoid many problems and increase staff productivity.

If your systems handle expenses well, then you can avoid significant losses by setting your terms of sales effectively. In fixed-price contracts, expense reimbursements are usually invoiced according to the actual expense. It is in your interest to systematize their treatment, and automate the process to the maximum, to recharge as much as you are contractually able.

16.6.1 Allow employees to enter professional expenses

Install the module `hr_expense` to automate the management of expense claims. Go to the menu *Settings → Configuration → Human Resources*. And then click on the *Apply* button.

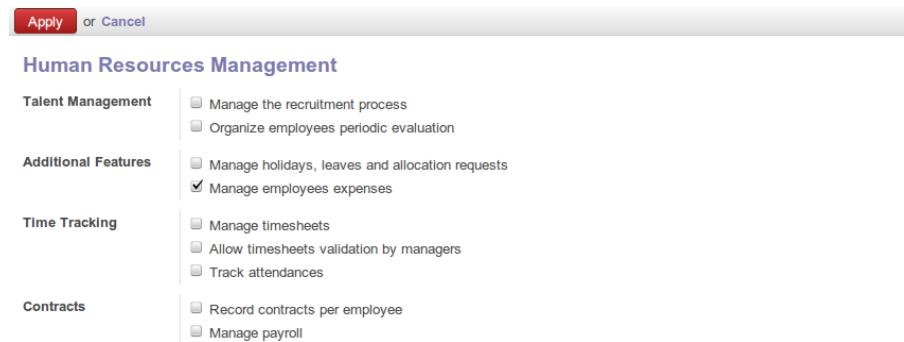


Figure 16.40: *Install hr_expense module*

Users can then enter and review their expenses using the menu *Human Resources → Expenses → Expenses*.

The screenshot shows an expense entry form titled 'Expenses / September Expenses'. The top bar includes 'Save' or 'Discard', 'Submit to Manager', and status indicators: New, Waiting Approval, Approved, Done. The main form fields are:

Employee	Minh Tran	Description	September Expenses
Date	09/28/2012	Validation User	
Department		Currency	EUR (€)
Company	Your Company		

Below these are tabs for 'Description' and 'Other Info'. The 'Description' tab lists three entries:

Product	Expense Date	Expense Note	Reference	Analytic account	Unit of Measure	Unit Price	Quantities	Total
[HA0] Hotel Accommodation	09/20/2012	Hotel Expenses - Thymbra		Nebula	Unit	400.00	5.000	2000.00
[CarTRA] Car Travel Expenses	09/15/2012	Bruxelles - Paris		Nebula	km	0.30	622.000	186.60
[AT] Air Ticket	09/03/2012	Travel by Air		Consultancy	Unit	700.00	1.000	700.00

The 'Other Info' tab shows a notes section with 'Free Notes' and a total amount of 2886.60.

Figure 16.41: *Expenses form to enter and review expenses*

Create templates for the various expenses accepted by the company using OpenERP's product form. You could, for instance, create a product with the following parameters for the reimbursement of travel expenses by car at 0.25 per kilometer:

- *Name* : Car travel ,
- *Default Unit Of Measure* : km ,
- *Cost Price* : 0 . 25 ,
- *Sale Price* : 0 . 30 ,
- *Product Type* : Service .

The employee keeps his expenses sheet in the Draft state while completing it throughout the period. At the end of the period (week or month), the employee can confirm his expense form using the *Submit to Manager* button on the form. This puts it into the state Waiting Approval .

16.6.2 Track the approval management process

At the end of the period, the department manager can access the list of expense forms awaiting approval using the menu *Human Resources* → *Expenses* → *Expenses*.

The department manager can then approve or refuse the expenses. Now, the *Generate accounting entries* button is visible which on clicking creates a purchase receipt, in the employee's name so that the employee can be reimbursed. An analytic account is coded onto each line of the receipt. The purchase receipt (*on creation*) automatically goes into the *posted* state, generating analytic accounting entries as they would be with any other invoice.

16.6.3 Rebill customers through analytical accounts

If you base your invoicing on service time or analytic costs, the expense will automatically be charged to the customer when the customer invoice is generated for services associated with the project.

Invoicing from timesheets allows you to prepare all your invoices, both expenses and timesheets for a project's customer.

You can view the statistical analysis of expenses using menu *Reporting* → *Human Resources* → *Expenses Analysis*.

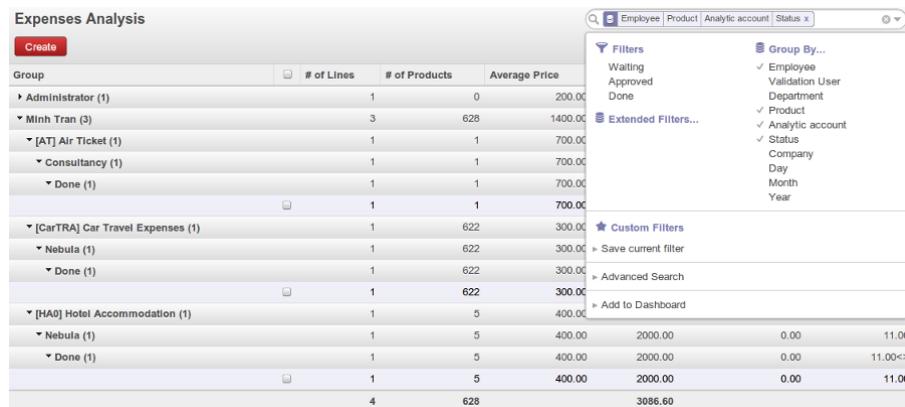


Figure 16.42: Expenses Analysis

16.7 HR Payroll

The new `hr_payroll` module includes a generic payroll engine that handles everything required to compute hr salary slips, the taxes to pay, etc. You can manage your company's payroll by using this module. You have to select option *Manage payroll* from following menu *Settings* → *Configuration* → *Human Resources* and you can install your country payroll from that option *Install your country's payroll*.

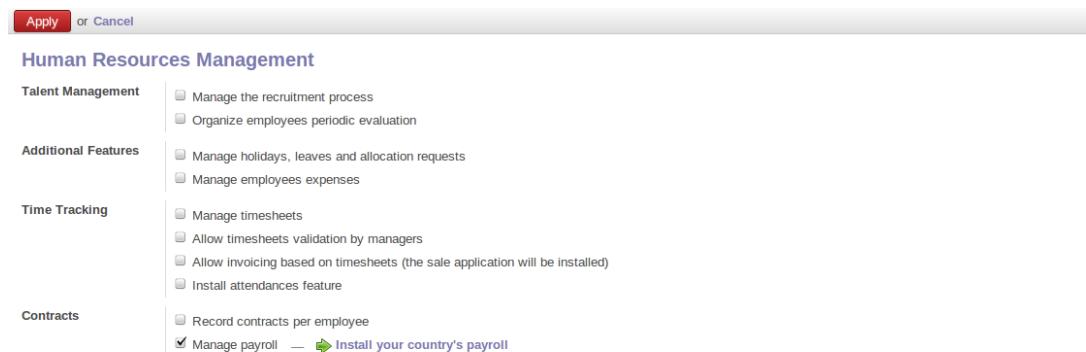


Figure 16.43: Configuration to install hr_payroll module

OpenERP provides the following features for efficient payroll management process:-

- *Salary rule*: are used to compute data like allowances, deductions, net, taxes, contribution registers, etc. You can define salary rules by using the expression.
- *Salary structure*: Define a set of rules usually applied to a category of employees. Salary calculation after considering all the allowances, deductions and incentives (if any) etc.,
- *Contribution registers*: A register containing to whom the company or the employee have to pay taxes.
- *Employee and contract*: It includes everything required to compute the salary slip of an employee.
- *Salary processing on the basis of leaves taken or number of working days*.
- *Generating Reports*.
- *Integrated with Contracts and Holidays*.

16.7.1 Salary Rule Categories

Salary Rule Categories are your Basic, Allowance, Deduction, Gross, Net, Company Contribution, etc by using which you can categorize your Salary Rule. You can define Salary Rule Categories by using the menu *Human Resources → Configuration → Payroll → Salary Rule Categories* and click *Create*.

You can configure the following information:-

- *Name* : A name for the Salary Rule Category.
- *Code* : A code for the Salary Rule Category. It must be unique.
- *Parent* : It is used to create hierarchy for reporting purpose.

After entering the Salary Rule Category information click *Save*.

16.7.2 Salary Rules

Salary Rules are the various types of Allowances, Deductions, etc. You can define Salary Rules by using the menu *Human Resources → Configuration → Payroll → Salary Rules* and click *Create*.

The screenshot shows the 'Salary Rules / House Rent Allowance' configuration screen. At the top, there are 'Save' and 'Discard' buttons, and a status bar indicating '4 / 50'. Below the header, the 'Name' field is filled with 'House Rent Allowance'. The 'Category' dropdown is set to 'Allowance'. Under the 'General' tab, the 'Code' is 'HRA', 'Active' is checked, 'Sequence' is '5', and 'Appears on Payslip' is checked. In the 'Conditions' section, 'Condition Based on' is set to 'Always True'. The 'Computation' section includes fields for 'Amount Type' (set to 'Percentage (%)'), 'Percentage based on' (set to 'contract.wage'), 'Quantity' (set to '1.0'), and 'Percentage (%)' (set to '40.00'). Finally, in the 'Company Contribution' section, the 'Contribution Register' is set to 'House Rent Allowance Register'.

Figure 16.44: House Rent Allowance defined as Salary Rule

There are list of Available Variables which will be used to specify field's value(as python code) on Salary Rules.

Available variables:

- `payslip`: object containing the payslips.
- `employee`: `hr.employee` object.
- `contract`: `hr.contract` object.
- `rules`: object containing the rules code (previously computed).
- `categories`: object containing the computed salary rule categories (sum of amount of all rules belonging to that category).
- `worked_days`: object containing the computed worked days.
- `inputs`: object containing the computed inputs.

You can configure the following information:-

- *Name* : A name for the Salary Rule.
- *Code* : A code for the salary rule. It must be unique.
- *Category* : Select a category for a rule.
- *Sequence* : Provide the sequence(integer).

Note:

Sequence

Sequence plays a major role in the calculation and appearance of payslip lines. For example, a sequence defined on a rule calculating the Gross should always be greater than the sequence's given on Allowance's rules, else it won't be considered in the calculation of Gross value.

- *Active* : If **False**, it will allow you to hide the salary rule without removing it.
- *Appears on Payslip* : If **False**, it won't appear on the payslip but will be considered in the calculation.
- *Condition Based on* : Consider a rule on the basis of some condition.
 1. *Always True* : As the name implies the condition is always True and hence rule will always be considered in the Payslip calculation.
 2. *Range* : The rule will be considered if it falls under a particular range.
 - *Range Based on* : You can provide the base value for range by using the above mentioned variable. For example, `contract.wage`. This will take the wages mentioned on contract.
 - *Minimum Range* : The minimum amount applied for this rule.
 - *Maximum Range* : The maximum amount, applied for this rule.
 3. *Python Expression* : You can specify your condition by python expression.
 - *Python Condition* : The expression can be written using the above mentioned variable. For example, `result = rules.NET > categories.NET * 0.10`.
 - *Contribution Register* : Eventual third party involved in the salary payment of the employees.Used in report.
 - *Amount Type* : The computation type for the rule amount. There are three types available to compute the amount.i.e **Fixed Amout**, **Percentage**, **Python Code**.
- 1. *Fixed Amount* : As the name indicates the amount is fixed.
 - *Quantity* : For e.g. A rule for Meal Voucher having fixed amount of 1€ per worked day can have its quantity defined in expression like `worked_days.WORK100.number_of_days` which will then be multiplied with the amount.
 - *Fixed Amount* : An amount for a rule.
- 2. *Percentage* : Here you can calculate the amount through percentage.

- *Percentage based on* : You can provide a base value for type percentage by using the above mentioned variable. For example, If you want to give 5% of wages for Provident Fund then you have to specify percentage based on as contract.wage.
 - *Quantity* : For example, a rule for Meal Voucher having fixed amount of 1€ per worked day can have its quantity defined in expression like `worked_days.WORK100.number_of_days` which will then be multiplied with the calculated percentage amount.
 - *Percentage* : Provide Percentage.
3. Python Code : You can specify your condition by python expression.
- *Python condition* : For example, If you want to calculate Gross then you can write your expression like `result = categories.BASIC + categories.ALW` where BASIC and ALW are salary rule categories code.
 - *Child Rules* : It is used to assign child rules.
 - *Inputs* : It is used when you want to provide some Input.
 - *Code* : A code for an input that can be used in salary rule. Code must be unique.
 - *Salary Rule Input* : Selection of salary rule.
 - *Description* : Description for an input.
 - *Description* : Description regarding the rule.

After entering the salary rule information click Save.

Note:

Sign of amount

If you are defining a rule for Allowance then make sure that the **amount**, **percentage** or **python code** you enter is positive. And if its for Deduction then it has to be negative.

Python Expression

If you are using python code then returned value has to be set in the variable result.

You can also use the method() in your expression. There is a sum() method available for three objects/variables i.e.payslip, worked_days, inputs. They are:

- `payslip.sum(code, from_date, to_date)`
- `worked_days.sum(code, from_date, to_date)`
- `inputs.sum(code, from_date, to_date)`

16.7.3 Salary Structure

Using the menu *Human Resources → Configuration → Payroll → Salary Structure* you can define salary structure.

The screenshot shows the 'Salary Structure' configuration screen. At the top, there are buttons for 'Save' and 'Discard'. Below that, there are fields for 'Name' (Marketing Executive for Quentin Paolino), 'Parent' (Marketing Executive), and 'Reference' (MEQP). On the right, there are navigation icons for back, forward, and search. The main area is titled 'Salary Rules' and contains a table with two rows:

Name	Code	Category	Contribution Register
Conveyance Allowance For Paolino	CAQP	Allowance	
Meal Voucher	MA	Allowance	Meal Voucher Register

Figure 16.45: Salary Structure for an employee

You can configure the following information:-

- *Name* : A name for a salary structure.
- *Reference* : A code for a salary structure. It must be unique.
- *Parent* : Select a structure whose rules you want to inherit.
- *Salary Rules* : Add the salary rules which you want to provide under your structure.

After entering the salary structure information click Save.

16.7.4 Contracts

We need to define a contract for an employee which will be used during the payslip generation. Using the menu *Human Resources* → *Human Resources* → *Contracts* you can define contract.

The screenshot shows the 'Contract For Quentin Paolino' configuration screen. At the top, there are buttons for 'Save' or 'Discard' and a navigation bar with '2 / 2' and other icons. The main form has tabs for 'Information' and 'Work Permit'. The 'Information' tab is active, showing fields for 'Employee' (Quentin De Paoli), 'Job Title' (Marketing Executive for Quentin Paolino), and 'Contract Type' (Employee). Below this, the 'Salary and Advantages' section contains 'Wage' (5000.00) and 'Salary Structure' (Marketing Executive for Quentin Paolino). The 'Allowance' section includes fields for 'Driver Salary', 'House Rent Allowance (%)', and 'Supplementary Allowance', all set to 0.00. The 'Deduction' section includes fields for 'TDS', 'Voluntary Provident Fund (%)', and 'Medical Insurance', also set to 0.00. The 'Duration' section specifies a 'Trial Period Duration' from 04/01/2013 to 12/31/2013, a 'Working Schedule' of '45 Hours/Week', and a 'Scheduled Pay' frequency of 'Monthly'.

Figure 16.46: Contract for an employee

Installation of payroll module adds the following fields on contract:-

- *Salary Structure* : Salary structure for payslip.
- *Scheduled Pay* : When a salary/wages are scheduled to be paid. e.g. monthly, weekly, quarterly, etc

After entering the contract information click Save.

16.7.5 Employee Payslips

Using the menu *Human Resources → Payroll → Employee Payslips* you can generate payslips.

Name	Code	Category	Quantity	Rate (%)	Amount	Total
Basic	BASIC	Basic	1.00	100.0000	5000.00	5000.00
House Rent Allowance	HRA	Allowance	1.00	40.0000	5000.00	2000.00
Conveyance Allowance	CA	Allowance	1.00	100.0000	800.00	800.00
Conveyance Allowance For Paolino	CAQP	Allowance	1.00	100.0000	600.00	600.00
Meal Voucher	MA	Allowance	22.00	100.0000	10.00	220.00
Gross	GROSS	Gross	1.00	100.0000	8620.00	8620.00
Provident Fund	PF	Deduction	1.00	-12.5000	5000.00	-625.00
Professional Tax	PT	Deduction	1.00	100.0000	-200.00	-200.00
Net	NET	Net	1.00	100.0000	7795.00	7795.00

Figure 16.47: *Employee Payslip*

You can configure the following information:-

- *Employee* : Select an employee.
- *Reference* : Slip number.
- *Contract* : Select a contract to be considered for payslip.
- *Structure* : Salary Structure for generating payslip lines.
- *Description* : Description of payslip.
- *Credit Note* : If **True**, indicates this payslip has refund of another.
- *Date From* : The beginning date of pay period.
- *Date To* : The last date of pay period.

On the selection of an employee the Reference, Contract, Structure, Description, Worked Days and Input data (if you have a rule that has an input data) fields will be automatically filled.

Click on the *Compute Sheet* button will fill the payslip lines based on the rules defined in your salary structure.(In *Salary Computation* tab) Payslip lines will appear and will be calculated based on the sequence provided on salary rules. Allowances and Deductions will be shown in positive and negative values respectively.

Details By Salary Rule Category: It displays the rules grouped by its categories.

Worked Days & Inputs:- It displays the worked days and inputs.

1. *Worked Days* : The no of days and hours an employee has worked. It will be computed on employee onchange. It calculates the number of working days and hours on the basis of Working Schedule provided on contract. It also calculates the leaves.
- *Description* : Description regarding your working or leave day.
 - *Code* : Code for Payslip Worked Days. ... note:: You cannot change the code for working days i.e.'WORK100'.
 - *Number of Days* : Number of Days an employee has worked or taken leave.

- *Number of Hours* : Number of Hours for which an employee has worked or taken leave.
 - *Contract* : Contract to be applied for Payslip Worked Days.
2. *Other Input* : It is used when you want to provide some incentives, commissions, etc. Input Data comes from the rules having Inputs. You need to provide an amount through Input Data of payslip.
- *Description* : Description for Payslip Input.
 - *Code* : A code for Payslip Input.
 - *Amount* : The amount for an incentive.
 - *Contract* : Contract to be applied for Payslip Input.

Other Information : - It holds the information regarding the company, payment, notes, etc.

- *Company* : The company.
- *Payslip Batches* : Name of Payslip Batch through which payslip is generated.
- *Made Payment Order* : If **True**, the payment is made.
- *Notes* : Some additional information related to payslip.

Click on the Confirm button when the payslip is fully calculated and the Payment is made. It will change the state to Done.

16.7.6 Payslips Batch

Using the menu *Human Resources* → *Payroll* → *Payslips Batches* you can create payslips for various employees at a time. Its like a register which holds payslips of various employees created through *Generate Payslips* wizard.

Reference	Employee	Description	Date From	Date To	Status
	Quentin De Paoli	Salary Slip of Quentin De Paoli for April-2013	04/01/2013	04/30/2013	Draft

Figure 16.48: *Payslips Batch*

You need to configure the following:-

- *Name* : A name for Payslips Run.
- *Date From* : The beginning date of pay period which will be the Date From for payslips to be created.
- *Date To* : The last date of pay period which will be the Date To for payslips to be created.
- *Credit Note* :If **True**, indicates that all payslips generated from here are refund payslips.

Click on the *Generate Payslips* wizard will let you choose the employees for which you want to generate

payslips.

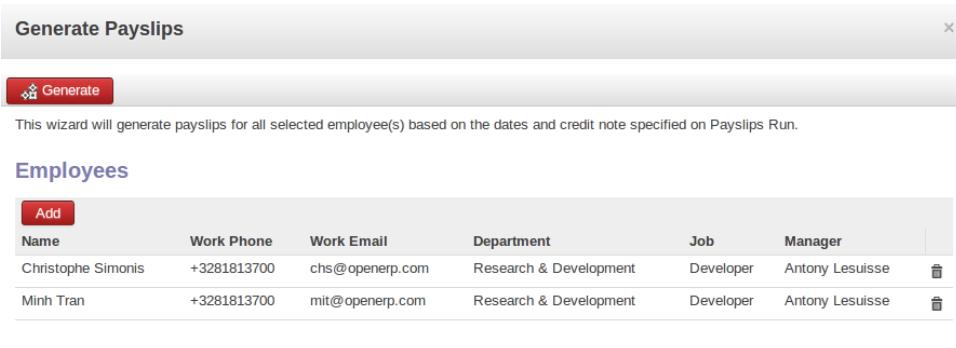


Figure 16.49: *Generate Payslips* wizard

- *Payslips* : It holds the newly generated Payslips through wizard.

A click on the Close button of Payslips Batch changes the state to Close.

16.7.7 Contribution Registers

Using the menu *Human Resources* → *Configuration* → *Payroll* → *Contribution Registers* you can create a Contribution Register.



Figure 16.50: *Contribution Registers*

You need to configure the following:-

- *Name* : A name for the Contribution Register.
- *Company* : Contribution Register belonging to a company.
- *Description* : Description related to Contribution Register.

After creating a register you can assign it on Salary rule. When Payslip is created, payslip lines generated through salary rules having a contribution register will be linked with that register. To see the payslip lines related to a contribution register go to that particular register and print the Payslip Lines report.

16.7.8 Employee Payslip PDF Report

You can print the Employee Payslip PDF Report from the view of Employee Payslips from Print button.

Employee PaySlip

File Edit View Go Help

Previous Next | 1 (1 of 1) 85% ▾

OpenERP Your Company Tagline
Your Company

Phone: _____
Mail: info@yourcompany.com

Pay Slip
(Salary Slip of Quentin De Paoli for April-2013)

Name	Quentin De Paoli	Designation	Developer
Address			
Email	qdp@openerp.com	Identification No	
Reference	SLIP/013	Bank Account	
Date From	2013-04-01	Date To	2013-04-30

Code	Name	Quantity/Rate	Amount	Total
BASE	Salaire de base	1.00	5000.00	5000.00 €
HRA	House Rent Allowance	1.00	5000.00	2000.00 €
CA	Conveyance Allowance	1.00	800.00	800.00 €
CAQP	Conveyance Allowance For Paolino	1.00	600.00	600.00 €
MA	Meal Voucher	22.00	10.00	220.00 €
PF	Provident Fund	1.00	5000.00	-625.00 €
PT	Professional Tax	1.00	-200.00	-200.00 €
BRUT	Salaire Brut	1.00	9445.00	9445.00 €
NET	Net	1.00	9445.00	9445.00 €

Authorized Signature

16.7.9 Payslip Details PDF Report

You can print the Payslip Details report from the view of Employee Payslips. It prints the report grouped by Salary Rule Category.

PaySlip Details

File Edit View Go Help

Previous Next | 1 (1 of 1) Fit Page Width

OpenERP

Your Company Tagline
Your Company

Phone: _____
Mail: info@yourcompany.com

Pay Slip Details
(Salary Slip of Quentin De Paoli for April-2013)

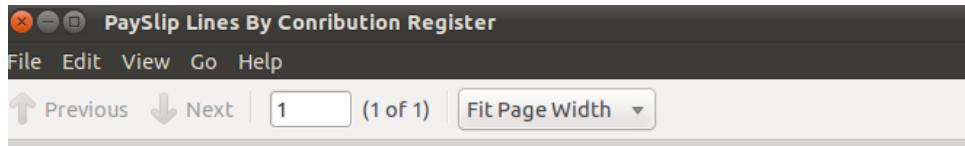
Name	Quentin De Paoli	Designation	Developer
Address	.		
Email	qdp@openerp.com	Identification No	
Reference	SLIP/001	Bank Account	
Date From	2013-04-01	Date To	2013-04-30

Details by Salary Rule Category:

Code	Salary Rule Category	Total
BASIC	Basic	5000.00 €
BASIC	Basic	5000.00 €
ALW	Allowance	3620.00 €
HRA	House Rent Allowance	2000.00 €
CA	Conveyance Allowance	800.00 €
CAQP	Conveyance Allowance For Paolino	600.00 €
MA	Meal Voucher	220.00 €
GROSS	Gross	8620.00 €
GROSS	Gross	8620.00 €
DED	Deduction	-825.00 €
PF	Provident Fund	-625.00 €
PT	Professional Tax	-200.00 €
NET	Net	7795.00 €
NET	Net	7795.00 €

16.7.10 Payslip Lines PDF Report

You can print the Payslip Lines report from the view of Contribution Registers. It prints the Payslip Lines by Contribution Register.



OpenERP

Your Company Tagline

Your Company

Phone:
Mail:

info@yourcompany.com

PaySlip Lines by Contribution Register

Register Name	Date From	Date To			
House Rent Allowance Register	2013-04-01	2013-04-30			
PaySlip Name	Code	Name	Quantity/Rate	Amount	Total
Salary Slip of Quentin De Paoli for April-2013	HRA	House Rent Allowance	1.00	5000.00	2000.00 €
			Total:	2000.00	€

DELIVER QUALITY SERVICES

This chapter focuses on the management of contracts, and the services associated with that. The complete process of managing services is studied here: from defining prices and contracts to automatically invoicing the services through planning, and the treatment of additional costs such as expense receipts.

For this chapter you should start with a fresh database that includes demo data, with sale, project and all of their dependencies installed, and no particular chart of accounts configured.

17.1 Managing Service Contracts

Contracts can take different forms within OpenERP, depending on their nature. So you can have several distinct types of service contracts, such as:

- fixed-price contracts,
- cost-reimbursement contracts, invoiced when services are completed,
- fixed-price contracts, invoiced monthly as services are carried out.

Tip:

Contract Quotations

Some companies commit to contracts on the basis of a requested volume at a certain price for a defined period. In such a case, the contract is represented by a pricelist for that specific customer.

The pricelist is linked in the Sales and Purchases tab of the Customers form, so that it is brought up whenever anything is bought from or sold to this partner (depending on whether it is a purchase or sales agreement). OpenERP automatically selects the price based on this agreed pricelist.

17.1.1 Fixed Price Contracts

Fixed price contracts for the sale of services are represented in OpenERP by a Sales Order. In this case, the supply of services is managed just like all other stockable or consumable products.

You can add new orders using the menu *Sales → Sales → Quotations*.

The new Sales Order document starts in the *Draft Quotation* state, so the estimate has no accounting impact on the system until it is confirmed. When you confirm the order, your estimate moves into the state *Sale*

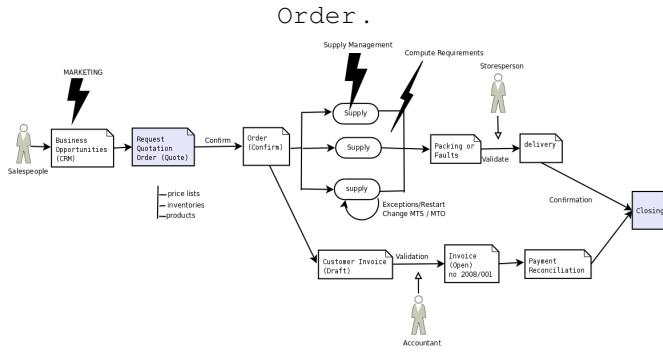


Figure 17.1: Process for handling a Sales Order

Once the order has been approved, OpenERP will automatically generate an invoice and/or a delivery document proposal based on the parameters you set in the order.

The invoice will be managed by the system depending on the setting of the field *Shipping Policy* on the order's second tab *Other Information*:

- *Payment Before Delivery* : OpenERP creates an invoice in the Draft state. Once this is confirmed and paid, the delivery is activated.
- *Invoice on Order After Delivery* : the delivery order is produced when the order is validated. A draft invoice is then created when the delivery has been completed.
- *Shipping & Manual Invoice* : OpenERP starts the delivery from the confirmation of the order, and adds a button which you manually click when you are ready to create an invoice.
- *Invoice From The Delivery* : invoices are created from the picking stage.

Note:

Delivery of an Order

The term ‘delivery’ should be taken in the broadest sense in OpenERP. The effect of a delivery depends on the configuration of the sold product.

If its type is either Stockable Product or Consumable, OpenERP will make a request for it to be sent for picking. If the product’s type is Service, OpenERP’s scheduler will create a task in the project management system, or create a subcontract purchase order if the product’s Procurement Method is Make to Order.

Invoicing after delivery does as it says: invoicing for the services when the tasks have been closed.

When you sign a new contract, you can just enter the order into the system and OpenERP will track the order.

This works well for small orders. But for large valued service orders, you might want to invoice several times through the contract, for example:

- 30% on order,
- 40% on completion,
- 30% one month after the system has gone into production.

In this case you should create several invoices for the one Sales Order. You have to do for this:

- Do not handle invoicing automatically from the Sales Order but carry out manual invoicing instead,

17.1.2 Cost-reimbursement Contracts

Some contracts are not invoiced from a price fixed on the order but from the cost of the services carried out. That is usually what happens in the building sector or in large projects.

The approach you use for this is totally different because instead of using the sales order as the basis of the invoice you use the analytic accounts. For this you have to install the module `hr_timesheet_invoice`.

An analytic account is created for each new contract. The following fields must be completed in this analytic account:

- *Partner* : partner associated with the contract,
- *Sale Pricelist*,
- *Invoicing*.

The selection of an invoicing rate is an indirect way of specifying that the project will be invoiced on the basis of analytic costs. This can take different forms, such as delivery of services, purchase of raw materials, and expense reimbursements.

Note:

Pricelists and Billing Rates

You can select a pricelist on the analytic account without having to use it to specify billing rates.

An example of this is a client project that is to be invoiced only indirectly from the analytic costs. Putting the pricelist on the analytic account makes it possible to compare the actual sales with a best case situation where all the services would be invoiced. To get this comparison you have to print the analytic balance from the analytic account.

Note:

Project Management and Analytic Accounts

Analytic Accounts is only available once you have installed the module account_analytic_analysis. It provides various global financial and operational views of a project manager's projects.

17.1.3 Fixed-price Contracts Invoiced as Services are Worked

For large-valued projects, fixed-price invoicing based on the sales order is not always appropriate. In the case of a services project planned to run for about six months, invoicing could be based on the following:

- 30% on order,
- 30% at the project mid-point,
- 40% at delivery.

Such an approach is often used in a company but there are other options. This method of invoicing can pose many problems for the organization and invoicing of the project:

- It is extremely difficult to determine if the project is on track or not. The endpoint is fuzzy, which can result in a tricky discussion with the client at the moment of final invoicing.
- If the project takes more or less time than forecast, it will effectively result in under- or over-invoicing during the project.
- Whether you get a proper return can depend on the client. For example, if the client takes a long time to sign off on project acceptance, you cannot invoice the remaining 40% even though you might have supplied the agreed service properly.
- The account manager and the project manager are often different people. The project manager has to alert the account manager about the moment that the client can be invoiced, but that moment can easily be forgotten or mistaken.
- The project can be fixed for service costs but have agreed extras, such as reimbursement for travel expenses. Invoicing from the order does not adapt well to such an approach.

OpenERP provides a third method for invoicing services that can be useful on long projects. This consists of invoicing the project periodically on the basis of time worked up to a fixed amount that cannot be exceeded. At the end of the project, a final invoice or a credit note is generated to meet the total amount of value fixed for the project.

To configure such a project you must set an invoicing rate, a pricelist and a maximum amount on the analytic account for the project. The services are then invoiced throughout the project by the different project or account managers, just like projects that are invoiced by time used. The managers can apply a refund on the final invoice if the project takes more time to complete than permitted under the contract.

When the project is finished you can generate the closing invoice. This automatically calculates the final balance of the bill, taking the amounts already charged into account. If the amount already invoiced is greater than the maximum agreed amount, then OpenERP generates a draft credit note.

This approach offers many advantages compared with the traditional methods of invoicing in phases for fixed-price contracts:

- Fixed-price contracts and cost-reimbursable contracts are invoiced in the same way, which makes the company's invoicing process quite simple and systematic even when the projects are mixed.
- Everything is invoiced on the basis of worked time, making it easy to forecast invoicing from plans linked to the different analytical accounts.
- This method of proceeding educates project managers just as much as the client because refunds have to be given for work done if the project slips.
- Invoicing follows the course of the project and avoids a supplier's dependence on the goodwill of the client in approving certain phases.
- Invoicing of expenses follows the same workflow and is therefore very simple.

Note:

Negotiating contracts

In contract negotiation, invoicing conditions are often neglected by the client. So it can often be straightforward to apply this method of invoicing.

17.1.4 Contracts Limited to a Quantity

Finally, certain contracts are expressed in terms of a quantity rather than a fixed amount. Support contracts comprising a number of prepaid hours are a case in point. To generate such contracts in OpenERP you should start by installing the module `account_analytic_analysis`.

Then you can set a maximum number of hours for each analytic account. When employees enter their time worked on the support contract in the timesheets, the hours are automatically deducted from the maximum set on each analytic account.

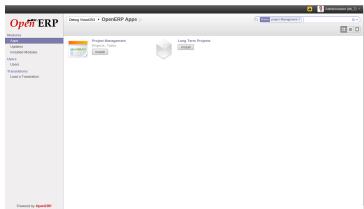
You must also name someone in the company responsible for renewing expired contracts. They become responsible for searching through the list of accounts showing negative remaining hours.

The client contract can be limited to a certain quantity of hours, and it can also be limited in time. For that, you set an end date for the corresponding analytic account.

DRIVE YOUR PROJECTS

If you have a good system to manage tasks, your whole company will benefit. OpenERP's project management application enables you to efficiently manage and track tasks, work on them effectively, quickly delegate them while keeping close track of your delegated tasks. OpenERP also helps people in the company to organize their personal time, and this chapter proposes a methodology aimed at improving the productivity of managers.

Start with a fresh database that includes demo data, install Project Management (project).



18.1 Project Management

In the previous chapter you learned more about the financial management of projects, based on OpenERP's analytic accounts, structured into cases. This way of working enables you to analyze time plans and budgets, to control invoicing and to manage your different contracts.

Here we will explain operational project management to organize tasks and plan the work you need to get the tasks completed. All the necessary operations are carried out from the *Project* menu.

Note:

Project

In OpenERP, a project is represented by a set of tasks to be completed. Projects have a tree structure that can be divided into phases and sub-phases. This structure is very useful to organise your work.

Whereas analytic accounts look at the past activities of the company, Project Management's role is to plan the future. Even though there is a close link between the two (such as where a project has been planned and then completed through OpenERP) they are still two different concepts, each making its own contribution to a flexible workflow.

Most customer projects are represented by:

- one or several analytic accounts in the Accounting System, to keep track of the contract and its different phases,
- one or several projects in Project Management, to track the project and the different tasks to be completed.

There is a direct link between the project and the analytic account, because for each new project created, OpenERP will automatically create the corresponding analytic account in the *Projects* analytic chart of accounts. Note that you have no access to the analytic account directly from a project.

18.1.1 Creating Projects and Related Tasks

To define a new project, go to the menu *Project → Project → Projects*. Click *Create* and give your new project a *Project Name*.

You can assign a *Project Manager* and assign your project privacy with *Privacy / Visibility*.

The *Other Info* tab displays information about Planned Time and the Time Spent on the project according to the task work completed. Enter the general duration by completing *End Date*. You can put this project into a hierarchy, as a child of a *Parent Analytic Account*.

In case a project takes too long, it can also be escalated to another project. This feature is available if you have installed the module `project_issue`, which can be done by selecting *Track issues and bugs* in the *Settings → Configuration → Project*. In *Project Escalation*, enter the project that will be used for escalated tasks. You can also link to a *Working Time* category, which will be used to calculate the Project's time line, i.e. through a Gantt chart.

The status of a project can take the following values:

- **In Progress:** the project is being carried out,
- **Pending:** the project is paused,
- **Cancelled:** the project has been cancelled and therefore aborted,
- **Closed:** the project has been successfully completed,
- **Template:** the project can be used as a template to make projects based on this.

On the *Team* tab, add *Project Members* to the project; this is related to access rights too.

The screenshot shows the 'Projects / Data Import/Export Plugin' creation form. At the top, there are buttons for 'Save or Discard', 'Close Project', 'Pending', 'Set as Template', and 'Cancel'. A progress bar indicates '5 / 5' with steps for 'In Progress' and 'Closed'. The main area has a 'Project Name' field containing 'Data Import/Export Plugin'. Below it are sections for 'Tasks' and 'Phases'. Under 'Privacy / Visibility', 'Public' is selected. Under 'Customer', 'Bank Wealthy and sons' is chosen. A note below says 'To invoice or setup invoicing and renewal options, go to the related contract: Projects / Data Import/Export Plugin.' At the bottom, tabs for 'Team', 'Other Info', and 'Tasks Stages' are visible, along with an 'Add' button and a list of team members: 'Administrator' and 'Demo User'.

Figure 18.1: *Projects*

On the project form you find a customer field, which will also be used for invoice creation. To generate invoices based on time spent on tasks, you need to install `project_timesheet`. Go to menu menu *Settings → Configuration → Project*. And in *Task*, tick Record timesheet lines per tasks. Then Go to the menu *Project → Invoicing → Invoice Tasks*. Open its form view click on *More* and *Create Invoices*.

Note:

Complete the invoicing data, such as Sale Pricelist and Customer on Analytic Account before creating the invoice.

Note:

Study of Customer Satisfaction

Some companies run a system where emails are automatically sent at the end of a task requesting the customer to complete an online survey. This survey enables a company to ask several questions about the work carried out, to gauge customer satisfaction as the project progresses.

This function can also be used by ISO 9001-certified companies, to measure customer satisfaction. OpenERP also allows you to create your own surveys.

The *Project Stages* tab allows you to define stages that help you divide your tasks. You can add a sequence number to set the stage order, allowing you to prioritize your task work, i.e. first you will have the Design stage and then Specification.

18.1.2 Managing Tasks

Once a project has been defined, you can enter the tasks to be executed. You have two possibilities for this:

- click the button *Tasks* to the right of the project form, then click *Create*,
- from the menu *Project → Project → Tasks*, create a new task and assign it to an existing project.

Each task has one of the following states:

- **Draft**: the task has been entered but has not yet been validated by the person who will have to do it,
- **In Progress**: you can start working on the task, hence the task is in progress,
- **Done**: task is completed,
- **Cancelled**: task work is no longer required,
- **Pending**: task is waiting for response of someone else (e.g. customer information).

A task can be assigned to a user, who then becomes responsible for closing it. But you could also leave it unassigned so that nobody specific will be responsible: various team members instead are made jointly responsible for working on tasks they have the skills for.

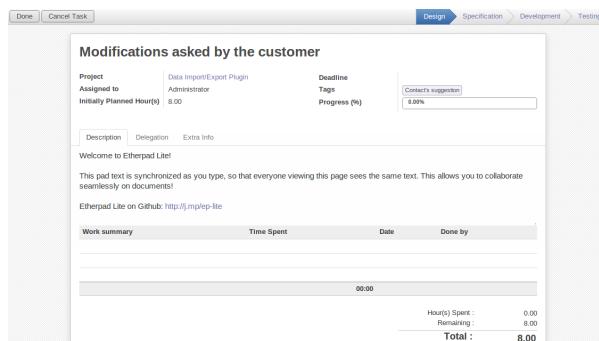


Figure 18.2: *Tasks in Project Management*

Each user manages his or her own task using the various menus available. To open the list of unclosed tasks that have been specifically assigned to you, go to the menu *Project → Project → Tasks*. Or to open the unassigned tasks, go to *Project → Project → Tasks* and then Clear the search and then click Unassigned Tasks from search filter.

Tip:

Shortcuts

Every user should create a link in their own shortcuts to the Tasks menu, because they will have to consult this menu several times a day.

The *Delegation* tab allows you to define links between your tasks. From *Parent Tasks* set the tasks that are related to this task. Use this feature to define the order in which tasks need to be accomplished, i.e. task 2 may not be executed before task 1.

18.1.3 Invoicing Tasks

Several methods of invoicing have already been described:

- invoicing from a sales order,

- invoicing on the basis of analytic costs (service times, expenses),
- invoicing on the basis of deliveries,
- manual invoicing.

Although invoicing tasks might appear useful, in certain situations it is best to invoice from the service or purchase orders instead. These methods of invoicing are more flexible, with various pricing levels set out in the pricelist, and different products that can be invoiced. And it is helpful to limit the number of invoicing methods in your company by extending the use of an invoicing method that you already have.

If you want to connect your Sales Order with Project tasks you should create products such as On Site Assistance and On Site Monitoring. These products should be configured with *Product Type Service*, a *Procurement Method* of *Make to Order*, and a *Supply Method* of *Produce*. Once you have set this up, OpenERP automatically creates a task in project management When the Quotation will be Converted to Sale Order. You can even take this further by adding a default project to your product. In the Product form, on the *Information* tab, enter the default project to which the automatically created task (from the sales order) should be linked.

You can also change some of the order parameters, which affects the invoice:

- *Shipping Policy* : Invoice on Order After Delivery (when the task is closed),
- *Invoice On* : Shipped Quantities (actual hours in the task).

Create the *Sales Order* using the product *On Site Assistance* with the above configuration and confirm it. You can find the task created from this sale order using the menu *Project → Project → Tasks*. Once you find that task, click on the specific stage e.g.:guilabel:Design. You have to manually assign the project for this task, unless you specified a default project in the Product form. When you complete the task, enter the information in the *Task Work* field. Then click the *Done* button in order to indicate to OpenERP that this task is finished. As an example, the new task *SO008:On Site Assistance* generated from sales order *SO008* is shown in following figure.

SO008:On Site Assistance			
Project Assigned to	Website Design Templates	Deadline Tags	03/13/2013
Initially Planned Hour(s)	1.00	Progress (%)	0.00%
<input type="button" value="Description"/> <input type="button" value="Delegation"/> <input type="button" value="Extra Info"/>			
On Site Assistance			
Work summary	Time Spent	Date	Done by
	00:00		
		Hour(s) Spent : 0.00	Remaining : 1.00
		Total : 1.00	

Figure 18.3: Task created from Sales Order

Tip:

You need to carefully configure the analytic account related to this project. If you use the Billing tab of the project to do this, the analytic account linked to the project will automatically get the related settings.

After finishing this task, go to the menu *Project → Invoicing → Invoice Tasks* in order to find the list of uninvoiced tasks. Click the action *Create Invoice* from more button, when you want to create an invoice for this

task work.

Figure 18.4: *Create Invoice for Tasks Work*

18.1.4 Priority Management

Several methods can be used for ordering tasks by their respective priorities. OpenERP orders tasks based on a function of the following fields: *Sequence*, *Priority*, and *Deadline*.

Use the *Sequence* field on the second tab, *Other Info*, to plan a project made up of several tasks. In the case of an IT project, for example, where development tasks are done in a given order, the first task to do will be sequence number 1, then numbers 2, 3, 4 and so on. When you first open the list of project tasks, they are listed in their sequence order. You can simply drag and drop tasks to change their sequence.

You can use one of these three ordering methods, or combine several of them, depending on the project.

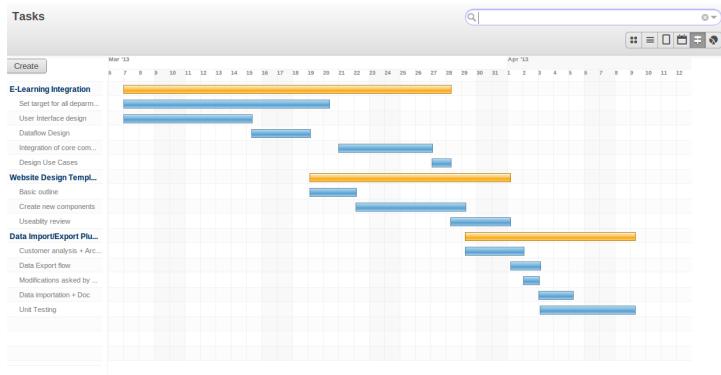


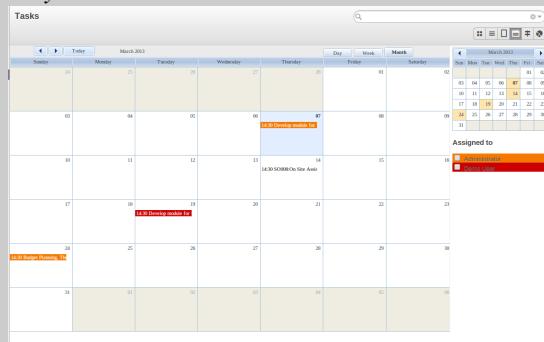
Figure 18.5: *Gantt chart, calculated for earliest delivery*

You can set the Working Time in the project file. If you do not specify anything, OpenERP assumes by default that you work 8 hours a day from Monday to Sunday. Once the time is specified you can call up a project Gantt chart from Tasks. The system then calculates a project plan for earliest delivery using task ordering and the working time.

Tip:

Calendar View

OpenERP can give you a calendar view of the different tasks. This is all based on the deadline data and displays only tasks that have a deadline. You can then delete, create or modify tasks using drag and drop (only in web).



Calendar View of the System Tasks

18.1.5 Delegate your Tasks

To delegate a task to another user, you can just change the person Assigned to for that task. However, the system does not help you track tasks that you have delegated, such as monitoring of work done, if you do it this way.

A screenshot of the 'Project Task Delegate' form. It has several sections: 'Project' dropdown set to 'E-Learning Integration', 'Assign To' dropdown set to 'Demo User', 'Delegated Task' section with 'Delegated Title' 'Dataflow Design' and 'Planned Hour(s)' '8.00', 'Validation Task' section with 'Validation Task Title' 'CHECK: Dataflow Design', 'Hour(s) to Validate' '1.00', and 'Validation State' 'Pending', and a 'New Task Description' text area containing 'Dataflow Design for E-Learning'. At the bottom are 'Delegate' and 'Cancel' buttons.

Figure 18.6: Form for Delegating a Task to Another User

Instead, you can use the *Delegate* button on a task.

The system enables you to modify tasks at all levels in the chain of delegation, to add additional information. A task can therefore start as a global objective and become more detailed as it is delegated down in the hierarchy.

The second tab on the task form gives you a complete history of the chain of delegation for each task. You can find a link to the parent task there, and the different tasks that have been delegated.

18.2 Long Term Project Planning

You can plan your projects with Long Term Planning. To do this, selecting *Manage resources planning on gantt view* in the *Settings → Configuration → Project Planning* section. This installs the `project_long_term` module. By using this feature, you can link tasks to your planning to have a great view of who will do what at a specific time.

The traditional phased approach identifies the sequence of steps to be completed. *Faces* library is used for scheduling phases and tasks based on calendar resources. So resource availability or resource leaves are tracked using this tool. The Gantt chart allows you to easily manage your resources and plans by simple drag & drop. The Calendar view also helps you map your deadlines and tasks needing attention.

18.2.1 Project Phases

You can subdivide your larger projects into several phases. To define a new phase, go to *Project* → *Project* → *Project Phases* and click *Create*. You must link your phase to a project through the *Project* field. For each phase, you have to define *Duration*. On the *Team Planning* tab you can add *Phases Team Members*, in *Tasks details* tab you can describe the different tasks and link your phase to previous and Next ones though *constraints* tab. You can also add dates and sequence *constraints* tab.

The screenshot shows the 'Project Phase' form for 'Development and Integration'. At the top, there are buttons for 'Save or Discard', 'Start Phase', 'Cancel', and navigation arrows. The main area has tabs for 'Name', 'Duration', 'Project', 'Team Planning', 'Tasks Details', and 'Constraints'. Under 'Name', the phase is named 'Development and Integration'. Under 'Duration', the value is '90.00 Day(s)' with start and end dates of '02/18/2013 17:44:42' and '04/18/2013 17:44:46'. Under 'Project', it is linked to 'The Jackson Group's Project'. The 'Team Planning' tab shows one team member: 'Administrator' with 'Start Date' '02/18/2013 17:45:26' and 'End Date' '02/29/2013 17:45:31'. The 'Tasks Details' tab is empty.

Figure 18.7: Form View of Project Phase

18.2.2 Scheduling

You need to define a working schedule and leaves, since the project scheduler will use these to calculate the project dates. Ensure that you have entered a working schedule for your project in the *Working Time* field in the *Other Info* tab of the *Project* form. This is useful to generate accurate Gantt charts for your project.

If you have tasks related to a phase, you can see them in the *Tasks Details* tab of your phase form.

You can similarly derive the Gantt charts for Project Phases and Members in the following ways:

Compute Phase Scheduling

Obtain the Gantt chart for Project Phases through the menu *Project* → *Scheduling* → *Compute Phase Scheduling*. A dialog box will appear, allowing you to select all projects or a single project. It will compute the start date and end date of the phases which are in draft, open and pending state of the given project. Click *Compute* to open Gantt view.

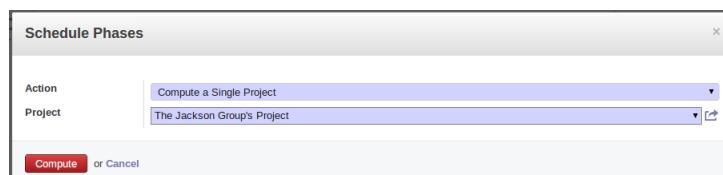


Figure 18.8: Schedule Phase



Figure 18.9: Gantt Chart for Project Phases

Compute Tasks Scheduling

This feature has the same purpose as the previous one and is used only for projects that are not cut in phases, but only consist of a list of tasks. To access it, go to *Project → Scheduling → Compute Task Scheduling*. You must and can select only a single project for computation. It shows the Gantt chart for Members.

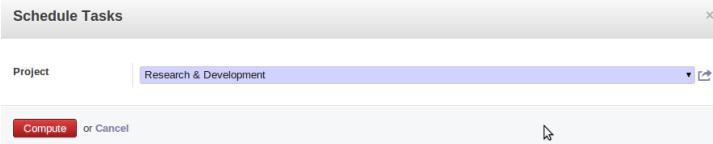


Figure 18.10: Schedule Tasks

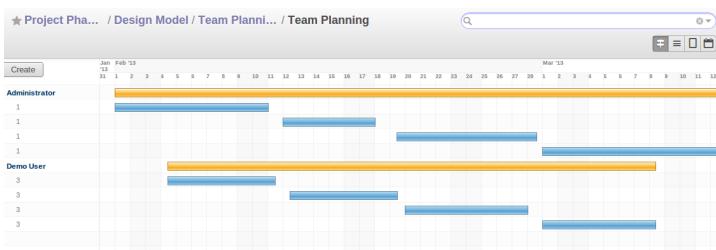


Figure 18.11: Gantt Chart for Members

18.3 The Art of Productivity without Stress

Now you can take a slight detour away from pure enterprise management by looking at some tools offered by OpenERP to improve your own personal time management. It is not much of a detour because good organization is the key to better productivity in your daily work.

OpenERP's `project_gtd` module was inspired by the work of two books focusing on efficient time management:

- Getting Things Done – The Art of Stress-Free Productivity, by David Allen (2001), most often referred to by its initials **GTD** (trademark registered since 2005). This book is built around the principle that people should clearly write down all their outstanding tasks and store the details about these tasks in a trustworthy system.

They then do not have to worry about holding all of this stuff in their head. Since they can be quite sure that it is recorded safely, they can allow themselves to relax and so have the energy and time to concentrate on handling the tasks themselves systematically.

- The 7 Habits of Highly Effective People by Stephen R. Covey (1989) : the author advises organizations on the use of these practices, and reports on the productivity improvements in the organization that result.

Note:

Managing Time Efficiently

David Allen, *Getting Things Done*, Penguin Books, New York, 2001, 267 pages. (ISBN : 978-0142000281). Also see the site: <http://davidco.com>

Stephen R. Covey, *The 7 Habits of Highly Effective People*, Free Press, 1989, 15th Anniversary Edition : 2004, 384 pages. (ISBN : 978-0743269513).

Tip:*De-stress Yourself!*

Clear the tasks that clutter your thoughts by registering them in an organized system. This immediately helps you to de-stress yourself and organize your work in the best possible way.

If you feel stressed by too much work, do the following exercise to convince yourself about the benefits. Take some sheets of blank paper and write down everything that passes through your head about the things you need to do. For each task, note the next action to do on an adjacent line, and rank it by the date that you will commit yourself to doing it.

At the end of the exercise you will feel better organized, considerably de-stressed and remarkably free of worries!

The objective in this detour is not to detail the whole methodology, but to describe the supporting tools provided by OpenERP's project_gtd module.

18.3.1 Not Everything that is Urgent is Necessarily Important

The first modification brought by the module to the basic OpenERP system is a separation of the concepts of urgency and importance. Tasks are no longer classified by a single criterion, but by the product of the two criteria, enabling you to prioritize matters that are both urgent and important in a single list.

Many managers with a heavy workload use urgency as their sole method of prioritization. The difficulty is then in working out how to plan for substantive tasks (like medium term objectives). These are not urgent but are nevertheless very important.

Note:*Example Distinction between Urgency and Importance*

If you are very well organized, urgent tasks can (and should often) be given lower precedence than important tasks. Take an example from daily life as an illustration: the case of having some time with your children.

For most people, this task is important. But if you have a busy professional life, the days and weeks flow on with endless urgent tasks to be resolved. Even if you manage your time well, you could let several months pass without spending time with your children because the task of seeing them is never as urgent as your other work, despite its importance.

In OpenERP, urgency is given by the *Deadline* of the task, and importance by the *Priority*. The classification of the tasks then results from the product of the two factors. The most important tasks and the most urgent both appear at the top of the list.

18.3.2 Organizing your Life Systematically

A methodology of organizing yourself using the concepts of context and timebox is presented in this section.

Context

The context is determined by the work environment you must be in to deal with certain tasks. For example, you could define the following contexts:

- *Office* : for tasks which have to be dealt with at your workplace (such as telephone a customer, or write a document),
- *Car* : for tasks that you need to do on the move (such as going shopping, or going to the post office),
- *Travel* : for tasks that you can handle on the plane or in the train while you are doing travelling on business (tasks such as writing an article, or analyzing a new product),

- *Home* : for tasks which have to happen at your private address (such as finding a cleaning contractor, or mowing the lawn).

An employee / system user can create his or her own contexts using the menu *Project → Configuration → GTD → Contexts*.

Timebox

You then have to define the timeboxes. You have to complete the tasks in the time interval specified by a timebox. You usually define timeboxes with the following periods:

- *Today* : for tasks which must be handled today,
- *This Week* : for tasks that have to be dealt with this week,
- *This Month* : for tasks which have to be completed within the month,
- *Long Term* : for tasks that can be dealt with in more than one month.

A task can be put in one and only one timebox at a time.

You should distinguish between a timebox and the deadline for completing a task because the deadline is usually fixed by the requirements of the project manager. A timebox, by contrast, is selected with reference to what an individual can do.

To define timeboxes for your company, use the menu *Project → Configuration → GTD → Timeboxes*.

Methodology and Iterative Process

To organize your tasks efficiently, OpenERP uses a method based on the following systematic and iterative process:

1. Identify all the tasks that you have to deal with, including everything that keeps you awake at night, and enter them in Tasks, which you will find in the menu *Project → Project → Tasks*.
2. Classify the tasks periodically, assigning them a context and a timebox. This indicates both when and where the task should be handled. If a task takes less than 10 minutes, then maybe it could be handled immediately.
3. Every day, carry out the following process:
 - First thing in the morning, select those tasks contained in the current week's timebox that you want to deal with today. These are presented in order of importance and urgency, so you should select the tasks closest to the top of the list.
 - Carry out each task, that is to say either work on the task yourself or delegate it to another user,
 - Last thing, at the end of the day's work, empty that day's timebox and return all unclosed tasks into the week's timebox.
4. Repeat the same process each week and each month for the respective timeboxes.

Tip:

Do not confuse Agenda and Timebox

The idea of timebox is independent from that of an agenda. Certain tasks, such as meetings, must be done on a precise date. So they cannot be managed by the timebox system but by an agenda.

The ideal is to put the minimum of things on the agenda and to put there only tasks that have a fixed date. The timebox system is more flexible and more efficient for dealing with multiple tasks.

So start by entering all the tasks required by project. These could have been entered by another user and assigned to you. It is important to code in all of the tasks that are buzzing around in your head, just to get them off your mind. A task could be:

- work to be done,
- a short objective, medium or long term,

- a complex project that has not yet been broken into tasks.

A project or an objective over several days can be summarized in a single task. You do not have to detail each operation if the actions to be done are sufficiently clear to you.

You have to empty your Tasks periodically. To do that, use the menu *Project → Project → Tasks*. Assign a Timeframe and a Context to each task. This operation should not take more than a few minutes, because you are not dealing with the tasks themselves, just classifying them.



Figure 18.12: Timebox for tasks to be done today

Then click on the *Plannify Timebox* in More button. This procedure lets you select the tasks for the day from those in the timebox for the week. This operation gives you an overview of the medium term tasks and objectives and makes you review them there at least once a day. It is then that you would decide to allocate a part of your time that day to certain tasks based on your priorities.

Since the tasks are sorted by priority, it is sufficient to take the first from the list, up to the number of hours in your day. That will only take a minute, because the selection is not taken from every task you know about in the future, but just from those selected for the current week.

Once the timebox has been completed you can start your daily work on the tasks. For each task, you can start work on it, delegate it, close it, or cancel it.

At the end of the day, you empty the timebox using the *Empty Timebox* from More button. All the tasks that have not been done are sent back to the weekly timebox to sit in amongst the tasks that will be planned next morning.

Do the same each week and each month using the same principles, but just using the appropriate timeboxes for those periods.

Some Convincing Results

After a few days of carefully practising this method, users have reported the following improvements:

- a reduction in the number of tasks and objectives that were forgotten,
- a reduction in stress because people felt more in control of their situation,
- a change of the priorities in the types of tasks carried out daily,
- more notice taken of the urgency and importance of tasks and objectives in the long-term organization of time,
- better management of task delegation and the selection of which tasks were better to delegate,

Finally, it is important to note that this system is totally integrated with OpenERP's project management function. Staff can use the system or not, depending on their own needs. The system is complementary to the project management function that handles team organization and company-wide planning.

Part VI

Manage your Warehouse and Get your Manufacturing Done

This part of the book concentrates on physical materials - the handling of stock and the transformation of materials by assembly and manufacture.

Stocks are the physical embodiment of their product specification, things rather than datasheets. So they need to be stored and moved between locations, and tracked in sets and individually. They have a size, a weight, and a cost. OpenERP manages all of this in some rather useful and unique ways.

Manufacturing is the transformation of materials and components, perhaps using measurable resources, into other products and services, adding value to your company on the way.

YOUR WAREHOUSE

OpenERP's stock management is at once very simple, flexible and complete. It is based on the concept of double entry that revolutionized accounting. The system can be described by Lavoisier's maxim "nothing lost, everything changed" or, better, "everything moved". In OpenERP you do not talk of disappearance, consumption or loss of products: instead you speak only of stock moves from one place to another.

Just as in accounting, the OpenERP system manages counterparts to each of its main operations such as receipts from suppliers, deliveries to customers, profit and loss from inventory, and consumption of raw materials. Stock movements are always made from one location to another. To satisfy the need for a counterpart to each stock movement, the software supports different types of stock locations:

- Physical stock locations,
- Partner locations,
- Virtual locations as counterparts for procurement, production and inventory.

Physical locations represent warehouses and their hierarchical structure. These are generally the locations that are managed by traditional stock management systems.

Partner locations represent your customer's and supplier's stocks. To reconcile them with your accounts, these stores play the role of third-party accounts. Reception from a supplier can be shown by the movement of goods from a partner location to a physical location in your own company. As you see, supplier locations usually show negative stocks and customer locations usually show positive stocks.

Virtual locations as counterparts for production are used in manufacturing operations. Manufacturing is characterized by the consumption of raw materials and the production of finished products. Virtual locations are used for the counterparts of these two operations.

Inventory locations are counterparts of the stock operations that represent your company's profit and loss in terms of your stocks.

The figure shows the initial configuration of the locations (*Warehouse* → *Configuration* → *Locations*).

Locations		Location Type
<input type="checkbox"/>	Create	
<input type="checkbox"/>	Location Name	View
<input type="checkbox"/>	Physical Locations	View
<input type="checkbox"/>	Physical Locations / Your Company	Internal Location
<input type="checkbox"/>	Physical Locations / Your Company / Output	Internal Location
<input type="checkbox"/>	Physical Locations / Your Company / Stock	Internal Location
<input type="checkbox"/>	Physical Locations / Your Company / Stock / Shelf 1	Internal Location
<input type="checkbox"/>	Physical Locations / Your Company / Stock / Shelf 2	Internal Location
<input type="checkbox"/>	Physical Locations / Your Company, Birmingham shop	Internal Location
<input type="checkbox"/>	Physical Locations / Your Company, Chicago shop	Internal Location
<input type="checkbox"/>	Partner Locations	View
<input type="checkbox"/>	Partner Locations / Customers	Customer Location
<input type="checkbox"/>	Partner Locations / Customers / European Customers	Customer Location
<input type="checkbox"/>	Partner Locations / Customers / Non European Customers	Customer Location
<input type="checkbox"/>	Partner Locations / Internal Shippings	Procurement
<input type="checkbox"/>	Partner Locations / Suppliers	Supplier Location
<input type="checkbox"/>	Partner Locations / Suppliers / IT Suppliers	Supplier Location
<input type="checkbox"/>	Partner Locations / Suppliers / IT Suppliers / Big Suppliers	Supplier Location
<input type="checkbox"/>	Partner Locations / Suppliers / IT Suppliers / Generic IT Suppliers	Supplier Location
<input type="checkbox"/>	Virtual Locations	View
<input type="checkbox"/>	Virtual Locations / Inventory loss	Inventory
<input type="checkbox"/>	Virtual Locations / Procurements	Procurement
<input type="checkbox"/>	Virtual Locations / Production	Production
<input type="checkbox"/>	Virtual Locations / Scrapped	Inventory

Figure 19.1: *Location Structure when OpenERP has just been installed*

Note:

Hierarchical Stock Locations

In OpenERP, locations are structured hierarchically. You can structure your locations as a tree, dependent on a parent-child relationship. This gives you more detailed levels of analysis of your stock operations and the organization of your warehouses.

Tip:

Locations and Warehouses

In OpenERP a **Warehouse** represents the place where your physical stock is stored. A warehouse can be structured into several locations at multiple levels. Locations are used to manage all types of storage places, such as at the customer and production counterparts.

For this chapter you can continue using the database with demo data from a previous chapter or start with a fresh database that includes demo data, with Warehouse Management and its dependencies installed and any chart of accounts configured.

In this chapter, the following modules will be used:

Table 19.1: List of modules

Name	Description
stock	to handle the stock functions
stock_location	to define pull and push flows
delivery	to define delivery methods and costs
account_anglo_saxon	to illustrate the valuation according to the anglo-saxon principles
sale_journal	to handle stock by journal
mrp_jit	to illustrate the just-in-time functionality

19.1 Understanding Double-Entry Stock Management

To illustrate this concept of stock management, see how stock moves are generated by the following operations:

- Receiving products from a supplier,
- Delivery to a customer,
- Inventory operation for lost materials,
- Manufacturing.

The structure of stock locations is shown by the figure [Location Structure when OpenERP has just been installed](#). Stocks are assumed to be totally empty and no operation is in progress nor planned.

If you order ‘30 bicycles’ from a supplier, OpenERP will do the following operations on receipt of the products:

Table 19.2: Stock Move Operation from Suppliers to Stock

Location	Products
Partner Locations > Suppliers	-30 bicycles
Physical Locations > OpenERP S.A. > Stock	+30 bicycles

If you deliver 2 bicycles to a European customer, you will get the following transactions for the delivery:

Table 19.3: Stock Move Operation from Stock to European Customers

Location	Products
Physical Locations > OpenERP S.A. > Stock	-2 bicycles
Partner Locations > Customers > European Customers	+2 bicycles

When the two operations are complete, you will see the following stock in each location:

Table 19.4: Resulting Stock Situation

Location	Products
Partner Locations > Suppliers	-30 bicycles
Physical Locations > OpenERP S.A. > Stock	+28 bicycles
Partner Locations > Customers > European Customers	+2 bicycles

So you can see that the sum of the stocks of a product in all the locations in OpenERP is always zero. In accounting you would say that the sum of the debits is equal to the sum of the credits.

Partner locations (customers and suppliers) are not located under your company in the hierarchical structure, so their contents are not considered as part of your own stock. So if you just look at the physical locations inside your own company, those two bicycles are no longer in your company. Although they are no longer in your own physical stock, it is still very useful to see them in your customer’s stock, because that will help when you carry out detailed stock management analysis.

Tip:

Consignment Stock

To manage Consignment Stock, you need to define the location for the consignment customer or supplier as part of your own stock and not as a partner location.

Note:

Accounts

In managing stock, a gap between the data in the software and real quantities in stock is difficult to avoid. Double-entry stock management gives twice as many opportunities to find an error. If you forget two items of stock, this error will automatically be reflected in the counterpart’s location.

You can make a comparison with accounting, where you will easily find an error because you can look for an anomaly in an account or in the counterparts: if there is not enough in a bank account then that is probably because someone has forgotten to enter a customer’s invoice payment. You always know that the sum of debits must equal the sum of the credits in both accounting and OpenERP’s stock management.

In accounting, all documents lead to accounting entries that form the basis of management accounting. If you create invoices or enter statements of account, for example, the results of the operations are accounting entries on accounts. And it is the same for stock management in OpenERP. All stock operations are carried out as simple stock moves. Whether you pack items, or manufacture them, or carry out a stock inventory operation, stock moves are carried out every time.

You have seen a fairly simple example of goods receipt and product delivery, but some operations are less obvious – a stock inventory operation, for example. An inventory operation is carried out when you compare the stock shown in software with real stock numbers counted in the stores.

In OpenERP, with its double-entry stock management, you would use stock moves for this inventory operation. That helps you manage your stock traceability. Suppose there are 26 bicycles in real stock, but OpenERP shows 28 in the system. You then have to reduce the number in OpenERP to 26. This reduction of 2 units is considered as a loss or destruction of products and the correction is carried out as in the following operation:

Table 19.5: Inventory Operation to Adjust Stock

Location	Products
Physical Locations > OpenERP S.A. > Stock	-2 bicycles
Virtual Locations > Inventory Loss	+2 bicycles

The product stock under consideration then becomes:

Table 19.6: Real and Counterpart Stocks when Operations are Completed

Location	Products
Partner Locations > Suppliers	-30 bicycles
Physical Locations > OpenERP S.A. > Stock	+26 bicycles
Partner Locations > Customers > European Customers	+2 bicycles
Virtual Locations > Inventory Loss	+2 bicycles

This example shows one of the great advantages of this approach in terms of performance analysis. After a few months, you can just make a stock valuation of the location *Inventory Control → Location Structure → Virtual Locations → Inventory Loss* to give you the value of the company's stock losses in the given period.

Now see how the following manufacturing operation is structured in OpenERP. To make a bicycle you need two wheels and a frame. This means that there should be a reduction of two wheels and a frame from real stock and the addition of a bicycle there. The consumption / production is formalized by moving products out of and into physical stock. The stock operations for this are as follows:

Table 19.7: Stock Situation Resulting from Manufacturing

Location	Products	Step
Physical Locations > OpenERP S.A. > Stock	-2 Wheels	Consumption of raw materials
Virtual Locations > Production	+2 Wheels	Consumption of raw materials
Physical Locations > OpenERP S.A. > Stock	-1 Frame	Consumption of raw materials
Virtual Locations > Production	+1 Frame	Consumption of raw materials
Virtual Locations > Production	-1 Bicycle	Manufacture of finished products
Physical Locations > OpenERP S.A. > Stock	+1 Bicycle	Manufacture of finished products

So now you have got the outcome you need from the consumption of raw materials and the manufacturing of finished products.

Note:

Assessing Created Value

You might already have noticed a useful effect of this approach: if you do a stock valuation in the Virtual Locations > Production location you get a statement of value created by your company (as a negative amount). Stock valuation in any given location is calculated by multiplying quantities of products in stock by their cost. In this case, the raw material value is deducted from the finished product value.

19.2 Managing Physical Inventory Structure

19.2.1 Warehouse

Warehouses are designed for physical locations from which you can deliver to the customer, and to which you receive raw materials. When you buy products from a supplier, you should take account of the Warehouse you use for this purchase. This also enables the end user to not have to choose from a list of locations, but simply a real warehouse. Use the menu *Warehouse → Configuration → Warehouses*, then click Create to configure a new warehouse.

A warehouse is defined by a link between three locations:

- The *Location Stock* field shows the place of products available for delivery to a customer directly from this warehouse. Availability is given by all the products in that location and any child locations.
- The *Location Input* field shows where ordered products are received from a supplier in that warehouse. It can be the same as the stock location if, for example, you want to do a quality control operation on your incoming raw materials.
- The *Location Output* field (called *Output* in the demonstration database) is designed as a buffer zone in which you store all the items that have been picked, but not yet delivered to a customer. You are strongly advised not to put this location within the stock hierarchy but instead at a higher level or at the same level.

The screenshot shows a software interface for managing warehouse parameters. At the top, there's a header bar with 'Warehouses / Chicago Warehouse', a 'Save' button, and a 'Discard' button. Below the header, there's a navigation bar with icons for back, forward, and search. The main area has a form with fields for 'Name' (set to 'Chicago Warehouse'), 'Location Input' (set to 'Physical Locations / Your Company, Chicago shop'), 'Location Stock' (set to 'Physical Locations / Your Company, Chicago shop'), and 'Location Output' (set to 'Physical Locations / Your Company / Output'). To the right of these fields are dropdown menus for 'Company' (set to 'Your Company, Chicago shop') and 'Owner Address' (set to 'Steven Hamilton (Your Company, Chicago shop)').

Figure 19.2: *Warehouse Parameters*

You can also set an address for the warehouse. This address should ideally be an address of your company. Once the warehouse has been defined, it can be used in:

- Reordering rules,
- Supplier orders,
- Customer orders (using the definition of a point of sale, which is linked to a warehouse).

Automatic Procurement

Several methods of automatically procuring products can be carried out by OpenERP:

- the workflow used by products that have the procurement method *Make to Order*,
- using Reordering rules for *Make to Stock* products,
- using the master production schedule for *Make to Stock* products.

The last two methods are described below.

Reordering Rules

To automatically make stock replenishment proposals, you can use Reordering rules. Go to the menu *Warehouse → Configuration → Reordering Rules*.

The rule is the following: if the virtual stock for the given location is lower than the minimum stock indicated in the rule, the system will automatically propose a procurement to increase the level of virtual stock to the maximum level given in the rule.

Reordering Rules						Search	1-7 of 7	Print
	Name	Warehouse	Location	Product	Product Unit of Measure	Minimum Quantity	Maximum Quantity	
<input type="checkbox"/>	OP/00001	Your Company	Physical Locations / Your Company / Stock	[DVD] Blank DVD-RW	Dozen(s)	5.00	25.00	
<input type="checkbox"/>	OP/00002	Your Company	Physical Locations / Your Company / Stock	[EXT-HDD] External Hard disk	Unit(s)	5.00	10.00	
<input type="checkbox"/>	OP/00003	Your Company	Physical Locations / Your Company / Stock	[MBiG] Motherboard i9P57	Unit(s)	5.00	12.00	
<input type="checkbox"/>	OP/00004	Your Company	Physical Locations / Your Company / Stock	[DC] Datacard	Unit(s)	10.00	50.00	
<input type="checkbox"/>	OP/00005	Your Company	Physical Locations / Your Company / Stock	[CPUa8] Processor AMD B-Core	Unit(s)	5.00	15.00	
<input type="checkbox"/>	OP/00006	Your Company	Physical Locations / Your Company / Stock	[ADPT] USB Adapter	Unit(s)	3.00	5.00	
<input type="checkbox"/>	OP/00007	Chicago Warehouse	Physical Locations / Your Company, Chicago shop	[KeyA] USB Keyboard, AZERTY	Unit(s)	10.00	20.00	

Figure 19.3: List of Reordering Rules

Tip:

Conflict Resolution

You may find draft production or procurement orders to be created although they should not exist. That can happen if the system is badly configured (for example, if you have forgotten to set the supplier on a product).

To check this, look at the list of procurements in the exception state in the menu Warehouse → Schedulers → Procurement Exceptions. More details about processing these exceptions is given in ch-mnf.

We underline that the rule is based on *virtual* quantities and not just on real quantities. It takes into account the calculation of orders and receipts to come.

Take the following example:

- Products in stock: 15
- Products ordered but not delivered: 5
- Products in manufacturing: 2

The rules defined are:

- Minimum stock: 13
- Maximum stock: 25.

Once the rules have been properly configured, the purchasing manager only needs to look at the list of orders for confirmation with the supplier using the menu Purchases → Purchase → Quotations.

Note:

Procurement

Note that the procurement does not require that you buy from a supplier. If the product has a Supply Method Manufacture, the scheduler will generate a Manufacturing order instead of a supplier order.

You can also set multiple quantities in the reordering rules. If you set a multiple quantity of 3 the system will propose procurement of 15 pieces, and not the 13 it really needs. In this case, it automatically rounds the quantity upwards.

Note:

Maximum Quantity

Pay attention to the fact that the maximum quantity is not the maximum you will have in stock. If we take the following situation: a company has 10 pieces of product with minimum stock rules defined for this product by Min quantity = 10, Max quantity = 30 and Qty multiple = 12. If an order of 2 pieces comes, a purchase of 24 pieces order will be executed. The first 12 pieces will be ordered to reach the minimum quantity and the other 12 to reach the maximum quantity. At the end, the stock of this product will be equal to 32 pieces.

In a reordering rule, when you indicate a warehouse, it suggests a stock location by default in that warehouse. You can change that default location when the scheduler completes.

19.2.2 Location

A location is one component of the warehouses that is used to manage all types of storage places, such as at the customer's and production counterparts.

There are different types of locations that allow you to structure your warehouses according to your needs. Locations are structured hierarchically to account for the subdivision of a warehouse into sections, aisles, and/or cupboards. The hierarchical view also enables you to structure virtual locations such as production counterparts.

That gives you a finer level of analysis. Go to the menu *Warehouse → Configuration → Locations*, then click Create to define new locations.

Figure 19.4: Defining a new Stock Location

Here are the different available types of locations:

- **Supplier Location:** virtual location representing the source location for products received from suppliers,
- **View:** shows that the location is only an organizational node for the hierarchical structure, and cannot be involved in stock moves itself. The view type is not made into a leaf node in a structure – it usually has children.
- **Internal Location:** physical location inside your own stock,
- **Customer Location:** virtual location representing the destination for products sent to customers,
- **Inventory:** virtual location serving as the counterpart for inventory operations used to correct stock levels (physical inventories),
- **Procurement:** virtual location serving as temporary counterpart for procurement operations when you do not yet know the source (supplier or production). Products in this location should be zero after the scheduler run completes,
- **Production:** virtual counterpart location for production operations; consuming raw material and sending finished products,
- **Transit Location for Inter-Companies Transfers:** used as an intermediate location in a multi-company environment.

You can have several locations of the same type. In that case, your product, supplier and warehouse configurations determine the location that is to be used for any given operation.

Location Addresses

Each location can have a specific address that enables you to create a location for a customer or a supplier, for example. You can then give it the address of that customer or supplier. Go to the partner form to tell OpenERP it should use this location rather than the default location given to partner deliveries.

Tip:

Subcontracting Production

You will see in the chapter Manufacturing that it is possible to assign a location to a manufacturing workcenter. If this location is at a supplier's, you must give it an address so that OpenERP can prepare a delivery order for the supplier and a receive operation for the manufactured goods. Creating a location specifically for a partner is also a simple solution for handling consigned stocks in OpenERP.

Note:

Consigned Stock

Consigned stock is stock that is owned by you (valued in your accounts), but is physically stocked by your supplier. Or, conversely, it could be stock owned by your customer (not valued by you), but stocked in your company. Make sure that you create consignment locations as part of your internal stock.

To enable you to easily consolidate at a higher level, the location definition is hierarchical. This structure is given by the field Parent Location. That also enables you to manage complex cases of product localization.

For example, you could imagine the following scenario: **One Company with Two Warehouses**

A company has a warehouse in Paris and in Bordeaux. For some orders, you have to deliver the products from Paris, and for others from Bordeaux. But you should also specify a fictitious warehouse that OpenERP uses to calculate whether it should deliver products from Paris or from Bordeaux. To do this in OpenERP, you would create a third warehouse 'France' which consolidates the warehouses in Paris and Bordeaux. You create the following physical locations:

- Company
 - Output
 - * Warehouses France
 - Warehouse Paris
 - Warehouse Bordeaux

OpenERP will then deliver the goods from the warehouse that has the ordered product in stock. When products are available in several warehouses, OpenERP will select the nearest warehouse. To formalize the notion of distance between warehouses you should use the geographic co-ordinates (X, Y, Z) of the different stores to enable OpenERP to search for the nearest goods. The same co-ordinates could also be used to structure the shelves, aisles and interior rooms in a warehouse.

Linked Locations

Locations in OpenERP can be linked between each other to define paths followed by products. So you can define rules such as: all products that enter the warehouse should automatically be sent to quality control. The warehouse and quality control are represented by two different locations.

Then when a product arrives in a location, OpenERP can automatically suggest that you send the product to another linked location. Three link modes are available:

- Manual Operation,

- Automatic Move,
- Automatic No Step Added.

The *Manual Operation* mode will create an internal move order to the linked location once products arrive in the source locations. This order will wait for a confirmation of the move by a user. This enables you to have a list of moves to do, proposed by the system and confirmed by the storesperson.

The *Automatic Move* mode will do the same, but will not wait for a confirmation from the user. Products will automatically be sent to the linked location without any intervening manual operation to do. This corresponds to the case where, for simplicity, you delete a step in the process so the end user can set off the process automatically.

The *Automatic No Step Added* mode will not include the additional stock move, but will change the destination move transparently to assign the linked location. You could then assign a destination location to which you send all the products that arrive in your warehouse. The storesperson will modify the goods receipt note.

Tip:

Product Logistics

The module stock_location lets you generate paths to follow, not just at the level of locations, but also at the level of products. It then enables you to manage default locations for a given product or to refer to the products as a function of operations such as quality control, supplier receipt, and after-sales service.

A more detailed explanation of this module, with examples, is given at the end of this chapter.

If there is linking to do, the **Chained Location Type** field allows you to determine the destination location. If the field is set to ‘Customer’, the location is given by the properties of the partner form. If the field is set to *fixed*, the destination location is given by the field **Chained Location If Fixed**.

Some operations take a certain time between order and execution. To account for this lead time, you can set a value in days in the field **Chaining Lead Time**. Then the extra move (automatic or not) will be carried out several days after the original move. If you use the mode *Automatic No Step Added*, the lead time is inserted directly into the initial order. In this way, you can add security lead times at certain control points in the warehouse.

Structuring Locations

In the next part, you will see that by linking locations you can manage a whole series of complex cases for efficient production management:

- Handling multiple operations for a customer order,
- Tracking import and export by sea transport,
- Managing a production chain in detail,
- Managing rented products,
- Managing consigned products.

To show these concepts, different cases of structuring and configuring these locations are given below. Many other configurations are possible according to company needs.

Examples:

- **Handling customer orders**

Customer orders are usually handled in one of two ways:

- item note (or preparation order), confirmed when the item is ready to send,
- delivery order (or freight note), confirmed when the transporter has delivered the item to a customer.

You use the following stock move in OpenERP to simulate these operations:

- Packing Note: Stock > Output,
- Delivery Order: Output > Customer.

The first operation is automatically generated by the customer order. The second one is generated by the stock management, showing that the Output location is linked to the Customer location. The two operations will be displayed in *Waiting* status. If the Output location is not situated beneath the stock location, you then have to move the item from stock to the place where the item is prepared.

Some companies do not want to work in two steps, because it just seems like extra work to have to confirm a delivery note in the system. You can then set the link mode to ‘Automatic’ to make OpenERP automatically confirm the second step. It is then assumed all the items have automatically been delivered to the customer.

- **Linked production**

The `stock_location` module enables you to manage the linkages by product in addition to doing that by location. You can then create a location structure that represents your production chain by product.

The location structure may look like this:

- Stock
 - Level 1
 - Level 2
 - * Link 1
 - Operation 1
 - Operation 2
 - Operation 3
 - Operation 4

You can then set the locations a product or a routing must go through in the relevant form. All products that enter the production chain will automatically follow the predetermined path. You can see the location structure using *Warehouse → Inventory Control → Location Structure*.

19.2.3 Shop

The counterparts for procurement, inventory and production operations are given by the locations shown in the product form. The counterparts of reception and delivery operations are given by the locations shown in the partner form. The choice of stock location is determined by the configuration of the warehouse, linked to a Shop, which can be defined using *Sales → Configuration → Shop*.

Once a shop is defined, you will be able to make sales orders from this shop. You need at least one shop in order to be able to make sales orders.

19.2.4 Stock

In the Product form, the `Stock by Location` action will give you the stock levels of the various products in any selected location. If you have not selected any location, OpenERP calculates stocks for all of the physical locations. When you are in the Stock by Location view, click the Print button to print the Location Content or the Location Inventory Overview reports.

Note:

Availability of Stock

Depending on whether you look at the product from a customer order, or from the menu of a product form, you can get different values for stock availability. If you use the Product menu, you get the stock in all of the physical stock locations. Looking at the product from the order you will only see the report of the warehouse selected in the order.

In this respect, two important fields in the product form are:

- Real Stock: Quantity physically present in your warehouse,
- Virtual Stock: Calculated as follows: real stock – outgoing + incoming.

Note:

Virtual Stock

Virtual stock is very useful because it shows what the salespeople can sell. If the virtual stock is higher than the real stock, this means products will be coming in. If virtual stock is smaller than real stock, certain products are reserved for other sales orders or work orders.

Tip:

Detail of Future Stock

To get more details about future stock, you can find Stock Level Forecast option in the Print button at the top center of the product form. It will show the report Forecast Stock Levels as illustrated below. OpenERP shows a graph of the changes in stock in the days to come, varying as a function of purchase orders, confirmed production and sales orders.

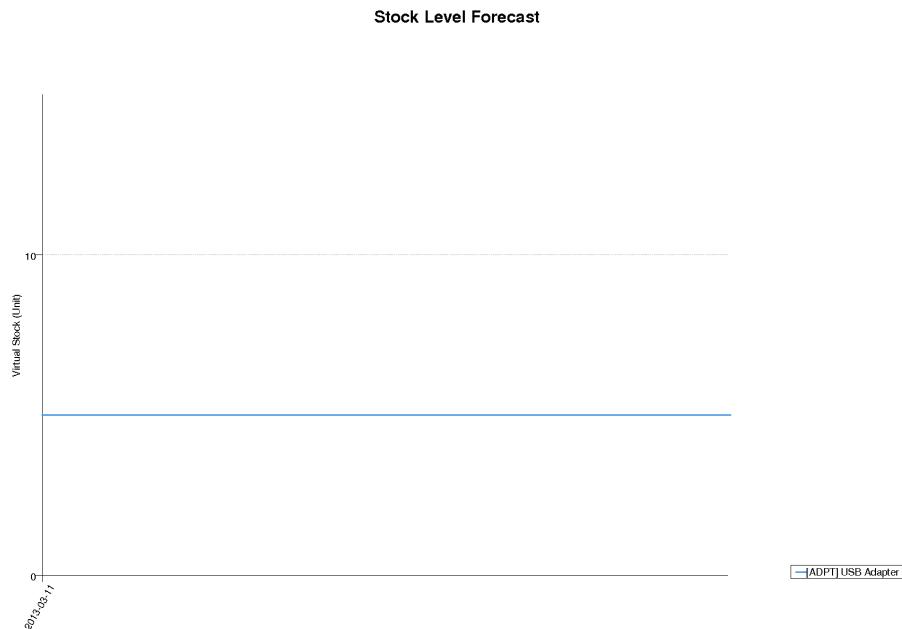


Figure 19.5: Printout of forecast stock levels

Tip:

Filter Stock by Location

By default, in Product list view, the columns Real Stock and Virtual Stock show the stock figures for all stock locations where a product is stored. Use the Extended Filters to enter a specific stock location, if you want to only see the stock in a specific location.

Lead Times and Locations

The tab **Procurement** in the Product form contains information about Manufacturing lead time:

- **Manufacturing Lead Time:** lead time, in days, between a production order and the end of production of the finished product,

The tab **Sale** in the Product form contains information about Warranty and Customer Lead Time:

- **Warranty:** length of time in months for the warranty of the delivered products.
- **Customer Lead Time:** lead time promised to the customer, expressed in number of days between the order and the delivery to the customer.

Note:

Warranty

The warranty period is used in the Repairs management and after-sales service. You can find more information on this subject in the chapter Manufacturing.

The tab **Inventory** in the Product form contains information about Locations:

- **Storage Localisation :** for information only; they do not have any impact on the management of stock.
- **Counter-Part Locations Properties :** automatically proposed by the system, but the different values can be modified. You will find counterpart locations for:
 - **Procurement :** This stock location will be used, instead of the default one, as the source location for stock moves generated by procurements,
 - **Production :** This stock location will be used, instead of the default one, as the source location for stock moves generated by manufacturing orders ,
 - **Inventory :**This stock location will be used, instead of the default one, as the source location for stock moves generated when you do an inventory.

A procurement location is a temporary location for stock moves that have not yet been finalized by the scheduler. When the system does not yet know if procurement is to be done by a purchase or production, OpenERP uses the counterpart location Procurement. In this location, you will find everything that has not yet been planned by the system. The quantities of product in this location cancel each other out.

Initial Inventory

Once a product has been defined, use an initial inventory operation to put current quantities into the system by location for the products in stock. Go to the menu *Warehouse → Inventory Control → Physical Inventories* to do your initial inventory.

Location	Product	Quantity	Product Unit of Measure	Serial Number
Physical Locations / Your Company / Stock / Shelf 2	[PCSC234] PC Assemble SC234	14.000	Unit(s)	
Physical Locations / Your Company / Stock / Shelf 2	[CARD] Graphics Card	16.000	Unit(s)	
Physical Locations / Your Company / Stock / Shelf 2	[LAP-E5] Laptop E5023	16.000	Unit(s)	
Physical Locations / Your Company / Stock / Shelf 2	[PC-DEM] PC Assemble + Custom (PC on Demand)	8.000	Unit(s)	
Physical Locations / Your Company / Stock / Shelf 1	[LCD17] 17" LCD Monitor	18.000	Unit(s)	
Physical Locations / Your Company / Stock / Shelf 1	[LCD15] 15" LCD Monitor	10.000	Unit(s)	
Physical Locations / Your Company / Stock / Shelf 1	[KeyA] USB Keyboard, AZERTY	22.000	Unit(s)	
Physical Locations / Your Company / Stock / Shelf 1	[M-Opt] Mouse, Optical	8.000	Unit(s)	
Physical Locations / Your Company / Stock / Shelf 1	[M-Las] Mouse, Laser	26.000	Unit(s)	

Figure 19.6: Defining a New Inventory Operation

Give a name (for example Initial Inventory or Lost Product XYZ) and a date (proposed by default) for each inventory operation.

You have three ways of doing an inventory.

- Click the Fill Inventory button at the top right side of the form view and select the location concerned. You can choose to include child locations and set the inventory to zero (especially useful to ensure the count is done correctly).
- You can update the inventory from the Product form. Go to the Inventory tab, Stock and Expected Variations section, and click on the Update. On confirmation, OpenERP will create a Physical Inventory.
- You can manually add inventory lines. You can then enter data about the quantities available for each product by location. Start by entering the location, for example Stock , and then select the product. OpenERP automatically completes the quantity available for that product in the location shown. You can then change that value to correct the value in stock.

Enter data for a single line in your inventory:

- Location : Stock,
- Product : PC1 Basic PC,
- Quantity : 23 Units.

When your inventory operation is finished, you can confirm it using the Confirm Inventory button on the form. OpenERP will then automatically create the stock moves to close the gaps, as mentioned at the start of this chapter. You can verify the moves generated using the Posted Inventory tab of the inventory operation form.

The correct levels of your product are now in your stock locations. A simple way of verifying this is to reopen the product form to see the quantities available in stock.

Tip:

Periodical Inventory

You are usually legally required to do a stock check of all your products at least once a year. As well as doing a complete annual stock check, OpenERP also supports the method of periodical inventory.

That means you can check the stock levels of a proportion of your products every so often. This system is accepted in France as long as you can guarantee that all of your products have been counted at least once per year. To see the last inventory count per product, use the report Reporting → Warehouse → Last Product Inventories.

You can do this the same way for all products and all locations, so you only carry out small inventory operations through the year, rather than a single large stock check at one point in the year (which usually turns out to be at an inconvenient time).

19.3 Keeping Track of Stock Movements

19.3.1 Goods Receipts

In OpenERP, you have the choice between three ways to receive goods from suppliers.

The first method is to manually enter the information in the incoming shipment. To receive the products through this method, you have to go to *Incoming Shipments* section (Warehouse -> Receive/Deliver by Orders ->

Incoming Shipments), click Create and then you enter the information about the receipt.

Product	Quantity	Unit of Measure	Product UOS	Serial Number	Pack	Destination Location	Status
[C-Case] Computer Case	1.000	Unit(s)				Physical Locations / Your Company / Stock	New
[CPU] Processor AMD 8-Core	1.000	Unit(s)				Physical Locations / Your Company / Stock	New

Figure 19.7: Manual Data Entry for Product Receipt

The second method is to receive products from a generated incoming shipment. To achieve the reception using this method, you have to go to *Incoming Shipments* section. You will find the list of waiting incoming shipments.

The third method is to receive products by waiting products without looking at the shipment document. You can validate the reception by products in *Warehouse → Receiver/Deliver Products → Incoming Products*. With this method, you will be able to receive one product, regardless of the document which is attached to this product.

Receipt of a Supplier Order by Purchase Order

If you use Purchase Orders in OpenERP, product receipts are automatically generated by the system when the purchase order is confirmed. You do not have to enter any date, just confirm that the quantities ordered match the quantities received.

Incoming Shipments forms are automatically prepared by OpenERP from the purchase management process. You will find a list of all the awaited receipts in the menu *Warehouse → Receive/Deliver By Orders → Incoming Shipments*. Use the order number or the supplier name to find the right goods receipt form for confirmation of a goods-in. This approach enables you to control quantities received by referring to the quantities ordered.

Reference	Supplier	Back Order of	Source Document	Time	Scheduled Time	Invoice Control	Stock Journal	Invoice Type	Status
IN/00001	China Export		PO00002	03/10/2013 05:30:00	03/12/2013 05:30:00	To Be Invoiced			Ready to Receive
IN/00002	Vicking Direct		PO00006	03/10/2013 05:30:00	03/10/2013 05:30:00	Not Applicable			Ready to Receive
INT/00003	Your Company		OP/00008:Receive from Warehouse	03/10/2013 10:56:42	03/10/2013 10:56:42	Not Applicable			Cancelled
INT/00008	Your Company		OP/00008:Receive from Warehouse	03/10/2013 20:12:42	03/10/2013 20:12:42	Not Applicable			Received
INT/0010	Your Company		SO018:Receive from Warehouse	03/11/2013 06:38:31	03/11/2013 06:38:31	Not Applicable			Ready to Receive

Figure 19.8: Incoming Shipments from Purchase management

You can also do goods-in data entry manually if there is no order, in Incoming Shipments menu by clicking the *Create* button.

A new goods-in data entry form opens. Enter the supplier in the *Supplier* field and type the reference number from your supplier in the field *Source Document*.

Now in Product tab, click on Add an item and select Product & quantity. In that form the source location is already completed by default because of your supplier selection. You should then give the destination location where you

will place the products. For example, enter Stock. At this stage, you can set a Serial number for traceability (this function will be described later in this chapter, so leave this field empty for the moment).

Once the form has been completed, you can click on *save* button & close that wizard.

Now in *Additional info* tab, You can select the Delivery method either partial or All at once. Confirm this incoming shipment.

Next go to Incoming Products, in list view you will find your created incoming shipment, open that order, you can find buttons on that form, *Process Partially* and *Process Entirely*. (*Process Partially* button available only if you have select delivery method partially in *Additional info* tab of Incoming shipment)

If you click , the wizard open and seems like following figure, for example 18 quantity of Datacard product,

Product	Quantity	Location	Dest. Location	Serial Number	Cost
[DC] Datacard	18.000	Partner Locations / Suppliers	Physical Locations / Your Company / Stock		

Validate or Cancel

Figure 19.9: Confirm partial reception

After doing of partial process (example 9), another object will be generated with a back order reference equal to the Reference number of the incoming shipment already confirmed. Now you can find in list view of Incoming product seems like following figure,

03/12/2013	Your Company	[DC] Datacard	9.000	Available
03/12/2013	Your Company	[DC] Datacard	9.000	Done

Figure 19.10: Process a Partial Incoming Shipment

Once the rest of the order has arrived and has been processed, both orders will be merged.

Product	Quantity	Product UOS	Serial Number	Pack	Status
[DC] Datacard	9.000				Done
[DC] Datacard	9.000				Done

Figure 19.11: Form for Entering Goods received from a Supplier Order

The products then arrive in stock and should reflect the quantities shown on the product form.

In the *Incoming Shipments* form, the field *Invoice Control* lets you influence the way you send invoices to suppliers. If this is set to To be invoiced, a supplier invoice will now be generated automatically in the draft state, based on the goods received. Your accountant then has to confirm this pre-invoicing once the supplier's invoice is received. This enables you to verify that the invoiced quantities correspond to the quantities received.

Tip:

Print the Picking Slip

In order to print the picking Slip of an incoming shipment, select the incoming shipment of which you need the details and click Receipt Slip from the Print button at the top center of the screen.

This Delivery Slip is available in the Internal Moves and Delivery Orders sections.

In case you received damaged or wrong products, you can return them to the supplier. In the Incoming shipment form, click the Return Products button. A window will open that lets you choose the invoicing process to follow. Once you click Process, a stock move is generated with the same reference number and return to specify that this is a return move.

Receive from Warehouse	IN/00009	OP/0008:Receive from Warehouse	Getting Goods	[KeyA] USB Keyboard, AZERTY	20.000	Unit(s)			Partner Locations / Internal Shipments	Physical Locations / Your Company, Chicago shop	03/13/2013 10:51:59	03/12/2013 22:49:28	Done
Deliver Shop	INT/0004	OP/0008:Deliver Shop	Sending Goods	[KeyA] USB Keyboard, AZERTY	20.000	Unit(s)			Physical Locations / Your Company / Stock / Shelf 1	Partner Locations / Internal Shipments	03/16/2013 05:30:00	03/12/2013 22:49:28	Available
Receive from Warehouse	OUT/00012- IN/0009-return	OP/0008:Receive from Warehouse	Sending Goods	[KeyA] USB Keyboard, AZERTY	20.000	Unit(s)			Physical Locations / Your Company, Chicago shop	Partner Locations / Internal Shipments	03/13/2013 11:13:05	03/12/2013 22:49:28	Available
MO/0003	False	:MO/0003	Internal	[HDD-SH1] HDD SH-1	3.000	Unit(s)			Physical Locations / Your Company / Stock / Shelf 1	Physical Locations / Your Company / Stock	03/13/2013 00:45:39	03/12/2013 22:49:26	Done

Figure 19.12: Stock Move for Returned Products

Receipt of a Supplier Order by Product

The approach shown above is very useful if goods receipts correspond to the original orders. If your suppliers deliver items that do not necessarily coincide with the orders, however, it is easier to work by products received rather than by orders.

From this version on, you can also handle receptions by product, even from List view. Go to *Warehouse → Receiver/Deliver Products → Incoming Products*.

Filters allow you to easily select receipts to be done, and so on. One way to quickly receive products is to Group by Product, ‘Picking’, etc and select To Do.

This is very useful functionality when your supplier sends the goods for several purchase orders at a time. You can now just receive the products, regardless of the purchase order they come from, simply by clicking the green arrow at the right side of the screen.

The List view offers great flexibility and allows you to rapidly incoming products by keeping full functionality! Of course, you can handle both partial and complete receptions, and you can add information about the Serial Numbers and packs.

★ Incoming Products										
<input style="background-color: red; color: white; padding: 2px 10px; margin-right: 10px;" type="button" value="Create"/> or Import										
Group	Date	Source	Supplier	Product	Quantity	Unit of Measure	Serial Number	Pack	Status	
▼ [ADPT] USB Adapter (2)					20.000					
	03/13/2013	Your Company	[ADPT] USB Adapter	10.000	Unit(s)				New	
▼ [GRAPS/w] GrapWorks Software (1)	03/13/2013	Your Company	[ADPT] USB Adapter	10.000	Unit(s)				Done	
				4.000						
▼ [INK] Ink Cartridge (1)	03/13/2013	P000006 Vicking Direct	[GRAPS/w] GrapWorks Software	4.000	Unit(s)				Done	
				9.000						
▼ [KeyA] USB Keyboard, AZERTY (1)				20.000						
▼ [MM-SPK] Multimedia Speakers (3)				40.000						
▼ [PD-SP2] Pen drive, SP-2 (1)				12.000						
▼ [TONER] Toner Cartridge (1)				3.000						

Figure 19.13: Incoming Products Group By Product

This can be also accomplished from Form view.

19.3.2 Internal Stock Moves

You should install the `stock_location` module (from the list of modules) if routing products to customers, from suppliers or in your warehouse is determined by the identity of the product itself.

The screenshot shows the 'Product' form in Odoo. It displays two sections: 'Push Flow' and 'Pull Flow'. The 'Push Flow' section contains one item: 'Physical Locations / Your Company / Order Processing' as the source location, 'Physical Locations / Your Company' as the destination location, 'Automatic Move' as the move type, 'Truck Transport in to stock' as the operation, and 'Invoiced' as the invoice status. The 'Company' field is set to 'OpenERP IN'. The 'Pull Flow' section contains one item: 'Flow from Customer' as the name, 'Physical Locations' as the destination location, 'Move' as the type of procurement, 'Delivery Orders' as the journal, and 'Your Company' as the company. There is also a link to 'Edit' for this row.

Name	Destination Location	Type of Procurement	Journal	Company	Edit
Flow from Customer	Physical Locations	Move	Delivery Orders	Your Company	
Add an item					

Source Location	Destination Location	Automatic Move	Operation	Invoice Status	Company	Edit
Physical Locations / Your Company / Order Processing	Physical Locations / Your Company	Automatic Move	Truck Transport in to stock	Invoiced	OpenERP IN	
Add an item						

Figure 19.14: Managing the Paths from one Location to Another in a Product Form (In Inventory tab)

This will let you configure logistics rules individually for each product. For example, when a specific product arrives in stores, it can automatically be sent to quality control. In this case, it has to be configured as a Push Flow with rules in the Product form. The fields that make up those rules are:

- **Source Location:** the rule only applies if a product comes from this location,
- **Destination Location:** the rule only applies if a product ends up in this location,
- **Automatic Move:** Automatic Move, Manual Operation, Automatic No Step Added,
- **Delay (days),**
- **Operation:** a free text field which will be included in the automatic stock move proposed by OpenERP.

There are two main logistic flows:

- **Push Flow**
- **Pull Flow**

Push flows are useful when the arrival of certain products in a given location should always be followed by a corresponding move to another location, optionally after a certain delay. The original Warehouse application already supports such Push flow specifications on the Locations themselves, but these cannot be refined per product. *Pull* flows are a bit different from Push flows, in the sense that they are not related to the processing of product moves, but rather to the processing of procurement orders. What is being pulled is a need, not directly products. You will now see some examples of using these locations and logistics by product through Pushed Flows for:

- A rentable product,
- A product bought in China, following its freight by ship from port to port,
- A product that you want to send to quality control before putting it in stocks.

We will develop the third scenario: **the quality control**.

You can configure the system to put a given product in the Quality Control bay automatically when it arrives in your company. To do that, you just configure a rule for the product to be placed in the Quality Control location rather than the Input location when the product is received from the supplier.

Table 19.8: Rule to Move Products manually from Input to Quality Control

Field	Value
Source location	Stock
Destination location	Quality Control
Automatic Move	Manual Operation
Shipping Type	Getting Goods
Delay (days)	0
Operation	Quality Control

Once this product has been received, OpenERP will automatically manage the request for an internal movement to send it to the Quality Control location. If you want to do this automatically without having to confirm it, in the Automatic Move field, select *Automatic Move* or *Automatic No Step Added*.

With the configuration described in the table above, you will have to confirm the stock move manually once you have received the goods.

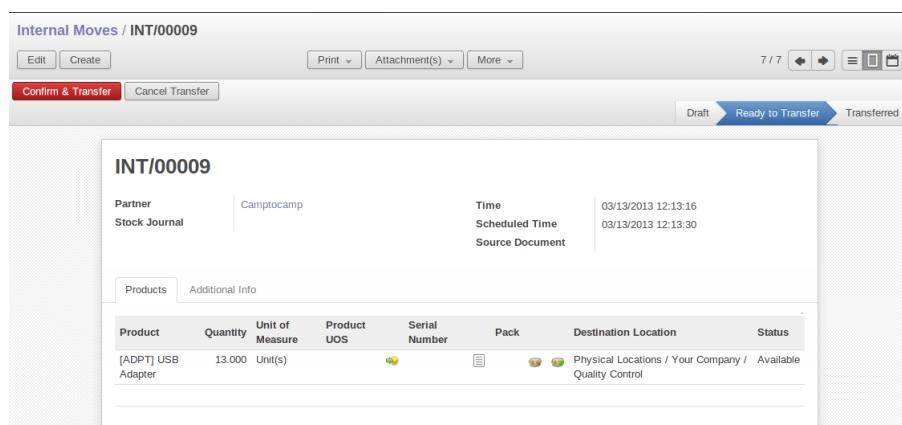


Figure 19.15: Manual Stock Move to Quality Control

If you do not want to confirm the stock move manually, but you want to see the move *Suppliers* → *Stock* then *Stock* → *Quality Control*, change the Automatic Move field and select *Automatic Move*. With this configuration, you will see the two stock moves.

[CARD] Graphics Card	INT/00013	Internal	[CARD] Graphics Card	10.000	Unit(s)		Physical Locations / Your Company / Stock	03/13/2013	03/13/2013	Done
[CARD] Graphics Card	INT/00012	Internal	[CARD] Graphics Card	10.000	Unit(s)		Physical Locations / Your Company / Stock	03/13/2013	03/13/2013	Done

Figure 19.16: Automatic Stock Move to Quality Control

If you select Automatic Move No Step Added, you will only see one stock move: *Suppliers* → *Quality Control*

[CARD] Graphics Card	INT/00014	Internal	[CARD] Graphics Card	10.000	Unit(s)		Physical Locations / Your Company / Quality Control	03/13/2013	03/13/2013	Available
----------------------	-----------	----------	----------------------	--------	---------	--	---	------------	------------	-----------

Figure 19.17: Automatic Stock Move to Quality Control (No Step Added)

19.3.3 Shipping of Goods

In the same way as delivering goods, you can ship goods in three different ways:

- manually enter data,
- deliver goods according to a sales order,

- deliver goods by product.

Everything about goods receipt can also be done manually in the same way for a customer delivery. This time, use the automated product delivery processes based on customer orders. Install the `sale` module, so that you can proceed further in this section of the chapter.

Now create a new sales order from the menu *Sales* → *Sales* → *Sales Orders*. Enter the following data in this order:

- *Shop* : Your Company
- *Customer* : Agrolait
- *Order lines* :
 - *Product* : [DC] Data Card,
 - *Quantity (UoM)* : 3,
 - *Product UoM* : Unit(s),
 - *Procurement Method* : from stock.

You have already seen that OpenERP shows the available product stock in list view. The real stock is equal to the virtual stock because you have nothing to deliver to customers and you are not waiting for any of these products to be received into stock. The salesperson then has all the information needed to take orders efficiently.

The screenshot shows the 'Sales Orders / SO022' interface. At the top, there are buttons for 'Save' or 'Discard', 'Send by Email', 'Print', 'Confirm Sale', and 'Cancel Quotation'. To the right, there are navigation buttons for 'Draft Quotation', 'Quotation Sent', 'Sales Order', and 'Done'. The main area is titled 'Quotation SO022'. It contains fields for 'Customer' (Agrolait), 'Invoice Address' (Agrolait), 'Delivery Address' (Agrolait), 'Date' (03/13/2013), 'Shop' (Your Company), 'Customer Reference', and 'Pricelist' (Public Pricelist (EUR)). Below this, there are tabs for 'Order Lines' and 'Other Information'. The 'Order Lines' tab shows a single item: a Data Card with a quantity of 3.000. The 'Other Information' tab shows totals: Untaxed Amount: 120.00 €, Taxes: 0.00 €, and Total: 120.00 €.

Figure 19.18: Entering an Order for Three Data Card

Then confirm the quotation to convert it to an order. If you return to the product form, you will see the virtual stock is now smaller than the real stock.

Start the scheduler through the menu *Warehouse* → *Schedulers* → *Run Schedulers*. Its functionality will be detailed in *ch-mnf*. This manages the reservation of products and places orders based on the dates promised to customers, and the various internal lead times and priorities. Three products will be reserved in the order that you created, so they cannot be sold to another customer.

Tip:

Just in Time

Install the module `mrp_jit` to schedule each order in real time after it has been confirmed. This means that you do not have to start the scheduler or wait for its periodical start time.

Now have a look at the list of deliveries waiting to be carried out using the menu *Warehouse* → *Receiver/Deliver By Orders* → *Delivery Orders*. You find a line there for your order representing the items to be sent.

Double-click the line to see the detail of the items proposed by OpenERP.

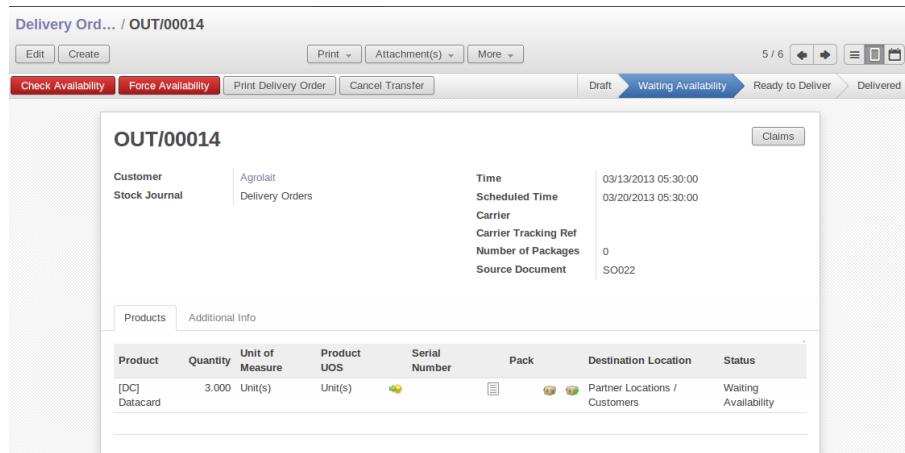


Figure 19.19: Items on a Customer Order

You can also confirm a customer delivery from a confirmed Sales Order. When you click the *Process* button of *Outgoing Deliveries*, a window opens where you can enter the quantities actually delivered. If you enter a value less than the forecasted one, OpenERP automatically generates a partial delivery note and a new order for the remaining items. For this exercise, just confirm all the products.

However, if you want to look at a partial shipping, an example will be developed at the end of this section.

If you return to the list of current orders, you will see that your order has now been marked as Done.

★ Sales Orders						
Create or Import		Date	Customer	Salesperson	Total	Invoice Type
<input type="checkbox"/>	Order Number	03/13/2013	Agrolait	Administrator	120.00	Daily Invoicing
<input type="checkbox"/>	SO022					Done
<input type="checkbox"/>	SO018	03/13/2013	Angel Cook (Chamber Works)	Administrator	700.00	Daily Invoicing
<input type="checkbox"/>	SO007	03/13/2013	Luminous Technologies	Administrator	14981.00	Sale to Invoice

Figure 19.20: List of Orders with their State

Note:

Negative Stock

Stock Management is very flexible to be more effective. For example, if you forget to enter products at goods-in, this will not prevent you from sending them to customers. In OpenERP, you can force all operations manually using the button Force Availability. In this case, your stocks risk to become negative. You should monitor all stocks for negative levels and carry out an inventory correction when that happens.

Partial Shipping

Should you have to process a partial delivery, you can go to *Warehouse → Receiver/Deliver By Orders → Delivery Orders*, then select the order to process it. In the new window, change the quantity to ship and then confirm it.

If you go back to the list view, you will now see a new delivery order with a back order number equal to the just confirmed order. This is illustrated in the following figure.

<input type="checkbox"/>	OUT/00019	Delta PC	SO026	03/20/2013 05:30:00	03/13/2013 05:30:00	OUT/00018	Delivery Orders	Not Applicable	Daily Invoicing	Ready to Deliver
<input type="checkbox"/>	OUT/00018	Delta PC	SO026	03/20/2013 05:30:00	03/13/2013 05:30:00		Delivery Orders	Not Applicable	Daily Invoicing	Delivered

Figure 19.21: Partial Shipping

In the stock moves, you will see that there are two moves. The first move is for the remaining quantities to ship and the second one is for the shipped goods. There will be more stock moves if you process partial shipping in

more than two times.

[CARD] Graphics Card	OUT/00019	SO026	Sending Goods	[CARD] Graphics Card	4.000	Unit(s)	Unit(s)				Physical Locations / Your Company / Stock	Partner Locations / Customers	03/20/2013 05:30:00	03/20/2013 05:30:00	Available	
[CARD] Graphics Card	OUT/00018	SO026	Sending Goods	[CARD] Graphics Card	6.000	Unit(s)	Unit(s)				Physical Locations / Your Company / Stock	Partner Locations / Customers	03/13/2013 15:04:43	03/20/2013 05:30:00	Done	

Figure 19.22: Stock Moves in Partial Shipping

Return Products from Customers

If a customer returns damaged or wrongly delivered products, you can enter this information in OpenERP via *Warehouse → Receiver/Deliver By Orders → Delivery Orders*.

You have to select the order related to the returned products and click the *Return Products*. A new window will open and will let you choose the invoicing method.

Moves	Product	Serial Number	Quantity
	[CARD] Graphics Card		6.000
	Add an item		
Invoicing	No invoicing		

Return or Cancel

Figure 19.23: Return Products from Customers

When the product is returned, it will go back to your stock and you will see a stock move.

[CARD] Graphics Card	IN/00017-OUT/00018-return	SO026	Getting Goods	[CARD] Graphics Card	6.000	Unit(s)	Unit(s)				Partner Locations / Your Customers	Physical Locations / Your Company / Stock	03/13/2013 15:19:11	03/20/2013 05:30:00	Available	
----------------------	---------------------------	-------	---------------	----------------------	-------	---------	---------	--	--	--	------------------------------------	---	---------------------	---------------------	-----------	--

Figure 19.24: Stock Move for a Returned Product

Just In Time

By default, scheduling starts automatically once a day. You should make this scheduling execute overnight to ensure that the system does not slow down under a heavy load of scheduling when you are also trying to use it interactively.

To set the start time for the scheduler, go to the menu *Setting → Technical → Scheduler → Scheduled Actions*. Select the rule called ‘Run mrp scheduler’ and modify the date and time of the next execution.

Some companies want to plan orders progressively as they are entered, so they do not wait until procurement orders are planned the next day. Install the module `mrp_jit` to handle this. Once the module is installed, each requirement (that could result in a Production or Purchase Order) will be planned in real time as soon as it has been confirmed.

Then if you make a sales order with a product that is `Make To Order`, the quotation request to a supplier will immediately be generated.

This mode does not always make sense. Each order is processed immediately when confirmed. So if an order is to be delivered in three months, the scheduler will reserve goods in stock for each order once it has been confirmed. It would have been more sensible to leave these products available for other orders.

If a Purchase Order's *Invoicing Control* is configured *From Order*, the scheduler will immediately create the corresponding supplier quotation request. It might have been better to delay it for several weeks, if you could have used the lead time to group the purchase with other future orders.

So the negative effects of working with the Just in Time module are:

- Poor priority management between orders,
- Additionally stocked products.

19.3.4 Logistics Configuration through Advanced Routes

To configure your logistics for advanced push and pull, you need to install `stock_location` module as explained before. A complete scenario will be developed at the end of this chapter.

This module supplements the *Warehouse* application by adding support for location paths per product, effectively implementing Push and Pull inventory flows.

Typically this could be used to:

- Manage product manufacturing chains,
- Manage default locations per product,
- Define routes within your warehouse according to business needs, such as:
 - Quality Control
 - After Sales Services
 - Supplier Returns
- Help rental management, by generating automated return moves for rented products.

Once this module is installed, an additional *Logistics Flows* tab appears in the *Product* form, allowing you to add *Push and Pull* flow specifications.

Push Flow

Push flows are useful when the arrival of certain products in a given location should always be followed by a corresponding move to another location, optionally after a certain delay.

Note:

Product

The core Warehouse Management application already supports such Push Flow specifications on the Locations, but these cannot be refined per product.

A push flow specification indicates which location is chained with another location, as well as the parameters used. As soon as a given quantity of products is moved to the source location, a chained move is automatically foreseen according to the parameters set on the flow specification (destination location, delay, type of move, journal, etc.) The new move may be processed automatically, or may require a manual confirmation, according to what you have defined.

Suppose whenever the demo data product CPUi5 enters the *Stock* location, it first has to be moved to the *Quality Control* location in order to check the quality.

Look up the product CPUi5 using the menu *Warehouse → Products → Products*.

To have OpenERP accomplish this move automatically, you have to configure the *Push* flow as follows:

- *Operation:* Receptions to Quality Control
- *Source Location:* Stock
- *Destination Location:* Quality Control

- **Automatic Move:** Automatic No Step Added
- **Delay (days):** 1
- **Shipping Type:** Getting Goods
- **Invoice Status:** Not Applicable

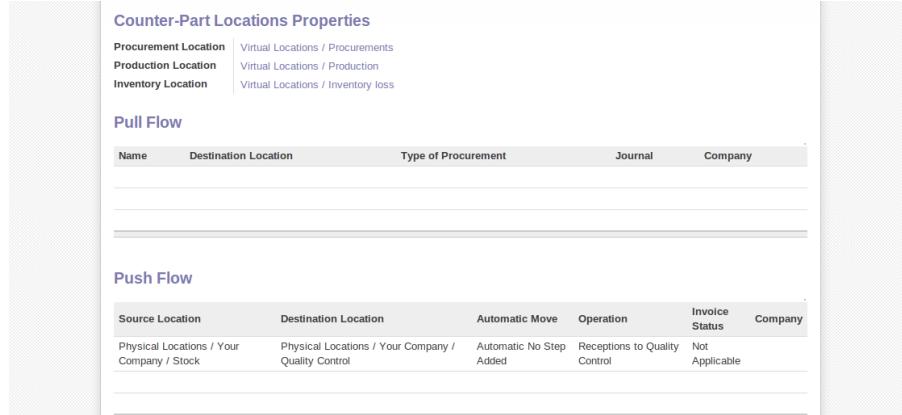


Figure 19.25: *Push Flow Specification for Product CPUi5*

A push flow is related to how stock moves should be generated in order to increase or decrease inventory.

Pull Flow

Pull flows are a bit different from Push flows, in the sense that they are not related to the processing of product moves, but rather to the processing of procurement orders. What is being pulled is a *need*, not directly products.

A classical example of a Pull flow is when you have an Outlet company, with a parent Company that is responsible for the supplies of the Outlet.

[Customer] <- A - [Outlet] <- B - [Holding] <- C - [Supplier]

Tip:

Demo Data

In our demo data example, the Outlet Company is Your Company Chicago shop, while Your Company is the parent company.

When a new procurement order A (resulting from the confirmation of a Sales Order, for example) is created in the Outlet (Your Company, Chicago shop), it is converted into another procurement B (through a Pull flow of the ‘move’ type) requested from the Holding. When procurement order B is processed by the Holding company (Your Company), and if the product is out of stock, it may be converted into a Purchase Order (C) from the Supplier (Push flow of the ‘Buy’ type). The result is that the procurement order, the need, is pushed all the way between the Customer and Supplier.

Technically, Pull flows allow to process procurement orders differently, not only depending on the product being considered, but also depending on which location holds the “need” for that product (i.e. the destination location of that procurement order).

To explain a pull flow for the product CPUa8, we first have to configure the Reordering rules of CPUa8 for the company Your Company and Your Company, Chicago shop using the menu *Warehouse → Configuration → Reordering Rules*.

Note:

Reordering Rules

If you work with the demo data, these reordering rules have already been defined.

For the company *Your Company*:

- *Min Quantity* : 10
- *Max Quantity* : 50

For the company *Your Company Chicago shop*:

- *Min Quantity* : 10
- *Max Quantity* : 20

Look up the product *CPUa8* using menu *Warehouse → Products → Products* in order to define the configuration of the pulled flow.

Pull Flow					
Name	Destination Location	Type of Procurement	Journal	Company	
Receive from Warehouse	Physical Locations / Your Company, Chicago shop	Move		Your Company, Chicago shop	
Deliver Shop	Partner Locations / Internal Shippings	Move		Your Company	

Push Flow					
Source Location	Destination Location	Automatic Move	Operation	Invoice Status	Company

Figure 19.26: *Pull Flow Specification for Product CPUa8*

There are two specifications of a pull flow for product *CPUa8*.

Specification 1:

- *Name* : Receive from Warehouse
- *Destination Location* : Shop 1
- *Type of Procurement* : Move
- *Source Location* : Internal Shippings
- *Partner Address* : OpenERP S.A., Belgium Gerompont Chaussee de Namur 40
- *Shipping Type* : Getting Goods
- *Procure Method* : Make to Order
- *Invoice Status*: Not Applicable

Specification 2:

- *Name* : Deliver Shop
- *Destination Location* : Internal Shippings
- *Type of Procurement* : Move
- *Source Location* : Stock
- *Partner Address* : Fabien
- *Shipping Type* : Sending Goods
- *Procure Method* : Make to Stock
- *Invoice Status*: Not Applicable

Now sell 1 unit of product CPUa8 from the Your Company Chicago shop (do not forget to confirm your sales order) and run the scheduler using the menu *Warehouse* → *Schedulers* → *Run Schedulers*. Then check the stock moves for product CPUa8 from the menu *Warehouse* → *Traceability* → *Stock Moves*.

★ Stock Moves											
Create or Import											
Description	Reference	Source	Shipping Type	Product	Quantity	Unit of Measure	Product UOS	Serial Number	Pack	Source Location	Destination Location
[CPUa8] Processor	OUT/00020	SO027	Sending Goods	[CPUa8] Processor AMD 8-Core	1.000	Unit(s)	Unit(s)			Physical Locations / Your Company / Stock	Partner Locations / Customers
AMD 8-Core										03/20/2013 05:30:00	03/20/2013 05:30:00 Waiting Availability

Figure 19.27: Stock Move of CPUa8 related to Pull Flow Specification

These moves can be explained like this:

[Customer] <– [Your Company Chicago shop] <– Internal Shippings <– Stock <– [Your Company]

When the company Your Company Chicago shop sells one unit of CPUa8 to a customer, its stock decreases to 10 units. According to the minimum stock rule of the product CPUa8, OpenERP generates a procurement order of 21 units of CPUa8 for the company Your Company Chicago shop (OUT/00020, or another number if you have added extra data). So 21 units of CPUa8 move from Your Company Stock to Your Company Chicago shop according to their internal configuration of Source and Destination Locations.

A pull flow is related to how the procurement process runs in order to find products to increase or decrease inventory.

19.3.5 Procurement Methods – Make to Stock and Make to Order

The procurement method determines how the product will be replenished:

- *Make to Stock*: your customers are supplied from available stock. If the quantities in stock are too low to fulfil the order, a Purchase Order (according the minimum stock rules) will be generated in order to get the products required. Example: a classic distributor.
- *Make to Order*: when a customer order is confirmed, you procure or manufacture the products for this order. A customer order ‘Make to Order’ will not modify stock in the medium term because you restock with the exact amount that was ordered. Example: computers from a large supplier assembled on demand.

You find a mix of these two modes used for the different final and intermediate products in most industries. The procurement method shown on the product form is a default value for the order, enabling the salesperson to choose the best mode for fulfilling a particular order by varying the sales order parameters as needed.

The figures *Change in Stock for a Make to Stock Product* and *Change in Stock for a Make to Order Product* show the change of stock levels for one product managed as *Make to Order* and another managed as *Make to Stock*.

These figures are taken from, product view (In product go to More -> Future Stock Moves)

★ Products / [ADPT] USB... / Future Stock Moves							
Create or Import							
Product	Quantity	Unit of Measure	Product UOS	Serial Number	Pack	Destination Location	Status
[ADPT] USB Adapter	5.000	Unit(s)				Physical Locations / Your Company / Stock	Waiting Availability

Figure 19.28: Change in Stock for a Make to Stock Product

★ Products / [PRINT] Print... / Future Stock Moves							
Create or Import							
Product	Quantity	Unit of Measure	Product UOS	Serial Number	Pack	Destination Location	Status
[PRINT] Printer, All-in-one	1.000	Unit(s)	Unit(s)			Partner Locations / Customers	Waiting Availability

Figure 19.29: Change in Stock for a Make to Order Product

Note:*Logistical Methods*

The Make to Stock logistical approach is usually used for high volumes and when the demand is seasonal or otherwise easy to forecast. The Make to Order approach is used for products that are measured, or very expensive to stock or have a short restocking time.

19.3.6 Choosing Supply Methods

OpenERP supports two supply methods:

- *Manufacture*: when the product is manufactured or the service is supplied from internal resources.
- *Buy*: when the product is bought from a supplier.

These are just the default settings used by the system during automated replenishment. The same product can be either manufactured internally or bought from a supplier.

These three fields (*Supply Method*, *Procurement Method*, *Product Type*) determine the system's behaviour when a product is required. The system will generate different documents depending on the configuration of these three fields when satisfying an order, a price quotation to a supplier or a manufacturing order.

OpenERP manages both stockable products and services. A service bought from a supplier in *Make to Order* mode, will generate a subcontract order from the supplier in question.

The table below shows all possible cases for Procurement.

Table 19.9: Consequences of Procurement Methods Make to Stock (MTS) and Make To Order (MTO)

Procurement Method	Produce	Buy
MTS	Wait for availability	Wait for availability
MTO	Production Order	Purchase Order

Table 19.10: Consequences of Procurement Methods when using Services

Procurement Method	Produce	Buy
MTS	/	/
MTO	Create task	Subcontract

19.3.7 Packaging with Various Logistics Units of Measure

Units of Measure

OpenERP supports several units of measure. Quantities of the same product can be expressed in several units of measure at once. For example, you can buy grain by the tonne and resell it by kg. You just have to make sure that all the units of measure used for a product are in the same units of measure category.

Note:*Categories of Units of Measure*

All units of measure in the same category are convertible from one unit to another.

The table below shows some examples of units of measure and their category. The factor is used to convert from one unit of measure to another as long as they are in the same category.

Table 19.11: Example Units of Measure

UoM	Category	Ratio	UoM Type
Kg	Weight	1	Reference
Gram	Weight	1000	Smaller
Tonne	Weight	1000	Bigger
Hour	Working time	8	Smaller
Day	Working time	1	Reference
Half-day	Working time	4	Smaller
Item	Unit	1	
100 Items	Unit	0.01	

Depending on the table above, you have $1\text{Kg} = 1000\text{g} = 0.001\text{ Tonnes}$. A product in the Weight category could be expressed in Kg, Tonnes or Grammes. You cannot express it in hours or pieces, for example.

Use the menu *Warehouse → Configuration → Units of Measure* to define a new unit of measure.

In the definition of a Unit of Measure, you have a *Rounding precision* factor which shows how amounts are rounded after the conversion. A value of 1 gives rounding to the level of one unit. 0.01 gives rounding to one hundredth.

Note:

Secondary Units

OpenERP supports double units of measure. Notice however that the default unit of measure and the purchase unit of measure have to be in the same category. Only the sales unit of measure may be in a different category. This is very useful in the agro-food industry, for example: you sell ham by the piece, but invoice by the Kg. A weighing operation is needed before invoicing the customer.

To activate the management options for double units of measure, you have to change configuration from Settings -> Configuration -> Warehouse .

In this case, the same product can be expressed in two units of measure belonging to different categories for sales and stock/purchase. You can then distinguish between the unit of stock management (the piece) and the unit of invoicing or sales (kg) in the Sales tab of Product form.

Figure 19.30: Secondary Unit of Measure

In the product form you can set one unit of measure for sales and stock management, and one unit of measure for purchases (in Procurement tab of Product form).

For each operation on a product, you can use another unit of measure, as long as it can be found in the same category as the two units already defined. If you use another unit of measure, OpenERP automatically handles the conversion of prices and quantities.

So if you have 430 Kg of carrots at 5.30 EUR/Kg, OpenERP will automatically make the conversion if you want to sell in tonnes – 0.43 tonnes at 5300 EUR / tonne. If you had set a rounding factor of 0.1 for the *tonne* unit of measure, OpenERP will tell you that you have only 0.4 tonnes available.

Packaging

The packaging allows you to ship products in several ways. For example, you can ship goods by boxes or by pallets.

At first, you have to define possible packaging. To define the packaging, go to *Warehouse → Configuration → Products → Packaging* and click *Create*.

Name	Type
Box 20x20x40	Box
Box 30x40x60	Box

Figure 19.31: *Packaging definition*

To complete the creation of a new packaging, you have to give it a name and a type. Different types are available in OpenERP: *Box*, *Pack*, *Pallet* and *Unit*.

Once all packaging is defined, you can attach the packaging to your products through the following menu: *Warehouse → Products → Products*. (Open Product Form view and go to Sales Tab in the last you will find line of packing)

Product Name: USB Adapter
Category: All products / Saleable / External Devices
Sale Conditions: Warranty: 0.00 months, Customer Lead Time: 7.00 days
Point of Sale: Available in Point of Sale, Point of Sale Category: Others
Unit of Measure: Unit of Sale: 0.00, Unit of Measure -> UOS Coeff: 1.000, Measure Type: Fixed
EAN Quantity by Package: 0.00 Box 20x20x40, 0.00 Box 30x40x60

Figure 19.32: *Defining the Packaging for the Product*

19.4 Scheduling Procurements

OpenERP distinguishes between Production, Purchase and Procurement.

Production is manufacturing, Purchase is the acquisition of goods from another party, and Procurement is either one or both of those.

19.4.1 Processing Exceptions

The set of stock requirements is generated by procurement orders.

In normal system use, you do not need to worry about procurement orders because they are automatically generated by OpenERP and the user will usually work on the results of a procurement: a production order, a purchase order, a sales order and a task.

If there should be configuration problems, the system can remain blocked by a procurement without generating a corresponding document. For example, suppose that you configure a product *Procurement Method* as *Make to Order*, and *Supply Method* as *Manufacture*, but you have not defined the bill of materials. In that case, procurement of the product will stay blocked in an exception state *No Bill of Materials defined for this product*. You then have to create a bill of materials to solve the problem.

Troubleshooting:

- No bill of materials defined for production: you need to create a BoM or indicate that the product can be purchased instead.
- No supplier available for a purchase: you have to define a supplier in the *Procurements* tab of the product form.
- No address defined on the supplier partner: you have to complete an address for the default supplier for the product concerned.
- No quantity available in stock: you have to create a reordering rule and put it in the order, or manually procure it.

Some problems are just those of timing and can be automatically corrected by the system.

Use the menu *Warehouse* → *Schedulers* → *Procurement Exceptions* to see all the exceptions.

If a product has to be ‘in stock’, but is not available in your stores, OpenERP will make the exception as ‘temporary’ or ‘to be corrected’. The exception is temporary if the system can procure it automatically, for example, if a procurement rule is defined for minimum stock.

The screenshot shows the 'Procurement Exceptions' screen in OpenERP. At the top, there are buttons for 'Edit', 'Create', 'Attachment(s)', 'More', and navigation icons. Below that, a red 'Retry' button and a 'Cancel Procurement' button are visible. The main area displays a procurement record for 'External Hard disk'. The details are as follows:

[EXT-HDD] External Hard disk	
1.000 Unit(s)	
External Hard disk	
Scheduled date	03/13/2013 05:30:00
Procurement Method	Make to Stock
Priority	Normal
Company	Your Company
Source Document	SO005
Latest error Procurement 'External Hard disk' is in exception: Not enough stock.	
Extra Information	
UoS Quantity	1.00 Unit(s)
Location	Physical Locations / Your Company / Stock
BoM	
Reservation	
Date Closed	
Purchase Order	SO005/ EXT-HDD: Stock > Customers
Close Move at end	
Properties	
Task	
Latest Requisition	
External Hard disk	

Figure 19.33: Example of a Procurement in Exception

If no procurement rule is defined, the exception has to be corrected manually by the user. Once the exception is corrected, you can restart by clicking *Retry*. If you do not do that, OpenERP will automatically recalculate on the next automated requirements calculation.

19.4.2 Manual Procurement

To procure internally, you can create a procurement order manually. Use the menu *Warehouse → Schedulers → Procurement Exceptions* and click the *New* button to do this.

Figure 19.34: Encoding a New Procurement Order

The procurement order will then be responsible for calculating a proposal for automatic procurement for the product concerned. This procurement will start a task, a purchase order for the supplier or a production depending on the product configuration.

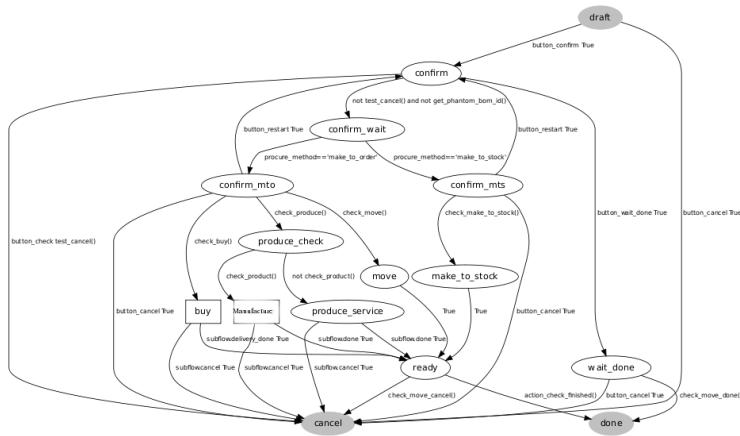


Figure 19.35: Workflow for Handling a Procurement according to Product Configuration

It is better to encode a procurement order rather than direct purchasing or production. This method has the following advantages:

- The form is simpler because OpenERP calculates the different values from other values and defined rules: purchase date calculated from order date, default supplier, raw materials needs, selection of the most suitable bill of materials, etc.
- The calculation of requirements prioritises the procurements. If you encode a purchase directly, you short-circuit the planning of different procurements.

19.4.3 Request Procurements

On the product form you have an *Request Procurement* shortcut button that lets you quickly create a new procurement order.

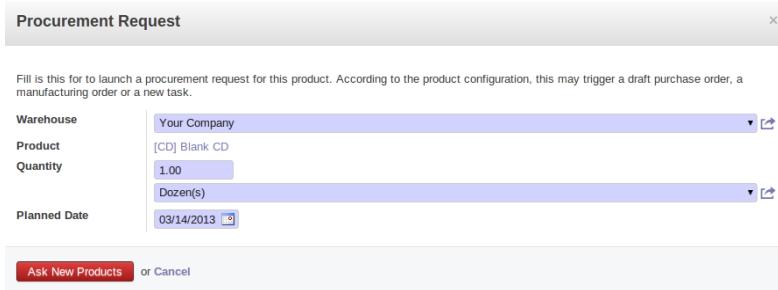


Figure 19.36: *Procurement Request*

19.5 Managing Lots and Traceability

The double-entry management in OpenERP enables you to run very advanced traceability. All operations are formalized in terms of stock moves, so it is very easy to search for the cause of any gaps in stock moves.

Note:

Upstream Traceability

*It runs from the raw materials received from the supplier and follows the chain to the finished products delivered to customers. (Note that the name is confusing - this would often be considered a downstream direction. Think of it as **Where Used**.)*

Note:

Downstream Traceability

*It follows the product in the other direction, from customer to the different suppliers of raw material. (Note that the name is confusing - this would often be considered an upstream direction. Think of it as **Where Supplied**.)*

19.5.1 Stock Moves

Use the menu *Warehouse → Traceability → Stock Moves* to track past stock transactions for a product or a given location. All the operations are available. You can filter on the various fields to retrieve the operations about an order, or a production activity, or a source location, or any given destination.

Stock Moves														
Create or Import														
Description	Reference	Source	Shipping Type	Product	Quantity	Unit of Measure	Product UOS	Serial Number	Pack	Source Location	Destination Location	Date	Scheduled Date	Status
Blank CD	IN/00009	PO/00029	Getting Goods	[CD] Blank CD	1.000	Dozen(s)	Dozen(s)			Physical Locations / Partner / Your Company / Stock	Physical Locations / Your Company / Stock	03/14/2013	03/14/2013	Available
Blank DVD- RW	OUT/00001	SO/0005	Sending Goods	[DVD] Blank DVD-RW	3.000	Dozen(s)	Dozen(s)			Physical Locations / Partner / Your Company / Stock	Physical Locations / Your Company / Stock	03/14/2013	03/14/2013	Waiting Availability
Delivery Shop	INT/00004	OP/00008: Delivery Shop	Sending Goods	[KEY/A] USB Keyboard AZERTY	20.000	Unit(s)	Unit(s)			Physical Locations / Partner / Your Company / Stock	Physical Locations / Your Company / Internal Shipments	03/18/2013	03/14/2013	Available
External Hard disk	OUT/00001	SO/0005	Sending Goods	[EXT-HDD] External Hard disk	1.000	Unit(s)	Unit(s)			Physical Locations / Partner / Your Company / Stock	Physical Locations / Your Company / Stock	03/14/2013	03/14/2013	Waiting Availability
GraphWorks Software	IN/00002	PO/00006	Getting Goods	[GRAPHS/W] GraphWorks Software	4.000	Unit(s)	Unit(s)			Physical Locations / Partner / Your Company / Stock	Physical Locations / Your Company / Stock	03/14/2013	03/14/2013	Available
INV Starting Inventory				[HDD-SH2]	45.000	Unit(s)				Virtual Locations / Inventory loss	Physical Locations / Your Company / Stock	03/14/2013	03/14/2013	Done

Figure 19.37: History of Stock Movements

Each stock move is in a given state. The various states are:

- New : When the stock move is created and not yet confirmed,
- Waiting Another Move: This state can be seen when a move is waiting for another one, for example in a chained flow,
- Waiting Availability : his state is reached when the procurement resolution is not straight forward. It may need the scheduler to run, a component to me manufactured,
- Available : When products are reserved, it is set to Available,
- Done : When the shipment is processed, the state is Done,
- Cancelled : the stock move was not carried out, so it is not taken into account in either real stock or virtual stock.

Delivery orders, goods receipts and internal picking lists are just documents that group a set of stock moves. You can also consult the history of these documents using the menu *Warehouse → Traceability → Packs*.

19.5.2 Lots

OpenERP can also manage product lots. Two lot types are defined:

- Serial Numbers (batch numbers) are represented by a unique product or an assembly of identical products leaving the same production area. They are usually identified by bar codes stuck on the products. The batch can be marked with a supplier number or your own company numbers.
- Tracking numbers are logistical lots to identify the container for a set of products. This corresponds, for example, to the pallet numbers on which several different products are stocked.

These lots can be encoded onto all stock moves and, specifically, on incoming shipments lines, internal moves and outgoing deliveries.

Figure 19.38: Entering a Line for Production Receipt

To enter the Serial number in an operation, you can use an existing Serial number or create a new pack. A Serial (batch number) is used for a single product. A tracking number can be used several times for different products, so you can mix different products on a pallet or in a box.

You can also specify on the product form the operations in which a Serial number is required. You can then compel the user to set a lot number for manufacturing operations, goods receipt, or customer packing.

You do not have to encode the Serial numbers one by one to assign a unique Serial number to a set of several items. You only need to take a stock move for several products line and click the button *Split in Serial Number*. You can then give a Serial number prefix (if you want) and OpenERP will complete the prefix in the wizard with

a continuing sequence number. This sequence number might correspond to a set of pre-printed barcodes that you stick on each product.

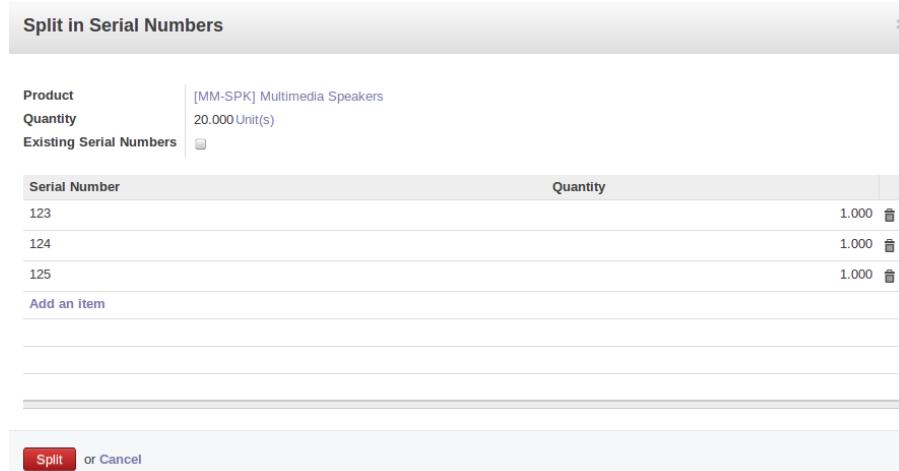


Figure 19.39: *Splitting a Serial Number into uniquely Identified Parts*

19.5.3 Traceability

If you key in the Serial numbers for stock moves as described above, you can investigate the traceability of any given Serial number. Go to the menu *Warehouse* → *Traceability* → *Serial Number* or *Warehouse* → *Traceability* → *Packs*.

Tip:

Product Shortcuts

From the product form, in more option offers useful information:

- Product Margin,
- Stock by Location,
- Sales Order Lines,
- Product BoM Structure.

There are several actions can be performed :

- *Upstream Traceability*: from supplier through to customers,
- *Downstream Traceability*: from customer back to suppliers,
- Stock in all the physical and virtual locations.

Packs / 00000017 / Upstream Traceability													
	Product	Quantity	Unit of Measure	Serial Number	Pack	Packaging	Reference	Source Location	Destination Location	Creation Date	Date	Date Expected	Status
<input type="checkbox"/>	[INK] Ink Cartridge	9.000	Unit(s)	00000017		IN/00002	Partner Locations / Suppliers	Physical Locations / Your Company / Stock	03/12/2013	03/16/2013	03/16/2013	Available	
<input type="checkbox"/>	[MM-SPK] Multimedia Speakers	20.000	Unit(s)	00000017		IN/00001	Partner Locations / Suppliers	Physical Locations / Your Company / Stock	03/12/2013	03/14/2013	03/14/2013	Available	

Figure 19.40: *Tracing Upstream in Make to Order*

★ Packs / 00000028 / Downstream Traceability													
	Product	Quantity	Unit of Measure	Serial Number	Pack	Packaging	Reference	Source Location	Destination Location	Creation Date	Date	Date Expected	Status
	[PD-SP2] Pen drive, SP-2	12.000	Unit(s)	00000028			IN/00001	Partner Locations / Suppliers	Physical Locations / Your Company / Stock	03/14/2013 16:16:51	03/16/2013 05:30:00	03/16/2013 05:30:00	Available
	[KeyA] USB Keyboard, AZERTY	20.000	Unit(s)	00000028			INT/00003	Partner Locations / Internal Shippings	Physical Locations / Your Company, Chicago shop	03/14/2013 16:17:42	03/18/2013 05:30:00	03/14/2013 16:17:49	Waiting Another Move

Figure 19.41: Tracing Downstream in Make to Stock

Finally, on a lot, you can enter data on all the operations that have been done for the product. That keeps a useful history of the pre-sales operations.

19.6 Scrapping Products

In OpenERP, there are many ways to handle scrap products.

1. Warehouse → Receiver/Deliver Products → Incoming Products
2. Warehouse → Receiver/Deliver Products → Deliver Products
3. Warehouse → Receiver/Deliver By Orders → Incoming Shipments

The screenshot shows the 'Incoming Shipment' interface. At the top, it says 'Incoming S... / INT/00003'. Below that are buttons for 'Save or Discard', 'Receive', 'Cancel Transfer', and status indicators 'Draft', 'Ready to Receive', and 'Received'. The main area displays a list of items under 'INT/00003'. Each item has fields for Supplier (Your Company), Stock Journal, Purchase Order, Time (03/14/2013 16:17:49), Scheduled Time (03/14/2013 16:17:49), and Source Document (e.g. P00032). A tab labeled 'Products' is selected, showing a table with columns: Product, Quantity, Unit of Measure, Product UOS, Serial Number, Pack, Destination Location, and Status. One item in the table is highlighted with a yellow icon and labeled 'Scrap Products'.

Figure 19.42: Scrapping from an Incoming Shipment

4. Warehouse → Receiver/Deliver By Orders → Internal Moves

The screenshot shows the 'Internal Moves' interface. At the top, it says 'Internal Moves / False'. Below that are buttons for 'Save or Discard', 'Force Availability', 'Cancel Transfer', and status indicators 'Draft', 'Waiting Availability', 'Ready to Transfer', and 'Transferred'. The main area displays a list of items under 'False'. Each item has fields for Partner (Agrolait), Time (03/12/2013 14:54:48), Scheduled Time (03/12/2013 14:54:48), and Source Document (MOI/00003). A tab labeled 'Products' is selected, showing a table with columns: Product, Quantity, Unit of Measure, Product UOS, Serial Number, Pack, Destination Location, and Status. Three items in the table are highlighted with yellow icons and labeled 'Scrap Products'.

Figure 19.43: Scrapping from an Internal Move

5. Warehouse → Receiver/Deliver By Orders → Delivery Orders

The screenshot shows the 'Delivery Order' interface for delivery ID OUT/00001. The top bar includes buttons for 'Save or Discard', 'Check Availability', 'Force Availability', 'Print Delivery Order', 'Cancel Transfer', and status indicators like 'Draft', 'Waiting Availability', 'Ready to Deliver', and 'Delivered'. The main area displays customer information (Agrolait), invoice control (Delivery Orders), and scheduling details (Time: 03/14/2013 05:30:00, Carrier: 03/14/2013 05:30:00). Below this is a table of products being delivered, with one row for '[EXT-HDD] External Hard disk' and another for '[DVD] Blank DVD-RW'. A 'Scrap Products' button is visible in the middle of the table. The bottom section shows destination locations and waiting availability.

Figure 19.44: Scrapping from a Delivery Order

When you decide to scrap some products, they are transferred to the *Scrap* location. To display the content of this *Virtual Location*, go to *Warehouse* → *Inventory Control* → *Location Structure*, then select the virtual locations and display the *Scrap* location.

If you want to transfer the products to another location, you can create a new one and check the *Scrap Location* in the additional information.

19.7 Identifying Products and Locations with Barcodes and RFID Devices

You can scan the barcode in the product form in the field *EAN13*.

19.8 Financial Inventory Management

19.8.1 Manual and Real-time Stock Valuation

If you have experience of managing with traditional software, you will know the problem of getting useful indicators. If you ask your accountant for a stock valuation or the value added by production, he will give you a figure.

If you ask for the same figure from your stores manager, you will get an entirely different amount. You have no idea who is right!

In OpenERP, stock management is completely integrated with the accounts, to give strong coherence between the two systems. The double-entry structure of locations enables a very precise correspondence between stocks and accounts.

Each stock movement also generates a corresponding accounting entry in an accounting journal to ensure that the two systems can stay in permanent synchronization.

To do that, set up a general account for each location that should be valued in your accounts. If a product goes to one location or another and the accounts are different in the two locations, OpenERP automatically generates the corresponding accounting entries in the accounts, in the stock journal.

If a stock move will go from a location without an account to a location where an account has been assigned (for example goods receipt from a supplier order), OpenERP generates an accounting entry using the properties defined in the product form for the counterpart. You can use different accounts per location or link several locations to the same account, depending on the level of analysis needed.

You use this system for managing consigned stocks:

- a supplier location that is valued in your own accounts or,
- a location in your own company that is not valued in your accounts.

How to Configure Accounting Valuation?

In the Product form, go to the Accounting tab and select the Real Time (automated) option for Inventory Valuation,

To define your accounts, you have two options. Set them on the product category, or on the product.

1. From the Accounting Stock Properties section, for the Product Category, set the Stock Input Account, the Stock Output Account and the Stock Valuation Account,
2. From the Accounting tab, for the Product, set the Stock Input Account and the Stock Output Account.

You can also overwrite the accounts from the Product or the Product Category by defining Stock Input Account and Stock Output Account for a Location.

Note:

account_anglo_saxon

You can also install the account_anglo_saxon module to value your stock according to Anglo-saxon principles.

The figure below shows the various accounts that can be used, with and without the account_anglo_saxon module installed.

Feuille1										
OpenERP Transaction - default mode with: Stock account set on warehouse location Stock input/output contra-transaction accounts set on product										
Operations	2800 (Stock In)	2801 (Stock Out)	3000 (Stock Val.)	4000 (Receivable)	4400 (Payable)	5000 (Cash/Bank)	7000 (Expense)	7005 (COGS)	8000 (Price diff.)	8000 (Income)
Product cost	9									
Supplier price	10									
Sale price	20									
Sale/Purchase Tax	19,000									
Stock Valuation Account	3000									
Stock Input Account	2800									
Stock Output Account	2801									
Expense Account	7000									
Income Account	8000									
Debtor Account (Receivable)	4000									
Creditor Account (Payable)	4400									
Bank/Cash account	5000									
	8. Customer pays									

Highlighting of changes										
Operations	2800 (Intern rec.)	2801 (Intern debit)	3000 (Stock Val.)	4000 (Receivable)	4400 (Payable)	5000 (Cash/Bank)	7000 (Expense)	7005 (COGS)	8000 (Price diff.)	8000 (Income)
Product cost	9									
Supplier price	10									
Sale price	20									
Sale/Purchase Tax	19,000									
Stock Valuation Account	3000									
Stock Input account (Received)	2800									
Stock Intern account (Delivered)	2801									
Cost of Goods Sold Account	7000									
Prius difference creditor Account	7005									
Income Account	8000									
Debtor Account (Receivable)	4000									
Creditor Account (Payable)	4400									
Bank/Cash account	5000									
	8. Customer pays									

Generic Principles										
In double-entry accounting, Debit and Credit symbols are used instead of + and - operations.										
Debit (Dr) transaction = increase in assets or expenses										
Credit (Cr) transaction = increase in liabilities or gains										
Debit transactions always decrease assets, e.g. a debit transaction will decrease liabilities or gains										
For each transaction, the total of Dr and Cr must be equal										

Reminder table		Dr	Cr
Asset	+	-	
Liability	-	+	
Expense	-	+	
Income / Gain	-	+	
Capital	-	+	

Page 1

Figure 19.45: Setting up Stock Valuation Accounts

19.8.2 Managing Transportation Costs

In OpenERP, you can handle the delivery methods when installing the `delivery` module.

This module will allow you:

- To select the delivery company

Delivery Met... / The Poste

Save or Discard

Delivery Method
The Poste

Transport Company: The Poste Active

Delivery Product: [Delivery] Delivery by Poste

Pricing Information

Normal Price: 0.00

Free If Order Total Amount Is More Than:

Advanced Pricing per Destination:

Figure 19.46: Define the Delivery Method (Warehouse -> Configuration -> Delivery Methods)

- To define the delivery pricelist according to the price, the weight or the volume.

Create: Grid Line

Name:

Condition: Weight <= 0.00

Sale Price: 0.00

Cost Price: 0.00

Price Type: Fixed

Save & Close **Save & New** or Discard

Figure 19.47: Define the Delivery Costs (Warehouse -> Configuration -> Delivery -> Delivery Pricelist)

Now, in each *Delivery Order*, two new fields are available to enter the right value to deliver the products to the customer. You can also find a new field in the *Sales Order* form that enables you to select a delivery method.

Delivery Ord... / OUT/00001

Save or Discard

Check Availability Force Availability Print Delivery Order Cancel Transfer Draft Waiting Availability Ready to Deliver Delivered

OUT/00001

Customer: Agrolait Time: 03/15/2013 05:30:00
Invoice Control: To Be Invoiced Scheduled Time: 03/15/2013 05:30:00
Stock Journal: Delivery Orders Carrier: The Poste
Carrier Tracking Ref: Number of Packages: 0
Source Document: SO005

Products Additional Info

Product	Quantity	Unit of Measure	Product UOS	Serial Number	Pack	Destination Location	Status
[EXT-HDD] External Hard disk	1.000	Unit(s)	Unit(s)			Partner Locations / Customers	Waiting Availability
[DVD] Blank DVD-RW	3.000	Dozen(s)	Dozen(s)			Partner Locations / Customers	Waiting Availability
[PRINT] Printer, All-in-one	1.000	Unit(s)	Unit(s)			Partner Locations / Customers	Waiting Availability

Figure 19.48: Delivery Cost in the Delivery Orders (Warehouse -> Receiver/Deliver By Orders -> Delivery Orders)

The screenshot shows the 'Sales Orders / SO020' interface. At the top, there are buttons for 'Edit', 'Create', 'Print', 'Attachment(s)', and 'More'. A progress bar indicates '1 / 6'. Below the header, there are buttons for 'Create Invoice', 'Cancel Order', 'Draft Quotation', 'Quotation Sent', 'Sales Order', 'Sale to Invoice', and 'Done'. The main area is titled 'Sales Order SO020'. It contains sections for 'Customer' (Agrolait, 69 rue de Namur, 1300 Wavre, Belgium), 'Invoice Address' (Agrolait, 69 rue de Namur, 1300 Wavre, Belgium), and 'Delivery Address' (Agrolait, 69 rue de Namur, 1300 Wavre, Belgium). To the right, there are fields for 'Date' (03/15/2013), 'Shop' (Your Company), 'Customer Reference', and 'Pricelist' (Public Pricelist (EUR)). Below this, there are tabs for 'Order Lines' (selected) and 'Other Information'. The 'Order Lines' tab shows a single item: [AT] Air Ticket, Description [AT] Air Ticket, Quantity 1.000, Unit of Measure Unit(s), Unit Price 700.00, Cost Price 700.00, Discount (%) 0.00, and Subtotal 700.00. At the bottom, there are fields for 'Margin' (0.00 €), 'Delivery Method' (with a note: 'Complete this field if you plan to invoice the shipping based on picking.'), 'Untaxed Amount' (700.00 €), 'Taxes' (0.00 €), and 'Total' (700.00 €).

Figure 19.49: *Delivery Method in the Sales Orders (Sales -> Sales -> Sale Orders)*

19.9 Organize your Deliveries

You can manage stock through journals in the same way as you can manage your accounts through journals. This approach has the great advantage that you can define journals in various ways to meet your company's needs.

For example, a large company may want to organize deliveries by department or warehouse. You can then create a journal and a manager for each department. The different users can work in a journal as a function of their position in the company. That enables you to better structure your information.

A company doing a lot of transport could organize its journals by delivery vehicle. The different delivery orders will then be assigned to a journal representing a particular vehicle. When the vehicle has left the company, you can confirm all the orders that are found in the journal all at the same time.

19.9.1 The Different Journals

Install the `sale_journal` module to work with different journals. This adds two new concepts to OpenERP:

- Invoicing journals,
- Stock journals or Delivery journals.

Invoicing journals (*Sales → Configuration → Invoice Types*) are used to assign purchase orders and/or delivery orders to a given invoicing journal. Everything in the journal can be invoiced in one go, and you can control the amounts by journal. For example, you can create the following journals: daily invoicing, end-of-week invoicing and monthly invoicing. It is also possible to show the invoicing journal by default in the partner form. Set the *Invoicing Method* to *Grouped* (one invoice per customer) or *Non Grouped* (individual invoices) according to your needs.

Stock journals (*Warehouse → Configuration → Warehouse Management → Stock Journals*) allow you to classify the delivery orders in various ways, such as by department, by salesperson or by type. If a salesperson looks for a delivery order in his own journal, he can easily see the work on current items compared with his own orders.

Tip:

Default Values

To enter all the orders in his own stock journal, a salesperson can use the default values that are entered in the fields when creating orders.

Finally, the stock journals can also be used as **delivery journals** to post each item into a delivery journal. For example, you can create journals dated according to customer delivery dates (such as Monday's deliveries, or afternoon deliveries) or these journals could represent the day's work for delivery vehicles (such as truck1, truck2).

19.9.2 Using the Journals

You will now see how to use the journals to organize your stock management in practice. After installing the module `sale_journal` look at the list of customers. In the tab *Sales and Purchases* on any of them you will now see the field *Invoicing Method*.

The screenshot shows the Odoo Customer Form for 'Agrolait'. At the top, there are buttons for 'Edit' and 'Create', and links for 'Print', 'Attachment(s)', and 'More'. On the right, there are navigation icons and a page number '1 / 40'. The main area displays customer details: Address (69 rue de Namur, Wavre, 1300 Belgium), Phone (Mobile +32 10 588 558, Fax, Email info@agrolait.com). Below this, tabs include 'Sales & Purchases' (which is active), 'Payment Follow-up', 'Accounting', 'History', 'Point of Sale', and 'Warnings'. Under 'Sales & Purchases', sections show Salesperson (OpenERP BE), Sales Team (Customer checked), Company (Supplier checked), Reference (Active checked), Language (English), Date (Opt-Out checked), and Invoicing Type (Daily invoicing). A 'Meetings', 'Calls', and 'Opportunities' section is also visible.

Figure 19.50: Customer Form in Invoicing Mode

You can create a new *Invoicing Journal* for a partner through the menu *Sales → Configuration → Invoice Types*. You can decide if the invoices should be grouped or not when generating them in the journal. Create a second

invoicing journal End-of-Month Invoicing which you can assign to another partner.

The screenshot shows the Odoo customer record for 'Angel Cook'. The 'Invoicing' tab is active. Key details include:

- Address:** Default address is '60, Rosewood Court, Detroit, Michigan 48212, United States'.
- Job Position:** General Manager.
- Salesperson:** Sales Team Company is 'Your Company'.
- Customer:** Customer Type is checked.
- Language:** English.
- Active:** Active status is checked.
- Invoicing Type:** Monthly invoicing.

Figure 19.51: Defining an Invoicing Journal

Then enter the data for some sales orders for these two partners. After entering sales order data, the field *Invoicing Mode* in the second tab Other Information is completed automatically from the customer settings.

The screenshot shows the sales order 'SO0020' for 'Agrolait'. The 'Other Information' tab is active. Key details include:

- Customer:** Agrolait, 69 rue de Namur, 1300 Wavre, Belgium.
- Date:** 03/15/2013.
- Shop:** Your Company.
- Customer Reference:** Public Pricelist (EUR).
- Delivery Address:** Agrolait, 69 rue de Namur, 1300 Wavre, Belgium.
- Incoterm:** Deliver all products at once.
- Shipping Policy:** On Demand.
- Salesperson:** Administrator.
- Invoice Type:** Daily invoicing.

Figure 19.52: Invoice Mode in Sale Order

At the end of the day, the invoicing supervisor can display the list by journal. Go to the menu *Sales → Invoicing → Order Lines to Invoice*. Add a New Filter by selecting *Invoice Type contains Daily*, or any other part of the invoice journal you are using. Select the different orders in the list. You can automatically carry out invoicing by selecting *Make Invoices* (From more button).

At the end of the month the invoicing management does the same work, but in the journal 'month-end invoicing'.

You can also enter a journal to confirm / cancel all the orders in one go. Then you can do several quotations, assign them to a journal and confirm or cancel them at once.

The screenshot shows a list of delivery orders. One item is highlighted: 'Delivery Orders' with Responsible 'Administrator'.

Figure 19.53: View of an Order Journal

19.10 Estimating Delivery Dates

19.10.1 Standard Delivery Time

In order to define the delivery time, you have to know three things:

- Customer Lead Time :

That is the time you promise to your customer for a delivery. It corresponds to the average delay between the confirmation of the customer order and the delivery of the finished goods. It can be defined in the product form, in the *Sales* tab.

This time will be influenced by the Manufacturing Lead Time and the Delivery Lead Time.

- Manufacturing Lead Time :

This is the time you need to produce one unit of a product. If this product needs other sub-products, the different manufacturing times will be summed. It can also be defined in the product form, in the *Procurements* tab.

- Delivery Lead Time :

This is the time your supplier needs to deliver the goods. This delay can be defined in the product form in the *Procurements* tab in last line.

For example, if we have to deliver some products to a customer in a month (in 30 days). You promise to deliver the goods to the customer within 10 days, the manufacturing time is equal to 4 days and our suppliers deliver the raw materials within 3 days.

According to those numbers, we will have to start the process in 23 days if we have to order raw materials.

19.10.2 Schedule Logistic Flows according to MRP1 Rules

MRP is a software-based production, planning and inventory control system used to manage the manufacturing process.

It is a computer-based system in which the given Master Schedule is exploded with Bills Of Material, into the required amount of raw material, parts and subassemblies needed to produce the final products in each period.

19.11 Managing Inventory Reconciliation

Inventory reconciliation involves two steps: physical and accounting.

Physical inventory steps include taking a written inventory record and comparing it to the actual goods in the company's warehouses. Counting obsolete and damaged products is also a reconciliation activity.

Reconciliation steps on the accounting side include verification that all inventory purchases are posted, entering adjustments from the physical count and analysing the dollar differences between months. Inventory reconciliation frequency depends on the size, location, and type of inventory in a company's operations.

Tip:*Create Report with OpenOffice*

You can also create or edit reports with OpenOffice using the base_report_designer module.

In order to add the extension to OpenOffice, load this module and start the configuration. A new window will ask you to Save As a file that contains the extension.

Once you have saved the file, start OpenOffice and go to Tools → Extension Manager, then click Add and select the previously saved file. Restart OpenOffice.org and now you have the extension installed.



Figure 19.54: Extension to Create a Report in OpenOffice

19.12 Import / Export

Managing import / export with foreign companies can sometimes be very complex. Between a departure port and the destination company, products can get stopped for several weeks at sea or somewhere in the numerous transportation stages and customs. To manage such deliveries efficiently it is important to:

- know where your products are,
- know when they are likely to arrive at their destination,
- know your value in transit,
- follow the development of the different steps.

Linked locations in OpenERP enable you to manage all this rather elegantly. You can use a structure like this:

- Suppliers
 - European Suppliers
 - Chinese Suppliers
- In transit
 - Shanghai Port
 - Pacific Ocean
 - San Francisco Port
 - San Francisco Customs

19.12.1 Stock

The transit locations are linked between themselves with a manual confirmation step. The internal stock move is validated at each port and customs arrival. OpenERP prepares all the linked moves automatically.

Note:*Intrastat*

Companies that do import/export should install the module report_intrastat. This enables them to prepare the reports needed to declare product exports.

You can use the lead times between different locations to account for real delays. Your lead times and stock forecasts are calculated by OpenERP to estimate the arrival of incoming products, so that you can respond to a customer's needs as precisely as possible.

You can also value the products in transit in your account depending on the chosen stock location configuration.

19.12.2 Rental Locations

You can manage rental locations in OpenERP very simply using the same system of linked locations. Using the `stock_location` module you can set a return date for rental items sent to a customer location after a certain rental period.

Then the set of real and virtual stocks is maintained daily in real time. The different operations such as delivery and receipt after a few days are automatically suggested by OpenERP which simplifies the work of data entry.

You then have the product list found in the customer locations and your own stock in your stock location. The list of waiting goods receipts is automatically generated by OpenERP using the location links.

Suppose you want to rent a product (*WCAM*) to your customer (*Axelor*) for 30 days. Two stock movement entries are needed to manage this scenario:

1. Product goes from *Stock* (your company's location) to *Axelor - Rental Location* (your customer location).
2. Product will be returned into *Stock* (your company's location) from *Axelor - Rental Location* (your customer location) after 30 days.

To manage rental products by linking locations, configure a rental location (*Axelor - Rental Location*) as shown in the following figure using the menu *Warehouse → Configuration → Locations*.

Figure 19.55: Configuration of a Rental Location ‘Axelor - Rental Location’

Through the menu *Warehouse → Traceability → Stock Moves*, you can create a stock movement entry from *Stock* to *Customer Location (Axelor - Rental Location)* in OpenERP for a rental product (*WCAM*).

Figure 19.56: Stock Movement Entry to Send the Product ‘WCAM’ to the Customer Location

The stock movement entry from *Customer Location (Axelor - Rental Location)* to *Stock* is generated automatically on the proper *Scheduled Date* by OpenERP when you have confirmed the previous stock movement entry by clicking the *Process Entirely* button.

The same principle is used for internal stock to generate quality control for certain products.

19.12.3 Consigned Products

The principle of linked locations is used to manage consigned products. You can specify that certain products should be returned to you a certain number of days after they have been delivered to customers.

When the products have been delivered, OpenERP automatically creates goods receipts for the consigned product. The specified date is obviously approximate but enables you to forecast returns.

19.13 Stock Location Example

In this section, we will develop a more detailed example that includes different concepts seen in the previous sections.

The following example will use the *Stock Location types*, the *Logistic Flows* and the *Bill Of Materials*.

We have two companies: OpenERP SA and OpenERP US.

We have three products: Product A, Product B and Product C. For each product, we will have to define the Stock Location to determine where to take these products.

To make one unit of Product A, we need the Product B and the Product C. So we will have to define a *Bill of Material*.

Table 19.12: Bill of Materials

Field	Value
Product	Product A
Product Qty	1
Name	Product A
BoM Type	Normal
Company	OpenERP US

The different components to produce one unit of Product A are one unit of Product B and one unit of Product C.

Table 19.13: Companies and Products

Company	What
OpenERP SA	Sell the Product A
OpenERP SA	Store the Product C
OpenERP US	Produce the Product A
OpenERP US	Store the Product B

Table 19.14: Logistics Flows

Name	Type	Product	Goal of the flow
Ask for Production	Pull	Product A	OpenERP SA asks OpenERP US to produce the Product A
Launch Production	Pull	Product A	OpenERP US launches the production of the Product A
Send Product to Transit	Pull	Product C	OpenERP US asks for the Product C to OpenERP SA
Get Product from Transit	Pull	Product C	OpenERP US receives the Product C

Here are the details of the different flows:

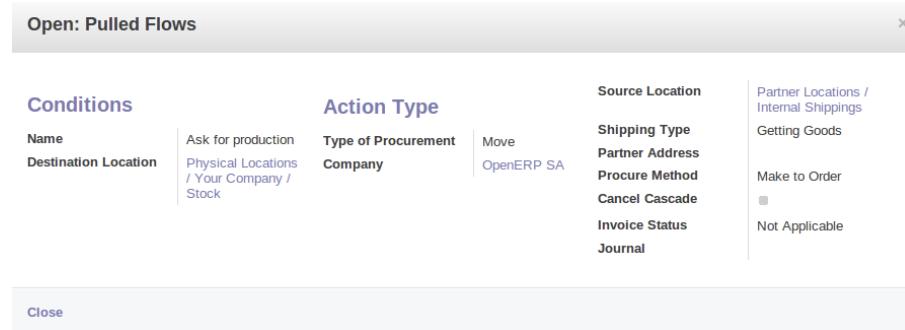


Figure 19.57: Ask for Production

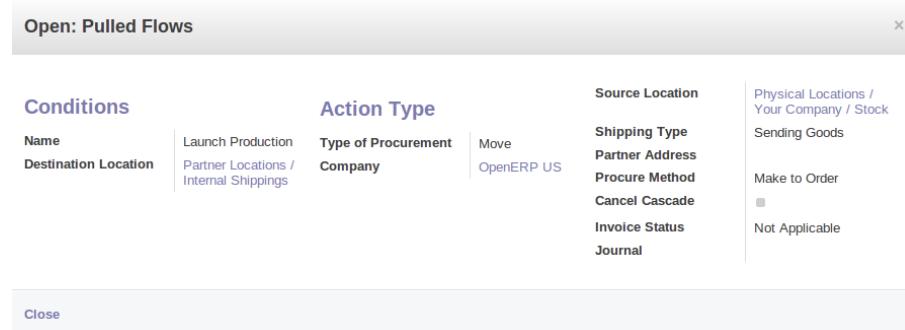


Figure 19.58: Launch Production

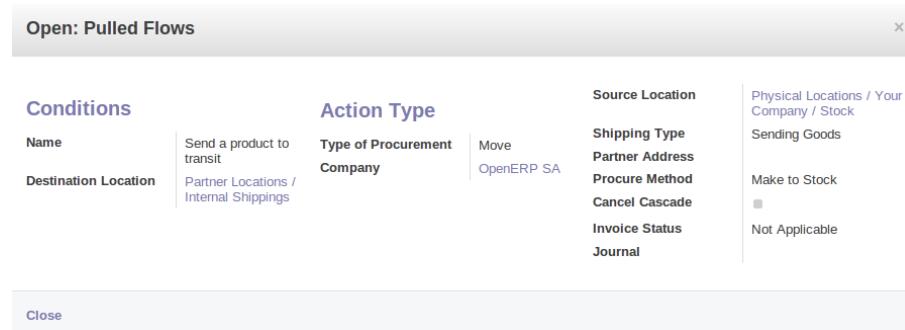


Figure 19.59: Send Product to Transit

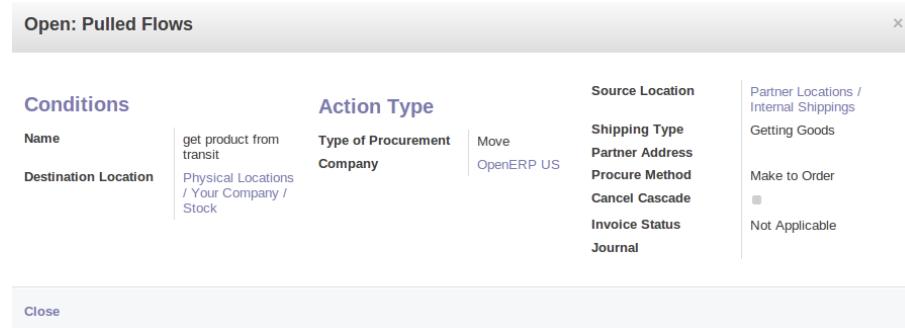


Figure 19.60: Get Product from Transit

The following stock moves have been generated with this configuration:

03/18/2013	SCHEDULER	[KeyQ] USB Keyboard, QWERTY	5.000	Unit(s)	Make to Order	Running	
03/15/2013	:MO/00005	[LCD15] 15" LCD Monitor	2.000	Unit(s)	Make to Stock	Ready	Products reserved from stock.
03/15/2013	:MO/00001	[LCD15] 15" LCD Monitor	3.000	Unit(s)	Make to Stock	Ready	Products reserved from stock.
03/15/2013	:MO/00007	[MBI9] Motherboard I9P57	5.000	Unit(s)	Make to Stock	Exception	Procurement ':MO/00007' is in exception: Not enough stock.
03/14/2013	OP/00003	[MBI9] Motherboard I9P57	12.000	Unit(s)	Make to Order	Ready	
03/21/2013	OP/00003	[MBI9] Motherboard I9P57	10.000	Unit(s)	Make to Order	Running	
03/13/2013	:MO/00003	[MBI9] Motherboard I9P57	3.000	Unit(s)	Make to Stock	Exception	Procurement ':MO/00003' is in exception: Not enough stock.
03/13/2013	:MO/00006	[MBI9] Motherboard I9P57	2.000	Unit(s)	Make to Stock	Exception	Procurement ':MO/00006' is in exception: Not enough stock.
03/15/2013	:MO/00001	[M-Las] Mouse, Laser	3.000	Unit(s)	Make to Stock	Ready	Products reserved from stock.
03/15/2013	:MO/00005	[M-Las] Mouse, Laser	2.000	Unit(s)	Make to Stock	Ready	Products reserved from stock.
03/18/2013	SCHEDULER	[PRINT] Printer, All-in-one	1.000	Unit(s)	Make to Order	Running	
03/11/2013	SO005	[PRINT] Printer, All-in-one	1.000	Unit(s)	Make to Stock	Exception	Procurement 'Printer, All-in-one' is in exception: Not enough stock and no minimum orderpoint rule defined.
03/15/2013	:MO/00001	[RAM-SR3] RAM SR3	6.000	Unit(s)	Make to Stock	Ready	Products reserved from stock.
03/15/2013	:MO/00005	[RAM-SR5] RAM SR5	2.000	Unit(s)	Make to Stock	Ready	Products reserved from stock.
03/18/2013	SCHEDULER	Product A	3.000	Unit(s)	Make to Order	Ready	
03/25/2013	SO012	Product A	3.000	Unit(s)	Make to Stock	Ready	Products reserved from stock.

Figure 19.61: Stock Moves

Because we are working in two different companies, different stock moves have been generated. The products have to move from OpenERP SA to OpenERP US for the products C. After the manufacturing process, the products A have to move from OpenERP US to OpenERP SA to be sold to the customer.

Once you have confirmed the different moves for the products B and C, the Manufacturing Order is in *ready to produce* status. So you can run the production of the three units of Product A.

The screenshot shows the Manufacturing Order (MO/00016) screen. At the top, there are buttons for Save or Discard, Confirm Production, Cancel Production, and a progress bar from New to Done. The main area is titled "Manufacturing Order MO/00016". It includes fields for Product (Product A), Product Quantity (3.000), Product UoS Quantity (3.00), Scheduled Date (03/25/2013 14:53:19), Bill of Material Routing, Responsible (Administrator), and Source Document (SO012 - TEST Launch Prodution). Below these are sections for Raw Materials Location and Finished Products Location, both set to "Physical Locations / Your Company". At the bottom, there are tabs for Consumed Products, Finished Products, Work Orders, Scheduled Products, and Extra Information. The Consumed Products section lists Product B and Product C with their respective quantities and unit types.

Figure 19.62: Launch the Production

Once again due to the use of two companies, you have to confirm different deliveries. One to deliver the product from OpenERP US to OpenERP SA and another to deliver the product from OpenERP SA to the customer. Now you have to confirm the delivery of the three units from OpenERP US to OpenERP SA, then to confirm the reception of the products in OpenERP SA and finally, deliver the products to your final customer.

DEFINING YOUR MASTER DATA

The management of manufacturing described in this chapter covers planning, ordering, stocks and the manufacturing or assembly of products from raw materials and components. It also discusses consumption and production of products, as well as the necessary operations on machinery, tools or human resources.

Manufacturing management in OpenERP is based on its stock management and equally very flexible in both its operations and its financial control. It particularly benefits from the use of double-entry stock management for production orders.

Manufacturing management is implemented by the `mrp` module. It is used to transform all kinds of products:

- Assemblies of parts: composite products, soldered or welded products, assemblies, packs,
- Machined parts: machining, cutting, planing,
- Foundries: clamping, heating,
- Mixtures: mixing, chemical processes, distillation.

You will work in two areas: with products in the first part of this chapter, and with operations in the second part. The management of products depends on the concept of classifications while operations management is related to routing and workcenters.

Note:

Bills of Materials

Bills of Materials, or manufacturing specifications, go by different names depending on their application area, for example:

- Food: Recipes,
- Chemicals: Equations,
- Building: Plans.

For this chapter you should start with a fresh database that includes demo data, with `mrp` (Manufacturing) and its dependencies installed and a generic chart of accounts configured. As you will notice, when you select Manufacturing to be installed, OpenERP will install the linked applications automatically.

20.1 Demo records need to create

```
<record id="product_category_marketableproduct0" model="product.category">
    <field name="name">Marketable Products</field>
</record>

<record id="product_category_shelves0" model="product.category">
    <field name="parent_id" ref="product_category_marketableproduct0"/>
    <field name="name">Shelves</field>
</record>
```

```

<record id="product_category_rawmaterial0" model="product.category">
    <field name="parent_id" ref="product.product_category_3"/>
    <field name="name">Raw Materials</field>
</record>

<record id="product_category_misc0" model="product.category">
    <field name="parent_id" ref="product.product_category_3"/>
    <field name="name">Misc</field>
</record>

<record id="product_product_kitshelfofcm0" model="product.product">
    <field name="default_code">SHE100KIT</field>
    <field name="supply_method">produce</field>
    <field eval="'make_to_order'" name="procure_method"/>
    <field name="list_price">110.0</field>
    <field name="standard_price">48.0</field>
    <field name="uom_id" ref="product.product_uom_unit"/>
    <field name="uom_po_id" ref="product.product_uom_unit"/>
    <field name="name">KIT Shelf of 100cm</field>
    <field eval="0" name="purchase_ok"/>
    <field name="type">product</field>
    <field name="categ_id" ref="product_category_shelves0"/>
</record>

<record id="product_product_shelfofcm0" model="product.product">
    <field name="default_code">SHE100</field>
    <field name="supply_method">produce</field>
    <field name="list_price">130.0</field>
    <field name="standard_price">50.0</field>
    <field name="uom_id" ref="product.product_uom_unit"/>
    <field name="uom_po_id" ref="product.product_uom_unit"/>
    <field name="name">Shelf of 100cm</field>
    <field name="type">product</field>
    <field name="categ_id" ref="product_category_shelves0"/>
</record>

<record id="product_product_shelf1" model="product.product">
    <field name="default_code">RCK200</field>
    <field name="supply_method">buy</field>
    <field name="standard_price">4.0</field>
    <field eval="0" name="sale_ok"/>
    <field name="uom_id" ref="product.product_uom_unit"/>
    <field name="uom_po_id" ref="product.product_uom_unit"/>
    <field name="name">Rack 200cm</field>
    <field eval="8" name="seller_delay"/>
    <field name="type">product</field>
    <field name="categ_id" ref="product_category_misc0"/>
</record>

<record id="product_product_rearpanelarm1" model="product.product">
    <field name="default_code">RPAN200</field>
    <field name="supply_method">buy</field>
    <field name="standard_price">13.0</field>
    <field eval="0" name="sale_ok"/>
    <field name="uom_id" ref="product.product_uom_unit"/>
    <field name="uom_po_id" ref="product.product_uom_unit"/>
    <field name="name">Rear Panel SHE200</field>
    <field eval="5" name="seller_delay"/>
    <field name="type">product</field>
    <field name="categ_id" ref="product_category_misc0"/>
</record>

```

```

<record id="product_product_shelfofcm1" model="product.product">
    <field name="default_code">SHE200</field>
    <field name="supply_method">produce</field>
    <field eval="'make_to_order'" name="procure_method"/>
    <field name="list_price">210.0</field>
    <field name="standard_price">80.0</field>
    <field name="uom_id" ref="product.product_uom_unit"/>
    <field name="uom_po_id" ref="product.product_uom_unit"/>
    <field name="name">Shelf of 200cm</field>
    <field name="type">product</field>
    <field name="categ_id" ref="product_category_shelves0"/>
</record>

<record id="product_product_sidepanel0" model="product.product">
    <field name="default_code">SIDEPAN</field>
    <field name="supply_method">buy</field>
    <field name="standard_price">3.0</field>
    <field eval="0" name="sale_ok"/>
    <field name="uom_id" ref="product.product_uom_unit"/>
    <field name="uom_po_id" ref="product.product_uom_unit"/>
    <field name="name">Side Panel</field>
    <field eval="5" name="seller_delay"/>
    <field name="type">product</field>
    <field name="categ_id" ref="product_category_misc0"/>
</record>

<record id="product_product_assemblysection0" model="product.product">
    <field name="default_code">PROFIL</field>
    <field name="supply_method">produce</field>
    <field name="list_price">1.0</field>
    <field name="standard_price">2.0</field>
    <field name="uom_id" ref="product.product_uom_unit"/>
    <field name="uom_po_id" ref="product.product_uom_unit"/>
    <field name="name">Assembly Section</field>
    <field name="type">product</field>
    <field name="categ_id" ref="product_category_misc0"/>
</record>

<record id="product_product_rearpanelarm0" model="product.product">
    <field name="default_code">RPAN100</field>
    <field name="supply_method">buy</field>
    <field name="standard_price">10.0</field>
    <field eval="0" name="sale_ok"/>
    <field name="uom_id" ref="product.product_uom_unit"/>
    <field name="uom_po_id" ref="product.product_uom_unit"/>
    <field name="name">Rear Panel SHE100</field>
    <field eval="5" name="seller_delay"/>
    <field name="type">product</field>
    <field name="categ_id" ref="product_category_misc0"/>
</record>

<record id="product_product_shelf0" model="product.product">
    <field name="default_code">RCK100</field>
    <field name="supply_method">buy</field>
    <field name="standard_price">5.0</field>
    <field eval="0" name="sale_ok"/>
    <field name="uom_id" ref="product.product_uom_unit"/>
    <field name="uom_po_id" ref="product.product_uom_unit"/>
    <field name="name">Rack 100cm</field>
    <field eval="8" name="seller_delay"/>
    <field name="type">product</field>
    <field name="categ_id" ref="product_category_misc0"/>

```

```

</record>

<record id="product_product_metalcleats0" model="product.product">
    <field name="default_code">METC000</field>
    <field name="supply_method">buy</field>
    <field eval="0" name="sale_ok"/>
    <field name="uom_id" ref="product.product_uom_unit"/>
    <field name="uom_po_id" ref="product.product_uom_unit"/>
    <field name="name">Metal Cleats</field>
    <field eval="20" name="seller_delay"/>
    <field name="type">product</field>
    <field name="categ_id" ref="product_category_misc0"/>
</record>

<record id="product_product_woodmm0" model="product.product">
    <field name="default_code">WOOD002</field>
    <field name="supply_method">buy</field>
    <field name="standard_price">5.0</field>
    <field name="uom_id" ref="product.product_uom_meter"/>
    <field name="uom_po_id" ref="product.product_uom_meter"/>
    <field name="name">Wood 2mm</field>
    <field eval="10" name="seller_delay"/>
    <field eval="7.0" name="sale_delay"/>
    <field name="type">product</field>
    <field name="categ_id" ref="product_category_rawmaterial0"/>
</record>

<record id="product_product_woodmm10" model="product.product">
    <field name="default_code">WOOD010</field>
    <field name="supply_method">buy</field>
    <field name="standard_price">5.0</field>
    <field name="uom_id" ref="product.product_uom_meter"/>
    <field name="uom_po_id" ref="product.product_uom_meter"/>
    <field name="name">Wood 10mm</field>
    <field eval="10" name="seller_delay"/>
    <field eval="7.0" name="sale_delay"/>
    <field name="type">product</field>
    <field name="categ_id" ref="product_category_rawmaterial0"/>
</record>

<record id="product_product_span100" model="product.product">
    <field name="default_code">SPAN100</field>
    <field name="supply_method">buy</field>
    <field name="standard_price">3.0</field>
    <field eval="0" name="sale_ok"/>
    <field name="uom_id" ref="product.product_uom_unit"/>
    <field name="uom_po_id" ref="product.product_uom_unit"/>
    <field name="name">Shelf Panel</field>
    <field eval="5" name="seller_delay"/>
    <field name="type">product</field>
    <field name="categ_id" ref="product_category_misc0"/>
</record>

<record id="product_product_woodlintelm0" model="product.product">
    <field name="default_code">LIN40</field>
    <field name="supply_method">buy</field>
    <field name="standard_price">8.0</field>
    <field eval="0" name="sale_ok"/>
    <field name="uom_id" ref="product.product_uom_unit"/>
    <field name="uom_po_id" ref="product.product_uom_unit"/>
    <field name="name">Wood Lintel 4m</field>
    <field eval="10" name="seller_delay"/>

```

```

<field name="type">product</field>
<field name="categ_id" ref="product_category_misc0"/>
</record>

<record id="mrp_bom_defaultbomforshelfofcm0" model="mrp.bom">
<field name="name">Default BOM for Shelf of 100cm</field>
<field name="sequence">100</field>
<field name="product_id" ref="product_product_shelfofcm0"/>
<field name="product_uom" ref="product.product_uom_unit"/>
<field name="product_qty">1.0</field>
<field name="routing_id" ref="mrp.mrp_routing_1"/>
</record>

<!-- BoMs for 1 Shelf 100cm
      Product Ref. Qty      UoM      Type of BoM
      SIDE PAN        2      PCE      normal
      PROFIL          4      PCE      phantom
      RPAN100         1      PCE      phantom
      RCK100          3      PCE      phantom
-->

<record id="mrp_bom_sidepanel0" model="mrp.bom">
<field name="name">Side Panel</field>
<field name="sequence">101</field>
<field name="product_id" ref="product_product_sidepanel0"/>
<field name="product_uom" ref="product.product_uom_unit"/>
<field name="product_qty">2.0</field>
<field name="bom_id" ref="mrp_bom_defaultbomforshelfofcm0"/>
</record>

<record id="mrp_bom_metalcleats0" model="mrp.bom">
<field name="name">Metal Cleats</field>
<field name="sequence">127</field>
<field name="product_id" ref="product_product_metalcleats0"/>
<field name="product_uom" ref="product.product_uom_unit"/>
<field name="product_qty">12.0</field>
<field name="bom_id" ref="mrp_bom_defaultbomforshelfofcm0"/>
</record>

<record id="mrp_bom_assemblysection0" model="mrp.bom">
<field name="name">Assembly Section</field>
<field name="sequence">102</field>
<field name="product_id" ref="product_product_assemblysection0"/>
<field name="product_uom" ref="product.product_uom_unit"/>
<field name="product_qty">4.0</field>
<field name="bom_id" ref="mrp_bom_defaultbomforshelfofcm0"/>
<field name="type">phantom</field>
</record>

<record id="mrp_bom_rearpanelarm0" model="mrp.bom">
<field name="sequence">103</field>
<field name="product_id" ref="product_product_rearpanelarm0"/>
<field name="product_uom" ref="product.product_uom_unit"/>
<field name="bom_id" ref="mrp_bom_defaultbomforshelfofcm0"/>
<field name="product_qty">1.0</field>
<field name="name">Rear panel SHE100</field>
<field name="type">phantom</field>
</record>

<record id="mrp_bom_shelf0" model="mrp.bom">
<field name="sequence">104</field>
<field name="product_id" ref="product_product_shelf0"/>

```

```

<field name="product_uom" ref="product.product_uom_unit"/>
<field name="bom_id" ref="mrp_bom_defaultbomforshelfofcm0"/>
<field name="product_qty">3.0</field>
<field name="name">RCK100</field>
<field name="type">phantom</field>
</record>

<!--
    BOMs for 1 RCK100 PCE
    Product Ref      Qty UoM  Type of BoM
    SPAN100          1   PCE  phantom
    METC000          4   PCE  normal
-->
<record id="mrp_bom_shelf1" model="mrp.bom">
    <field name="sequence">133</field>
    <field name="product_id" ref="product.product_shelf0"/>
    <field name="product_uom" ref="product.product_uom_unit"/>
    <field name="product_qty">1.0</field>
    <field name="name">RCK100</field>
</record>
<record id="mrp_bom_shelf0_span100" model="mrp.bom">
    <field name="sequence">1331</field>
    <field name="product_id" ref="product.product_span100"/>
    <field name="product_uom" ref="product.product_uom_unit"/>
    <field name="bom_id" ref="mrp_bom_shelf1"/>
    <field name="product_qty">1.0</field>
    <field name="type">phantom</field> <!-- It should be phantom -->
    <field name="name">SPAN100</field>
</record>
<record id="mrp_bom_shelf0_metalcleats0" model="mrp.bom">
    <field name="sequence">1332</field>
    <field name="product_id" ref="product.product_metalcleats0"/>
    <field name="product_uom" ref="product.product_uom_unit"/>
    <field name="bom_id" ref="mrp_bom_shelf1"/>
    <field name="product_qty">4.0</field>
    <field name="name">METC000</field>
</record>
<!--
    Bill of Materials for 1 SPAN100 PCE
    Product Code      Quantity     Unit of Measure
    WOOD010           0.083       m
-->
<record id="mrp_bom_span100" model="mrp.bom">
    <field name="sequence">135</field>
    <field name="product_id" ref="product.product_span100"/>
    <field name="product_uom" ref="product.product_uom_unit"/>
    <field name="product_qty">1.0</field>
    <field name="name">SPAN100</field>
</record>
<record id="mrp_bom_span100_wood010" model="mrp.bom">
    <field name="sequence">1351</field>
    <field name="product_id" ref="product.product_woodmm10"/>
    <field name="product_uom" ref="product.product_uom_meter"/>
    <field name="bom_id" ref="mrp_bom_span100"/>
    <field name="product_qty">0.083</field>
    <field name="name">WOOD010</field>
</record>
<!-- BoMs for 1 Assembly Section PCE
    Product Ref.      Qty      UoM
    LIN40            0.25     Meter
-->
<record id="mrp_bom_assemblysection1" model="mrp.bom">

```

```

<field name="name">Assembly Section</field>
<field name="sequence">123</field>
<field name="product_id" ref="product_product_assemblysection0"/>
<field name="product_uom" ref="product.product_uom_unit"/>
<field name="product_qty">1.0</field>
<field name="routing_id" ref="mrp.mrp_routing_0"/>
</record>

<record id="mrp_bom_woodlintelm0" model="mrp.bom">
    <field name="sequence">1231</field>
    <field name="product_id" ref="product_product_woodlintelm0"/>
    <field name="product_uom" ref="product.product_uom_meter"/>
    <field name="product_qty">0.25</field>
    <field name="bom_id" ref="mrp_bom_assemblysection1"/>
    <field name="name">Wood Lintel 0.25m</field>
</record>
<!--
Bill of Materials for 1 RPAN100 PCE
    Product Code      Quantity      Unit of Measure
        WOOD002          0.25           m
-->
<record id="mrp_bom_rearpanelarm1" model="mrp.bom">
    <field name="sequence">131</field>
    <field name="product_id" ref="product_product_rearpanelarm0"/>
    <field name="product_uom" ref="product.product_uom_unit"/>
    <field name="product_qty">1.0</field>
    <field name="name">Rear panel SHE100</field>
    <field name="routing_id" ref="mrp.mrp_routing_0"/>
</record>
<record id="mrp_bom_rearpanelarm1_wood002" model="mrp.bom">
    <field name="sequence">1311</field>
    <field name="product_id" ref="product_product_woodmm0"/>
    <field name="product_uom" ref="product.product_uom_meter"/>
    <field name="bom_id" ref="mrp_bom_rearpanelarm1"/>
    <field name="product_qty">0.25</field>
    <field name="name">WOOD002 0.25m</field>
</record>
<record id="mrp_bom_defaultbomforshelfofcm1" model="mrp.bom">
    <field name="name">Default BOM for Shelf of 200cm</field>
    <field name="code">SHE200</field>
    <field name="sequence">137</field>
    <field name="product_id" ref="product_product_shelfofcm1"/>
    <field name="product_uom" ref="product.product_uom_unit"/>
    <field name="product_qty">1.0</field>
</record>

<!--Defining BoMs of Shelf 200cm
    Product Ref.      Qty      UoM      Type of BoM
        RPAN200          1       PCE      normal
        PROFIL            4       PCE      normal
        SIDEPAN           2       PCE      normal
        METC000           12      PCE      normal
        RCK200             3       PCE      normal
-->
<record id="mrp_bom_rearpanelarm2" model="mrp.bom">
    <field name="sequence">147</field>
    <field name="product_id" ref="product_product_rearpanelarm1"/>
    <field name="product_uom" ref="product.product_uom_unit"/>
    <field name="bom_id" ref="mrp_bom_defaultbomforshelfofcm1"/>
    <field name="product_qty">1.0</field>
    <field name="name">Rear panel SHE200</field>
</record>

```

```

<record id="mrp_bom_assemblysection3" model="mrp.bom">
    <field name="name">Assembly Section</field>
    <field name="sequence">149</field>
    <field name="product_id" ref="product_product_assemblysection0"/>
    <field name="product_uom" ref="product.product_uom_unit"/>
    <field name="product_qty">4.0</field>
    <field name="bom_id" ref="mrp_bom_defaultbomforshelfofcm1"/>
</record>

<record id="mrp_bom_sidepanel3" model="mrp.bom">
    <field name="name">Side Panel</field>
    <field name="sequence">151</field>
    <field name="product_id" ref="product_product_sidepanel0"/>
    <field name="product_uom" ref="product.product_uom_unit"/>
    <field name="product_qty">2.0</field>
    <field name="bom_id" ref="mrp_bom_defaultbomforshelfofcm1"/>
</record>

<record id="mrp_bom_shelf2" model="mrp.bom">
    <field name="sequence">153</field>
    <field name="product_id" ref="product_product_shelf1"/>
    <field name="product_uom" ref="product.product_uom_unit"/>
    <field name="bom_id" ref="mrp_bom_defaultbomforshelfofcm1"/>
    <field name="product_qty">3.0</field>
    <field name="name">Shelf 200</field>
</record>

<record id="mrp_bom_metalcleats3" model="mrp.bom">
    <field name="name">Metal Cleats</field>
    <field name="sequence">155</field>
    <field name="product_id" ref="product_product_metalcleats0"/>
    <field name="product_uom" ref="product.product_uom_unit"/>
    <field name="product_qty">12.0</field>
    <field name="bom_id" ref="mrp_bom_defaultbomforshelfofcm1"/>
</record>

<record id="mrp_bom_defaultbomforkitshelfofcm0" model="mrp.bom">
    <field name="name">Default BOM for KIT Shelf of 100cm</field>
    <field name="code">SHE100KIT</field>
    <field name="sequence">139</field>
    <field name="product_id" ref="product_product_kitshelfofcm0"/>
    <field name="product_uom" ref="product.product_uom_unit"/>
    <field name="product_qty">1.0</field>
    <field name="type">phantom</field>
</record>

<!--Defining BoMs of KIT Shelf 100cm
    Product Ref.      Qty      UoM      Type of BoM
    PROFIL           4        PCE      normal
    SIDEPAN          2        PCE      normal
-->

<record id="mrp_bom_assemblysection2" model="mrp.bom">
    <field name="name">Assembly Section</field>
    <field name="sequence">143</field>
    <field name="product_id" ref="product_product_assemblysection0"/>
    <field name="product_uom" ref="product.product_uom_unit"/>
    <field name="product_qty">4.0</field>
    <field name="bom_id" ref="mrp_bom_defaultbomforkitshelfofcm0"/>
</record>

<record id="mrp_bom_sidepanel2" model="mrp.bom">

```

```

<field name="name">Side Panel</field>
<field name="sequence">145</field>
<field name="product_id" ref="product_product_sidepanel0"/>
<field name="product_uom" ref="product.product_uom_unit"/>
<field name="product_qty">2.0</field>
<field name="bom_id" ref="mrp_bom_defaultbomforkitsshelfofcm0"/>
</record>

<record id="product.product_uom_dzzen" model="product.uom">
    <field name="category_id" ref="product.product_uom_categ_unit"/>
    <field name="name">Dozen</field>
    <field name="factor" eval="0.083"/>
    <field name="uom_type">bigger</field>
</record>

<record id="mrp_production_shelf100cm" model="mrp.production">
    <field name="product_id" ref="product_product_shelfofcm0"/>
    <field name="product_uom" ref="product.product_uom_dzzen"/>
    <field name="product_qty">3</field>
    <field name="location_src_id" ref="stock.stock_location_stock"/>
    <field name="location_dest_id" ref="stock.stock_location_output"/>
    <field name="bom_id" ref="mrp_bom_defaultbomforshelfofcm0"/>
</record>

```

Tip:

Copy

To create the above records, copy these records and paste it in `mrp_demo.xml` upgrade `mrp` module from Database.

20.2 Bill of Materials and Components

20.2.1 Using Bills of Materials

Bills of Materials are documents that describe the list of raw materials used to make a finished product. To illustrate the concept of specification, you will work on a shelf (or cabinet) where the manufacturing plan is given by the figure *Plan of Construction of a Shelf*.

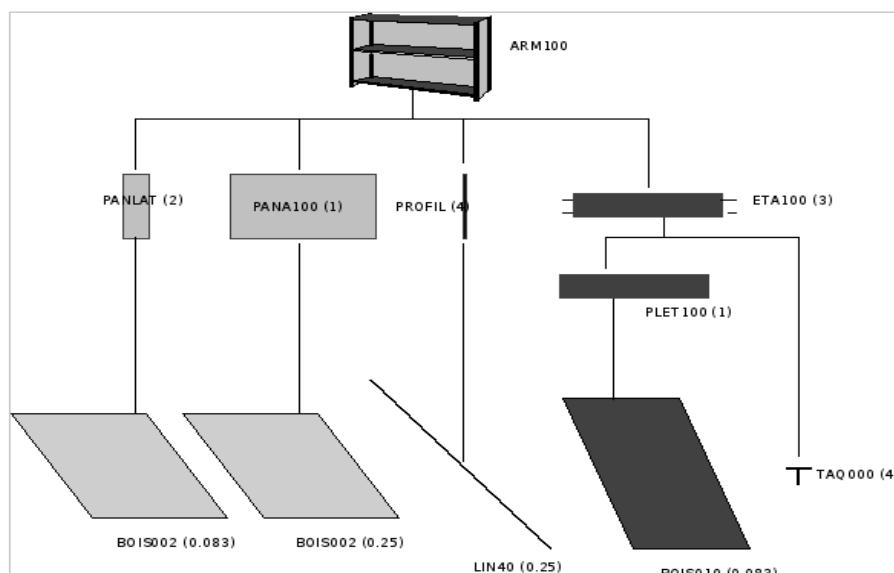


Figure 20.1: Plan of Construction of a Shelf

The shelf is assembled from raw materials and intermediate assemblies. The Image Code refers to the picture, the Product Reference is the corresponding code in OpenERP.

Change the unit of the Wood Lintel 4m (LIN40) product to m instead of Unit(s).

Table 20.1: Product Definitions before defining Bills of Materials
(already defined)

Image Code	Product Reference	Description
ARM100	SHE100	Shelf 100 cm
PANLAT	SIDEPAN	Side Panel
PANA100	RPAN100	Rear Panel SHE100
PROFIL	PROFIL	Assembly Section
ETA100	RCK100	Rack 100cm
BOIS002	WOOD002	Wood 2mm
TAQ000	METC000	Metal Cleats
LIN40	LIN40	Wood Lintel 4m

Table 20.2: New Products to be created before defining Bill of Materials

Image Code	Product Reference	Description
PLET100	SPAN100	Shelf Panel
BOIS010	WOOD010	Wood 10mm

Tip:

Copy

To create the above products, duplicate existing ones, such as Side Panel and Wood 2mm, from the Purchase or Sales menu Purchases → Products → Products.

To describe how this shelf should be assembled, you define a bill of materials for each intermediate product and for the final shelf assembly. These are shown in the tables below. You can start from the demo data and complete them according to the specifications. To create or change a bill of materials, go to Manufacturing → Products → Bill of Materials.

Table 20.3: Bill of Materials for 1 SHE100 Unit (already defined)

Product Ref.	Quantity	Unit of Measure
PROFIL	4	Unit(s)
SIDEPAN	2	Unit(s)
METC000	12	Unit(s)
RPAN100	1	Unit(s)
RCK100	3	Unit(s)

Table 20.4: Bill of Materials for 1 RCK100 Unit(s)

Product Code	Quantity	Unit of Measure
SPAN100	1	Unit(s)
METC000	4	Unit(s)

Table 20.5: Bill of Materials for 1 SPAN100 Unit(s)

Product Code	Quantity	Unit of Measure
WOOD010	0.083	m

Table 20.6: Bill of Materials for 1 PROFIL Unit(s)

Product Code	Quantity	Unit of Measure
LIN40	0.25	m

Table 20.7: Bill of Materials for 1 RPAN100 Unit(s)

Product Code	Quantity	Unit of Measure
WOOD002	0.25	m

Table 20.8: Bill of Materials for 1 SIDE PAN Unit(s)

Product Code	Quantity	Unit of Measure
WOOD002	0.083	m

The bills of materials are then used by the software to calculate the raw material needs based on the requirements of the finished products. So if you want to manufacture 10 shelves, the system can calculate the actual products that will be consumed:

Table 20.9: Total Quantities per Shelf

Product Code	Quantity	Unit of Measure
WOOD002	0.416 ($2 * 0.083 + 0.25$)	m
LIN40	1 ($4 * 0.25$)	m
WOOD010	0.249 ($0.083 * 3$)	m
METC000	132 ($(3 * 4) + (10 * 12)$)	Unit(s)

Tip:

Bill of Materials

To see the bill of materials in tree view, use the menu Manufacturing → Products → Products then select the product and choose Product BOM Structure from more button.

Product	Product Quantity	Product Unit of Measure	Reference	BoM Type	Method	Routing	Valid From	Valid Until
▼ [SHE100] Shelf of 100cm	1.000 Unit(s)			Normal BoM		Custom Assembly Line		
[SIDE PAN] Side Panel	2.000 Unit(s)			Normal BoM				
▼ [PROFIL] Assembly Section	4.000 Unit(s)			Sets / Phantom				
[LIN40] Wood Lintel 4m	0.250 m			Normal BoM				
▼ [RPAN100] Rear Panel SHE100	1.000 Unit(s)			Sets / Phantom				
[WOOD002] Wood 2mm	0.250 m			Normal BoM				
▼ [RCK100] Rack 100cm	3.000 Unit(s)			Sets / Phantom				
▼ [SPAN100] Shelf Panel	1.000 Unit(s)			Sets / Phantom				
[WOOD010] Wood 10mm	0.083 m			Normal BoM				
[METC000] Metal Cleats	4.000 Unit(s)			Normal BoM				
[METC000] Metal Cleats	12.000 Unit(s)			Normal BoM				

Figure 20.2: Bill of Materials structure

Use the menu Manufacturing → Products → Bill of Materials and click the Create button to define a new bill of materials.

Tip:

The Different Views

To change the view in the bill of materials you can:

- From the list, select a bill of materials name and then click Form View,
- From a product form, use the Bill of Materials Button.

Product	[SHE100] Shelf of 100cm	Reference	Normal BoM																					
Quantity	1.000 Unit(s)	BoM Type																						
Product UOS Qty	0.00																							
Routing	Custom Assembly Line																							
<table border="1"> <tr> <td>Components</td> <td>Properties</td> <td>Byproducts</td> </tr> <tr> <td>Product</td> <td>Product Quantity</td> <td>Product Unit of Measure</td> </tr> <tr> <td>[SIDE PAN] Side Panel</td> <td>2.000 Unit(s)</td> <td></td> </tr> <tr> <td>[PROFIL] Assembly Section</td> <td>4.000 Unit(s)</td> <td></td> </tr> <tr> <td>[RPAN100] Rear Panel SHE100</td> <td>1.000 Unit(s)</td> <td></td> </tr> <tr> <td>[RCK100] Rack 100cm</td> <td>3.000 Unit(s)</td> <td></td> </tr> <tr> <td>[METC000] Metal Cleats</td> <td>12.000 Unit(s)</td> <td></td> </tr> </table>				Components	Properties	Byproducts	Product	Product Quantity	Product Unit of Measure	[SIDE PAN] Side Panel	2.000 Unit(s)		[PROFIL] Assembly Section	4.000 Unit(s)		[RPAN100] Rear Panel SHE100	1.000 Unit(s)		[RCK100] Rack 100cm	3.000 Unit(s)		[METC000] Metal Cleats	12.000 Unit(s)	
Components	Properties	Byproducts																						
Product	Product Quantity	Product Unit of Measure																						
[SIDE PAN] Side Panel	2.000 Unit(s)																							
[PROFIL] Assembly Section	4.000 Unit(s)																							
[RPAN100] Rear Panel SHE100	1.000 Unit(s)																							
[RCK100] Rack 100cm	3.000 Unit(s)																							
[METC000] Metal Cleats	12.000 Unit(s)																							

Figure 20.3: Defining a Bill of Materials

In the Product field of the bill of materials, you should set the finished product, which will be manufactured or assembled. Once the product has been selected, OpenERP automatically completes the name of the bill of

materials and the default Unit of Measure for this product.

The type of BoM (*BoM Type* : Sets/Phantom or Normal BoM) and the *Routing* field will be described in more detail later in the chapter.

Now you can select the raw materials (Components) that are used to manufacture the finished product. The quantities are set out based on the quantities of finished product and the quantities needed to produce them from the bill of materials.

The tab, *By products*, allows you to produce several products from one production order. This feature is available if you have installed the module `mrp_byproducts`, which can be done by selecting *Produce several products from one manufacturing order* in the *Settings → Configuration → Manufacturing in Order*.

Product	Product Unit of Measure	Product Qty	Quantity Type
[PANLAT] Wooden Side Panel	Unit(s)	2.00	Fixed

Figure 20.4: *By Products of a Bill of Materials*

In the third tab, *Properties*, you can put a free text reference to a plan, a sequence number that is used to determine the priorities between bills of materials, dates between which a bill of materials is valid, and values for rounding and production efficiency.

Internal Reference	Valid From
Parent BoM	Valid Until
Sequence	Product Rounding
Active	Manufacturing Efficiency

Figure 20.5: *Properties of a Bill of Materials*

Rounding is used to set the smallest *Unit of Measure* in which the quantities of the selected product can be expressed. So if you set the rounding to 1.00, you will not be able to manufacture half a piece. The *Efficiency* of the product lets you indicate the percentage you lose during manufacturing. This loss can be defined for the finished product or for each raw materials (components) line. The impact of this efficiency figure is that OpenERP will reserve more raw materials for manufacturing than you would otherwise use just from the Bill of Materials calculations.

The final part of this tab lets you set some properties for the product's manufacturing processes. These will be detailed further on in the chapter in the section about configurable products.

20.2.2 Multi-level Bills of Materials

In OpenERP, each line of a bill of materials may itself be a bill of materials. This allows you to define BoMs with several levels. Instead of defining several BoMs for the shelf in the figure *Plan of Construction of a Shelf*, you could define the single bill of materials below:

Table 20.10: Single Bill of Materials for 1 SHE100 Unit

Product Ref.	Quantity	Unit of Measure
SHE100	1	Unit(s)
SIDEPAN	2	Unit(s)
WOOD002	0.166	m
RPAN100	1	Unit(s)
WOOD002	0.25	m
PROFIL	4	Unit(s)
LIN40	1	m
RCK100	3	Unit(s)
SPAN100	3	Unit(s)
WOOD010	0.249	m
METC000	132	Unit(s)

OpenERP behaves differently depending on whether the bill of materials is defined in several small BoMs each on a single level or in one BoM tree-structured on several levels.

If you select a BoM using intermediate products that automatically generates production orders based on calculated requirements, OpenERP will propose to manufacture an intermediate product. To manufacture a shelf according to the different bills of materials defined, you would create 6 production orders:

Table 20.11: Production Order

Product Ref.	Quantity	Unit of Measure
SPAN100	3	Unit(s)
WOOD010	0.249	m

Table 20.12: Production Order

Product Ref.	Quantity	Unit of Measure
RCK100	3	Unit(s)
SPAN100	3	Unit(s)
METC000	12	Unit(s)

Table 20.13: Production Order

Product Ref.	Quantity	Unit of Measure
PROFIL	4	Unit(s)
LIN40	1	m

Table 20.14: Production Order

Product Ref.	Quantity	Unit of Measure
RPAN100	1	Unit(s)
WOOD002	0.25	m

Table 20.15: Production Order

Product Ref.	Quantity	Unit of Measure
SIDEPAN	2	Unit(s)
WOOD002	0.17	m

Table 20.16: Production Order

Product Ref.	Quantity	Unit of Measure
SHE100	1	Unit(s)
SIDEPAN	2	Unit(s)
RPAN100	1	Unit(s)
PROFIL	4	Unit(s)
RCK100	3	Unit(s)
METC000	12	Unit(s)

In the case where a single bill of materials is defined in multiple levels, a single manufacturing order will be generated for each shelf, including all of the sub BoMs. You would then get the following production order:

Table 20.17: Single Production from a tree-structured BoM

Product Ref.	Quantity	Unit of Measure
SHE100	1	Unit(s)
WOOD002	0.17	m
WOOD002	0.25	m
LIN40	1	m
WOOD010	0.249	m
METC000	132	Unit(s)

20.2.3 Phantom Bills of Materials

If a finished product is defined using intermediate products that are themselves defined using other BoMs, OpenERP will propose to manufacture each intermediate product. This will result in several production orders. If you only want a single production order, you can define a single BoM with several levels.

Sometimes, however, it may be useful to define the intermediate product separately and not as part of a multi-level assembly, even if you do not want separate production orders for intermediate products.

In the example, the intermediate product RCK100 is used in the manufacturing of different shelves (SHE100, SHE200, ...). So you would prefer to define a unique BoM for it, even though you do not want any instances of this product to be built, nor would you want to rewrite these elements in a series of different multi-level BoMs.

If you only want a single production order for the complete shelf, and not one for the BoM itself, you can define the BoM line corresponding to product RCK100 in the shelf's BoM as type *Sets/Phantom*. Then OpenERP will automatically put RCK100's BoM contents into the shelf's production order, even though it has been defined as multi-level.

This way of representing the assembly is very useful, because it allows you to define reusable assembly elements and keep them isolated.

If you define the BoM for the SHE100 shelf in the way shown by the table below, you will get two production orders on confirmation of a sales order, as also shown in the tables.

Table 20.18: Defining and Using Phantom BoMs

Product Ref.	Quantity	Unit of Measure	Type of BoM
SHE100	1	Unit(s)	normal
SIDE PAN	2	Unit(s)	normal
RPAN100	1	Unit(s)	phantom
PROFIL	4	Unit(s)	phantom
RCK100	3	Unit(s)	phantom

Table 20.19: Production Order from Phantom BoMs

Product Ref.	Quantity	Unit of Measure
SHE100	1	Unit(s)
SIDE PAN	2	Unit(s)
WOOD002	0.25	m
LIN40	1	m
WOOD010	0.249	m
METC000	12	Unit(s)

Table 20.20: Production Order from Normal BoM

Product Ref.	Quantity	Unit of Measure
SIDE PAN	2	Unit(s)
WOOD002	0.17	m

20.2.4 Bills of Materials for Kits/Sets

Note:

Sales Bills of Materials

In other software, this is sometimes called a Sales Bill of Materials. In OpenERP, the term Kits/Sets is used, because the effect of the bill of materials is visible not only in sales, but also elsewhere, for example, in the intermediate manufactured products.

Kits/Sets bills of materials enable you to define assemblies that will be sold directly. These could also be used in deliveries and stock management rather than just sold separately. For example, if you deliver the shelf in pieces for self-assembly, set the SHE100 BoM to type Sets / Phantom.

When a salesperson creates an order for a SHE100 product, OpenERP automatically changes the SHE100 from a set of components into an identifiable package for sending to a customer. Then it asks the storesperson to pack 2 SIDE PAN, 1 RPAN100, 4 PROFIL, 3 RCK100. This is described as a SHE100, not just the individual products delivered.

20.3 Work Centers

Work centers represent units of production, capable of doing material transformation operations. You can distinguish two types of work centers: machines and human resources.

Note:

Work Center

Work centers are units of production consisting of one or several people and/or machines that can be considered as a unit for the purpose of forecasting capacity and planning.

Use the menu *Manufacturing → Configuration → Work Centers* to define a new work center. You get a form as shown in the figure [Defining a Work Center](#).

Figure 20.6: *Defining a Work Center*

A work center should have a name. You then assign a type: Material or Human, a code and the operating hours, i.e. Working Period. The Working Time(s) can be defined through the menu *Manufacturing → Configuration → Resources → Working Time*. The figure [Defining a Work Center](#) represents the hours from Monday to Friday, from 08:00 to 18:00 with a break of an hour from 12:00.

You can also add a description of the work center and its operations.

Once the work center is defined, you should enter data about its production capacity. Depending on whether you have a machine or a person, a work center will be defined in cycles or hours. If it represents a set of machines and people you can use cycles and hours at the same time.

Note:**A Cycle**

A cycle corresponds to the time required to carry out an assembly operation. The user is free to determine which is the reference operation for a given work center. It should be represented by the cost and elapsed manufacturing time.

For example, for a printing work center, a cycle might be the printing of 1 page or of 1000 pages depending on the printer.

To define the capacity properly, it is necessary to know, for each work center, what will be the reference operation which determines the cycle. You can then define the data relative to the capacity.

Capacity per Cycle (CA): the number of operations that can be done in parallel during a cycle. Generally, the number defines the number of identical machines or people defined by the work center.

Time for 1 cycle (hour) (TC): the duration in hours for one cycle or the operations defined by a cycle.

Time before production (TS): the time in hours required to initialize production operations. Generally, this represents the machine setup time.

Time after production (TN): the delay in hours after the end of a production operation. Generally, this represents the cleaning time necessary after an operation.

Efficiency factor (ET): the factor that is applied to the TC, TS and TN times to determine the real production time. This factor enables you to readjust the different times progressively and as a measure of machine utilization. You cannot re-adjust the other times, because generally they are taken from the machine's data sheet. By default, the efficiency is set to 1, representing a load of 100%. When you set the efficiency to 2 (i.e. 200%), the load will be 50%.

The total time for carrying out X operations is then given by the following formula:

$$((X / CA) * TC + TS + TN) * ET$$

In this formula the result of the division is rounded upwards. Then, if the capacity per cycle is 6, it takes 3 cycles to realize 15 operations ($15/6 = 2.5$, rounded upwards = 3).

If you leave the different fields empty, it will not have any effect on the analytic accounts.

20.4 Routings

Routings define the manufacturing operations to be done in work centers to produce a certain product. A routing is usually attached to bills of materials, which will define the assembly of products required for manufacturing or to produce finished products.

A routing can be defined directly in a bill of materials or through the menu *Manufacturing → Products → Routings*. A routing has a name, and a code. You can also add a description. Later in this chapter you will see that a routing can also be associated with a stock location. This enables you to indicate where an assembly takes place.

Name Code	Custom Assembly Line	Production Location Company Active	Your Company <input checked="" type="checkbox"/>		
Work Center Operations Notes					
Sequence	Name	Work Center	Number of Cycles	Number of Hours	Company
5	Packing	Repairs workshop	1.00	0.50	Your Company
10	Testing	Assembly workshop	1.00	1.00	Your Company
15	Long time assembly	Assembly workshop	2.00	5.00	Your Company

Figure 20.7: Defining a routing with Three Operations

Note:*Subcontracting Assembly*

You will see further on in this chapter that you can also link a routing to a stock location for the customer or the supplier. You can use this functionality when you have subcontracted the assembly of a product to a supplier, for instance.

In the routing, you have to enter the list of operations that has to be executed. Each operation has to be done at a specific work center and includes a number of hours and/or cycles.

Tip:*Multi-level Routing*

It is possible to define routing on several levels to support multi-level bills of materials. You can select the routing on each level of a bill of materials (BoM in a BoM can have a different routing). The levels are then linked to hierarchies of bills of materials.

20.5 Manufacturing Orders

Once the bills of materials have been defined, OpenERP is capable of automatically deciding on the manufacturing route according to the needs of the company.

Production orders can be proposed automatically by the system depending on several criteria described in the preceding chapter:

- Using the Make to Order rules,
- Using the Order Point (Minimum Stock) rules,
- Using the Production plan.

Of course, you can also start production manually by clicking the button *Create* in the menu *Manufacturing → Manufacturing → Manufacturing Orders*.

Figure 20.8: *Manufacturing Order*

If you have not installed the Just-in-Time planning module `mrp_jit`, you should start using OpenERP to schedule the Production Orders automatically using the various system rules. To do this, use the menu *Warehouse → Schedulers → Run Schedulers*.

Tip:*Procurement Exceptions*

Pay attention to the fact that you have to define minimum stock rules for each product set as *Make to Stock*.

20.6 Complete Production Workflow

To understand the usefulness and the functioning of the system you should test a complete workflow on the database installed with the demonstration data. We will show you:

- How to create a sales order,
- The manufacturing workflow for an intermediate product,
- The manufacturing of an ordered product,
- The delivery of products to a customer,
- Invoicing at the end of the month,
- Traceability for after-sales service.

This more advanced case of handling problems in procurement will be sorted out later in the chapter.

20.6.1 The Sales Order

Begin by encoding a sales (or customer) order through the menu *Sales → Sales → Quotation -> Create*. Enter the following information:

- *Customer* : Agrolait,
- *Create Invoice* : On Delivery Order (Other Information tab),
- *Sales Order Lines*, click *Add an item*:
 - *Product* : [LAP-CUS] Laptop Customised,
 - *Quantity (UoM)* : 1,
 - *Product UoM* : Unit(s),
 - *Procurement Method* : on order.

Once the quotation has been entered, you can confirm it immediately by clicking the button *Confirm Sale* at the top. Keep note of the order reference because this follows all through the process. Usually, in a new database, this will be SO009 . At this stage SO010

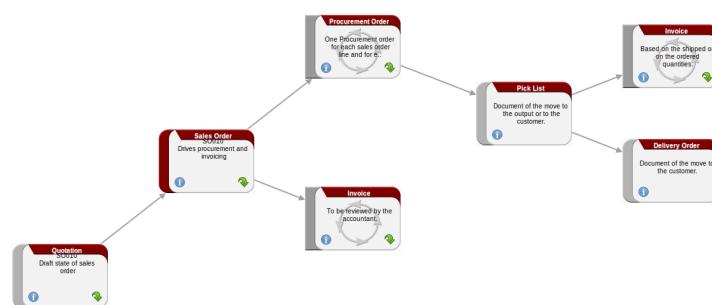


Figure 20.9: Process for Handling Sales Order SO010

20.6.2 Producing an Intermediate Product

To understand the implications of requirements calculation, you should know the configuration of the sold product. To do this, go to the form for product LAP-CUS and click the *Product BoM Structure* From the more

button. You get the screen shown in *Composition of LAP-CUS* which is the composition of the selected product.

Product	Product Quantity	Reference	BoM Type	Method	Routing	Valid From	Valid Until
↳ [LAP-CUS] Laptop Customized	1.000		Normal BoM		Custom Assembly Line		
[Win7] Windows 7 Professional	1.000		Normal BoM				
[KeyQ] USB Keyboard, QWERTY	1.000		Normal BoM				
[M-Wi] Mouse, Wireless	1.000		Normal BoM				
↳ LP-Kit Laptop - extra kit	1.000		Normal BoM	On Order			
[PDS-P2] Pen drive, SP-2	1.000		Normal BoM				
[DC] Datacard	1.000		Normal BoM				

Figure 20.10: *Composition of LAP-CUS*

The LAP-CUS Customised Laptop has to be manufactured in two steps:

- 1: The intermediate product: LP-Kit
- 2: The finished product using that intermediate product: LAP-CUS

The manufacturing supervisor can then consult the production orders using the menu *Manufacturing → Manufacturing → Manufacturing Orders*. You then get a list of orders.

Manufacturing Orders									
Create		Production SO010.k							
Reference	Scheduled Date	Product	Product Quantity	Product Unit of Measure	Routing	Total Hours	Total Cycles	Source Document	Status
MO/00012	03/22/2013 05:30:00	[LP-Kit] Laptop - extra kit	1.000	Unit(s)		0.00	0.00	SO010.MO/00011	Awaiting Raw Materials
MO/00011	03/24/2013 05:30:00	[LAP-CUS] Laptop Customized	1.000	Unit(s)	Custom Assembly Line	10.45	4.00	SO010	Awaiting Raw Materials

Figure 20.11: *List of Manufacturing Orders*

You will see the Manufacturing order for *LP-Kit* and one for *[LAP-CUS] Laptop Customized* because it depends on an intermediate product. Return to the Manufacturing order for *LP-Kit* and click it. If there are several of them, select the one corresponding to your order using the source document that contains your order number (in this example *SO010*).

Product	[LP-Kit] Laptop - extra kit	Bill of Material	LP-Kit
Product Quantity	1.000 Unit(s)	Routing	
Product UoS Quantity	0.00	Responsible	Administrator
Scheduled Date	03/22/2013 05:30:00	Source Document	SO010.MO/00011
Raw Materials Location	Physical Locations / Your Company / Stock		
Finished Products Location	Physical Locations / Your Company / Stock		
Consumed Products Finished Products Work Orders Scheduled Products Extra Information			
Products to Consume		Consumed Products	
Product	Quantity	Unit of Measure	Serial Number
[PDS-P2] Pen drive, SP-2	1.000	Unit(s)	
[DC] Datacard	1.000	Unit(s)	

Figure 20.12: *Details of a Production Order*

The system shows you that you have to manufacture product *LAP-CUS* using the components: *LP-Kit*. You can then confirm the production twice:

Start production: consumption of raw materials,

Produce: manufacturing of finished product.

Manufacturing order is Waiting for raw material, you should set the availability by clicking Force Reservation Button.

Click the Mark as Started button, then click the Edit button, and edit the line for the product [DC]Datacard. Enter a serial number for it by putting the cursor in the field *Serial Number* and to create a new Number. Enter an internal reference, for example: MB1345678. The system may then show you a warning because this lot is not in stock, but you can ignore this message.

Click the **Produce** button to manufacture the finished product.

The production order has to be in the closed state as shown in the figure *Production Order after the Different Stages*.

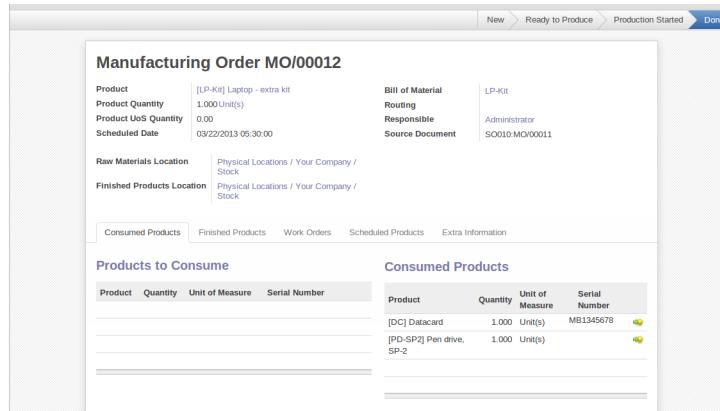


Figure 20.13: *Production Order after the Different Stages*

20.6.3 Finished Product Manufacturing

Having manufactured the intermediate product LP-Kit, OpenERP automatically proposes the manufacturing of the computer LAP-CUS using the order created earlier. Return to the Manufacturing Orders menu and look at the orders Ready to Produce through *Manufacturing* → *Manufacturing* → *Manufacturing Orders*.

You will find LAP-CUS which has been sold to the customer (source document SO010), as shown in the figure hereafter.

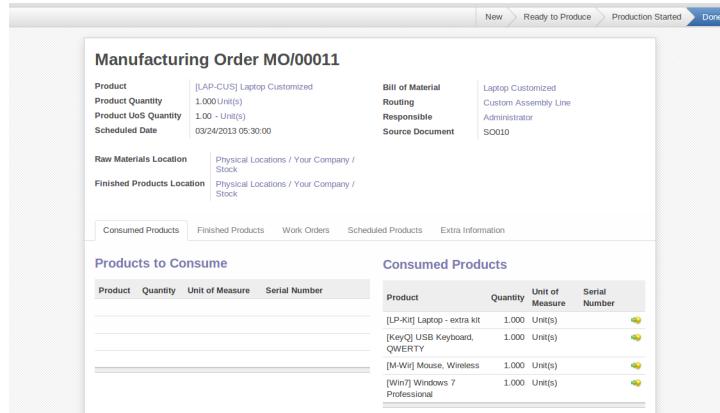


Figure 20.14: *Completed Production for LAP-CUS*

Now that the production has been completed, the product sold to the customer has been manufactured and the raw materials have been consumed and taken out of stock.

Tip:

Automatic Actions

As well as managing the use of materials and the production of stocks, manufacturing can have the following automatic effects which are detailed further on in the chapter:

- adding value to stock,
- generating operations for assembly staff,
- automatically creating analytical accounting entries.

20.6.4 Subproduct Production

If you need to manage subproducts, you should install the module `mrp_byproduct`. Go to menu `Settings → Configuration → Manufacturing`. And in `Order`, tick `Produce several products`. The normal behaviour of manufacturing in OpenERP enables you to manufacture several units of the same finished product from raw materials ($A + B > C$). With Subproduct management, the manufacturing result can be to have both finished products and secondary products ($A + B > C + D$).

Note:

Subproduct Material

In OpenERP, subproduct material corresponds to secondary products that are a by-product of the main manufacturing process. For example, cutting planks of timber will produce other planks but these bits of timber are too small (or the offcuts may have value for the company if they can be used elsewhere).

If the module `mrp_byproduct` has been installed, you get a new tab `By products` in the Bill of Material that lets you set secondary products resulting from the manufacturing of the finished product.

Product	[ARM100] Cabinet	Name	Cabinet
Quantity	1.000 Unit(s)	Reference	NA
Product UoS Qty	0.00	Bom Type	Normal Bom
Routing	Assembly Line 1	Company	Your Company
Components	Properties	Byproducts	
Product		Product Unit of Measure	Product Qty
[PANLAT] Wooden Side Panel		Unit(s)	2.000 Fixed

Figure 20.15: *Definition of Subproducts*

When OpenERP generates a production order based on a bill of materials that uses a secondary product, you pick up the list of all products in the second tab of the production order `Finished Products`.

Manufacturing Order MO/00013					
Product	[ARM100] Cabinet	Bill of Material	Cabinet		
Product Quantity	2.000 Unit(s)	Routing	Assembly Line 1		
Product UoS Quantity	2.00 - Unit(s)	Responsible	Administrator		
Scheduled Date	03/25/2013 05:30:00	Source Document	SO020		
Raw Materials Location		Physical Locations / Your Company / Stock			
Finished Products Location		Physical Locations / Your Company / Stock			
Consumed Products		Finished Products	Work Orders	Scheduled Products	Extra Information
Products to Produce			Produced Products		
Product	Quantity	Unit of Measure	Product	Quantity	Unit of Measure
[ARM100] Cabinet	2.000	Unit(s)			
[PANLAT] Wooden Side Panel	2.000	Unit(s)			

Figure 20.16: *Production Order producing Several Finished Products*

Secondary products enable you to generate several types of products from the same raw materials and manufacturing methods - only these are not used in the calculation of requirements. Then, if you need the secondary products, OpenERP will not ask you to manufacture another product to use the waste products and secondary products of this production. In this case, you should enter another production order for the secondary product.

Note:

Services in Manufacturing

Unlike most software for production management, OpenERP manages services as well as stockable products. So it is possible to put products of type Service in a bill of materials. These do not appear in the production order, but their requirements will be taken into account.

If they are defined as Make to Order, OpenERP will generate a task for the manufacturing or a subcontract order for the operations. The behaviour will depend on the Supply Method configured in the product form: Buy or Produce.

20.6.5 Scrapping

If you have to scrap the final product before it is finished, you will have to scrap every component allowed for this product.

The screenshot shows the 'Manufacturing Order MO/00016' screen. At the top, there are tabs for 'Consumed Products', 'Finished Products' (which is selected), 'Work Orders', 'Scheduled Products', and 'Extra Information'. The 'Products to Produce' section lists components: [PANLAT] Wooden Side Panel (Quantity: 2.000, Unit(s)), [ARM100] Cabinet (Quantity: 2.000, Unit(s)). The 'Produced Products' section shows the final product: [PANLAT] Wooden Side Panel (Quantity: 1.000, Unit(s)), located in a virtual location labeled 'Scrapped'.

Figure 20.17: Scrapping a Product to Finish

If you scrap a Product to Finish, you will get the situation illustrated in the previous figure. A finished product will be *created* and put in the scrapped virtual location. A new Product to Finish has been added to the manufacturing order.

This new product has been added for the following reason: when you have to manufacture a product and if this product has to be scrapped, you have to produce another product to replace the scrapped one. The reason why you have to scrap each component manually is that the production problem can come from one component.

If the production process is finished and you see that you have to scrap the finished product, you will not have to scrap the different components. They are already *consumed*. They are not available anymore for further manufacturing orders; they have been moved to the production Stock Location.

20.6.6 Production Orders

To open a Production Order, use the menu *Manufacturing* → *Manufacturing* → *Manufacturing Orders* and click the *New* button. You get a blank form to enter a new production order as shown in the figure *New Production*

Order.

Figure 20.18: New Production Order

The production order follows the process given by the figure *Process for Handling a Production Order*.

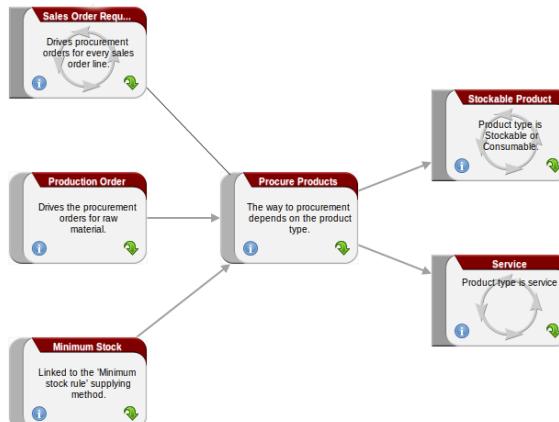


Figure 20.19: Process for Handling a Production Order

The *Scheduled date*, *Product Qty*, *Name* and Default Locations, are automatically completed when the form is first opened. Enter the product that you want to produce, and the quantity required. The *Product UOM* by default completed automatically by OpenERP when the product is first selected.

You then have to set two locations:

- The location from which the required raw materials should be found, and
- The location for depositing the finished products.

The field *Bill of Materials* will automatically be completed by OpenERP when you select the product. You can then overwrite it with another BoM to specify something else to use for this specific manufacturing.

The tabs *Scheduled Products* and *Work Orders* are also completed automatically when you click *Compute Data* (in the *Work Orders* or *Scheduled Products* tabs). You will find the raw materials there that are required for the production and the operations needed by the assembly staff.

If you want to start production, click the button *Confirm Production*, and OpenERP automatically completes the *Products to Consume* field in the *Consumed Products* tab and *Products to Produce* field in *Finished Products* tab.

The information in the *Consumed Products* tab can be changed if:

- you want to enter a serial number for raw materials,

- you want to change the quantities consumed (lost during production).

For traceability, you can set serial numbers on the raw materials used, or on the finished products. Note the *Serial Number* and *Pack* numbers.

Once the order is confirmed, you should force the reservation of materials using the *Force Reservation* button. This means that you do not have to wait for the scheduler to assign and reserve the raw materials from your stock for this production run. This shortens the procurement process.

If you do not want to change the priorities, just leave the production order in this state and the scheduler will create a plan based on the priority and your planned date.

To start the production of products, click *Mark as Started*. The raw materials are then consumed automatically from stock, which means that the Ready to Produce movements become Production Started.

Once the production is complete, click *Produce*. The finished products are now moved into stock.

20.7 Logistics and Manufacturing

20.7.1 Manufacturing Stock Locations

OpenERP allows you to define a specific location to keep track of your manufacturing moves.

To get an overview of all stock moves, go to *Warehouse* → *Traceability* → *Stock Moves*. You can enter your Production location in the search field and then group by Source or Destination according to the moves you would like to check.

20.7.2 Traceability

With traceability you can easily track your production lots in the software. With this functionality you can quickly find where your products are in your warehouse. In counterpart, you will be forced to mention a number of lot to each product to be able to track it in the system.

To enable traceability in the manufacturing process, go to *Warehouse* → *Product* → *Products*. In the Product form, you have to select the box *Track Manufacturing Lots* in the *Lots* section on the *Inventory* tab.

In the manufacturing order, you have to mention a production serial number in order to continue the process. You can select the production serial number in the *Manufacturing Order* form on the tab, called *Finished Products*. You have to click the Products to Finish you want to trace, a new window will open. In the *Serial Number* field, click to link the manufacturing order to a serial number.

Details		Origin	
Product		Source	
Quantity	0.000	Reference	
Quantity (UOS)	0.000	Shipping Type	Internal
Description		Source Location	Physical Locations / Your Company
Company	Your Company	Creation Date	
		Sales Order Line	
Destination		Traceability	
Destination Location	Physical Locations / Your Company / St	Pack	New Pack
Destination Address	Your Company	Serial Number	
Scheduled Date	03/21/2013 12:46:23		
Date	03/21/2013 12:46:23		
Purchase Order Line			Split

Figure 20.20: Tracking a Manufacturing Order

When you have linked some manufacturing orders to serial number, you can trace them from the menu *Warehouse → Traceability → Serial Number*. In this view, you see the different serial numbers linked to a product. If you select one number, you will have the possibility to choose between *Upstream Traceability* or *Downstream Traceability*.

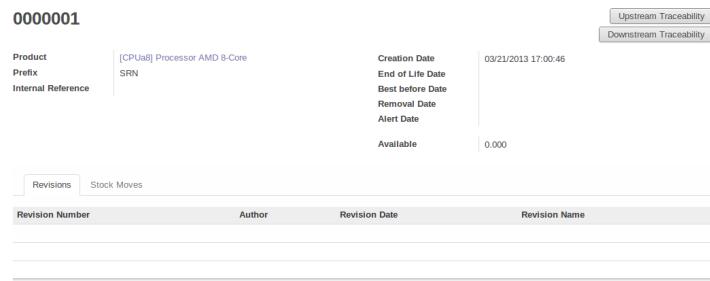


Figure 20.21: Choosing between Upstream and Downstream Traceability

Tip:

Traceability

Upstream Traceability: It starts from the raw materials received from the supplier and follows the chain to the finished products delivered to customers. Note that the name is confusing - this would often be considered a downstream direction. Think of it as **Where Used**.

Downstream Traceability: It follows the product in the other direction, from customer to the different suppliers of raw material. Note that the name is confusing - this would often be considered an upstream direction. Think of it as **Where Supplied**.

The different lines show the stock moves attached to the production of the product. There are several stock moves that are traced due to the Bill of Materials attached to the product.

20.8 Managing Repairs: from Repair to Invoicing and Stock Movements

The management of repairs is carried out through the module `mrp_repair`. Once installed, this module adds a new *Manufacturing → Manufacturing → Repair Orders* menu under the Manufacturing menu to create repair jobs and review repairs in progress.

Tip:

Repairs

To install this module, Go to menu menu Settings → Configuration → Manufacturing in Order, tick *Manage repairs of products*.

In OpenERP, a repair will have the following effects:

- Use of materials: items for replacement,
- Production of products: items replaced from reserved stock,
- Quality control: tracking the reasons for repair,
- Accounting entries: following stock moves,
- Receipt and delivery of product from and to the end user,
- Adding operations that can be seen in the product's traceability,
- Invoicing items used and/or free for repairs.

20.8.1 Entering Data for a New Repair

Use the menu *Manufacturing → Manufacturing → Repair Orders* to enter a new repair into the system. You will see a blank form for the repair data, as shown in the figure *Entering a New Repair* below.

The screenshot shows the 'Repair Order' window with the identifier 'RMA00005'. At the top, there are buttons for 'Confirm Repair' and 'Cancel Repair', and status indicators 'Quotation', 'Confirmed', and 'Repaired'. The main area contains fields for 'Product to Repair' (a dropdown menu), 'Partner' (a dropdown menu), 'Delivery Address' (a dropdown menu), 'Move' (a dropdown menu), 'Current Location' (a dropdown menu), and 'Serial Number' (a dropdown menu). To the right of these fields is a 'Warranty Expiration' section with three options: 'Deliver' (checked), 'Repaired', and 'Invoiced'. Below these fields is a tabbed navigation bar with 'Operations' selected, followed by 'Invoicing', 'Extra Info', and 'Notes'. The 'Operations' tab displays a table header with columns: Type, Product, Description, Serial Number, Source Location, Dest. Location, Quantity, Unit of Measure, Unit Price, Taxes, To Invoice, and Subtotal. A button 'Add an Item' is located below the header. At the bottom of the form, there are summary totals: Untaxed Amount: 0.00, Taxes: 0.00, and Total: (update) 0.00.

Figure 20.22: *Entering a New Repair*

First enter the product to repair, then identify the product that will be repaired using the *product serial number*. OpenERP then automatically completes fields from the selected serial number – the partner fields, address, delivery location and stock move.

If a warranty period has been defined in the product description, in months, OpenERP completes the field *Guarantee limit* with the correct warranty date.

Now you have to specify the components that you will be adding, replacing or removing in the *Operations* part. On each line, you should specify the following:

Add or remove a component of the finished product:

- *Product*,
- *Qty*,
- *UoM*,
- *Unit Price*,
- *To Invoice* or not.

Once the component has been selected, OpenERP automatically completes most of the fields:

- *Qty*: 1,
- *UoM*: unit for managing stock defined in the product form,
- *Unit Price*: calculated from the customer list price,
- *Source Location*: given by the stock management,
- *To Invoice*: depends on the actual date and the guarantee period.

This information is automatically proposed by the system, but you can modify it all yourself.

On the second tab of the Repair form, *Invoicing*, you can select whether the repair has to be invoiced or not, and if invoiced whether it should be before or after the repair. You can also select the applicable list price, a

specific address and encode additional charges that need to be added to the repair invoice.

Product	Description	Quantity	Unit of Measure	Unit Price	To Invoice	Subtotal
[RAM-SR5] RAM SR5	[RAM-SR5] RAM SR5	1.000	Unit(s)	50.00	<input checked="" type="checkbox"/>	50.00

Figure 20.23: *Repair Form, Invoicing Tab*

The third tab, Extra Info shows information about linked invoice and picking. You receive information about the current location, and you can change the Delivery Location. The Notes tab allows you to register internal notes and information that should be written on the Quotation.

20.8.2 Repair Workflow

A defined process handles a repair order – both the repair itself and the customer invoicing. The figure *Process to Handle a Repair* shows this repair process.

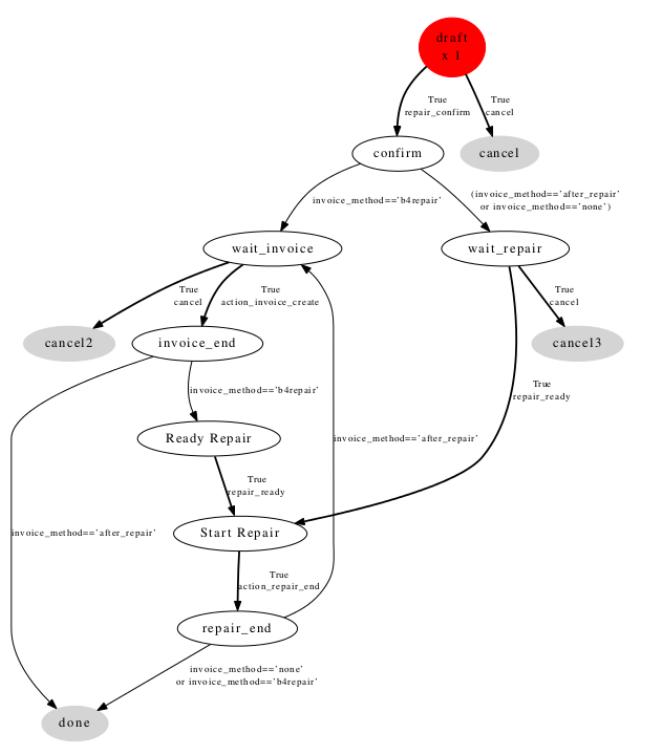


Figure 20.24: *Process to Handle a Repair*

Once a repair has been entered in the system, it is in the Quotation state. In this state, a repair order has no impact on the rest of the system. You can print a quotation through the action *Quotation / Order*.

On the second tab, you can specify the *Invoice Method*:

- No Invoice,

- Before Repair,
- After Repair.

You can then confirm the repair operation or create an invoice for the customer depending on the Invoice Method.

The repair quotation can now be sent to the customer. Once the customer approves the repair, click the *Confirm Repair* button. From the menu *Manufacturing → Manufacturing → Repair Orders* you can easily find the confirmed repair orders by selecting the *Confirmed* Filter. Click *Start Repair* to indicate that you can start working on the repair. The Repair order will now be in the *Under Repair* state. When you finish the repair, click the *End Repair* button.

20.8.3 Invoicing the Repair

When the repair is to be invoiced, a draft invoice is generated by the system. For an After Repair invoice, you can Select the repair record from the list and click the *Make Invoice* from More button. OpenERP will then show the draft invoice created at the top of the repair order. This invoice contains the raw materials used (replaced components) and any other costs such as the time used for the repair. These other costs are entered on the second tab of the *Repair* form. Any information you entered for the quotation on the *Notes* tab will also be displayed on the invoice.

If the product to be repaired is still under guarantee, OpenERP automatically suggests that the components themselves are not invoiced, but will still use any other defined costs. You can override any of these default values while entering the data.

Note:

Extra Info

*The link to the generated invoice is shown on the Extra Info tab of the repair document. To open the invoice, simply click the *Invoice* field.*

20.8.4 Stock Movements and Repairs

When the repair has been carried out, OpenERP automatically carries out stock movements for components that have been removed, added or replaced on the finished product. From the menu *Warehouse → Traceability → Stock Moves*, you can for instance enter the production serial number to see all moves for the repaired product.

The move operations are carried out using the locations shown in the first tab of the *Repair* form. If a destination location has been specified, OpenERP automatically handles the final customer delivery order when the repair has been completed. This also lets you manage the delivery of the repaired products.

For example, take the case of the shelf that was produced at the start of this chapter. If you have to replace the shelf *SIDE PAN*, you should enter data for the repair as shown in figure *Repair for a Side Panel*.

Type	Product	Description	Serial Number	Source Location	Dest. Location	Quantity	Unit of Measure	Unit Price	Taxes	To Invoice	Subtotal
Remove	[SIDE PAN]	[SIDE PAN]		Virtual Locations / Production	Virtual Locations / Scrapped	1.000	Unit(s)	0.00	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0.00
Add	[SIDE PAN]	[SIDE PAN]		Physical Locations / Your Company / Stock	Virtual Locations / Production	300.00	Unit(s)	300.00	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	300.00

Figure 20.25: *Repair for a Side Panel*

In this example, you would carry out the following operations:

- Remove a SIDEPAN shelf in the cabinet and put the faulty shelf in the *Scrapped* location,
- Place a new SIDEPAN shelf that has been taken from stock.

When the repair is ready to be confirmed, OpenERP will generate the following stock moves:

- Put faulty SIDEPAN into suitable stock location *Default Production > Scrapped*,
- Consume SIDEPAN: *Stock > Production*.

If you analyze the traceability of this lot number, you will see all the repair operations in the upstream and downstream traceability lists of the products concerned.

20.9 Forecasting and Supplying

20.9.1 Scheduler

The requirements scheduler is the calculation engine which plans and prioritises production and purchasing automatically according to the rules defined on products. By default, the scheduler is set to run once a day (OpenERP automatically creates a *Scheduled Action* for this). You can also start the scheduler manually from the menu *Warehouse → Schedulers → Run Schedulers*. The scheduler uses all the relevant parameters defined for products, suppliers and the company to determine the priorities between the different production orders, deliveries and supplier purchases.

Note:

Starting Time

You can set the starting time of the scheduler by modifying the corresponding action in the menu *Settings → Technical → Scheduler → Scheduled Actions*. Modify the *Run mrp Scheduler configuration document*.

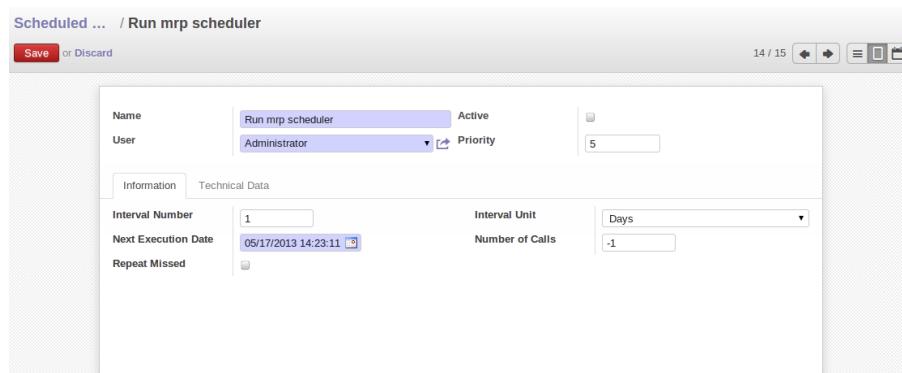


Figure 20.26: Configuring the Start Time to Calculate Requirements

Tip:

Calculating Requirements / Scheduling

Scheduling only validates procurements that are confirmed but not yet started. These procurement reservations will themselves start production, tasks or purchases depending on the configuration of the requested product.

You take into account the priority of operations when starting reservations and procurements. Urgent requests, those with a date in the past, or requests with a date earlier than the others will be started first. In case there are not enough products in stock to satisfy all the requests, you can be sure that the most urgent requests will be produced first.

20.9.2 Planning

In OpenERP, you can plan the production in an easy way. Simply by going to *Manufacturing → Planning*, you can plan manufacturing orders, work orders and/or work centers.

By clicking *Order Planning* in the *Planning* menu, a calendar view will open in which you can select a day to create the order whenever you want. You will also see the already planned orders. By dragging and dropping a manufacturing order in Calendar view, you can change the starting date of the order.

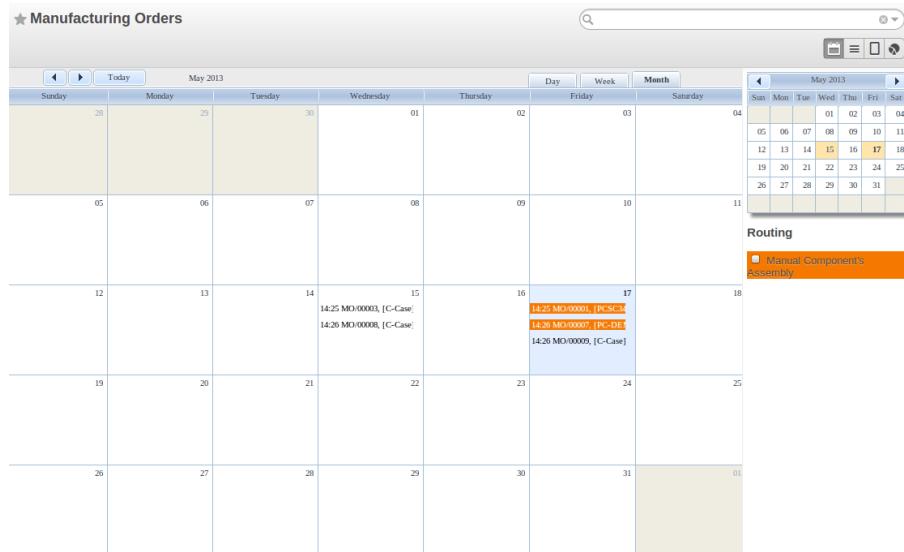


Figure 20.27: *Planning Manufacturing Orders*

When you click in a day in the Calendar view, an empty manufacturing order window will open and let you choose which product you want to produce.

The screenshot shows the 'Create: Manufacturing Orders' window. At the top, there are buttons for 'Confirm Production' and 'Cancel Production'. Below that is a progress bar with steps: 'New' (highlighted), 'Ready to Produce', 'Production Started', and 'Done'. The main area is titled 'Manufacturing Order' and has a 'New event' button. It contains fields for 'Product' (dropdown), 'Product Quantity' (1.000), 'Scheduled Date' (05/17/2013 09:30:00), 'Bill of Material' (dropdown), 'Responsible' (Administrator), and 'Source Document' (dropdown). There are also sections for 'Raw Materials Location' and 'Finished Products Location', both set to 'Physical Locations / Your Company'. At the bottom, there are tabs for 'Consumed Products', 'Finished Products', 'Scheduled Products', and 'Extra Information'. Below the tabs, there are sections for 'Products to Consume' and 'Consumed Products'.

Figure 20.28: *New Manufacturing Order*

Scheduler and Just in Time

When you want to work according to the *Just in Time* way, you should install the module `mrp_jit`.

If you install this module, you will not have to run the regular procurement scheduler anymore (but you still need to run the minimum order point rule scheduler, or for example let it run daily.)

All procurement orders will be processed immediately, which could in some cases entail a small performance impact.

It may also increase your stock size because products are reserved as soon as possible and the scheduler time range is not taken into account anymore. In that case, you can no longer use priorities for the different picking orders.

Lead times

All procurement operations (that is, the requirement for both production orders and purchase orders) are automatically calculated by the scheduler. But more than just creating each order, OpenERP plans the timing of each step. A planned date calculated by the system can be found on each order document.

To organize the whole chain of manufacturing and procurement, OpenERP bases everything on the delivery date promised to the customer. This is given by the date of the confirmation in the order and the lead times shown in each product line of the order. This lead time is itself proposed automatically in the field *Customer Lead Time* shown in the product form. This Customer Lead Time is the difference between the time on an order and that of the delivery.

To see a calculation of the lead times, take the example of the cabinet above. Suppose that the cabinet is assembled in two steps, using the two following bills of materials.

Table 20.21: Bill of Materials for 1 SHE100 Unit

Product Code	Quantity	Unit of Measure
SIDE PAN	2	Unit
WOOD002	0.25	m
LIN040	1	m
WOOD010	0.249	m
METC000	12	Unit

Table 20.22: Bill of Materials for 2 SIDE PAN Units

Product Code	Quantity	Unit of Measure
WOOD002	0.17	m

The SIDE PAN is made from an order using the workflow shown. The WOOD002 is purchased on order and the other products are all found in stock. An order for the product SHE100 will then generate two production orders (SHE100 and SIDE PAN) then produce two purchase orders for the product WOOD002. Product WOOD002 is used in the production of both SHE100 and SIDE PAN. Set the lead times on the product forms to the following:

Table 20.23: Lead Times

Product Code	Customer Lead Time	Manufacturing Lead Time	Supplier Lead Time
SHE100	30 days	5 days	
SIDE PAN		10 days	
WOOD002			5 days

A customer order placed on the 1st January will set up the following operations and lead times:

- Delivery SHE100: 31 January (=1st January + 30 days),
- Manufacture SHE100: 26 January (=31 January – 5 days),
- Manufacture SIDE PAN: 16 January (=26 January – 10 days),
- Purchase WOOD002 (for SHE100): 21 January (=26 January – 5 days),
- Purchase WOOD002 (for SIDE PAN): 11 January (=16 January – 5 days).

In this example, OpenERP will propose placing two orders with the supplier of product WOOD002. Each of these orders can be for a different planned date. Before confirming these orders, the purchasing manager could group (merge) these orders into a single order.

Security Days

The scheduler will plan all operations as a function of the time configured on the products. But it is also possible to configure these factors in the company. These factors are then global to the company, whatever the product concerned may be. In the description of the company, on the *Configuration* tab, you find the following parameters:

- *Scheduler Range Days*: all the procurement requests that are not between today and today plus the number of days specified here are not taken into account by the scheduler.
- *Manufacturing Lead Time*: number of additional days needed for manufacturing,
- *Purchase Lead Time*: additional days to include for all purchase orders with this supplier,
- *Security Days*: number of days to deduct from a system order to cope with any problems of procurement,

Note:

Purchase Lead Time

The security delay for purchases is the average time between the order generated by OpenERP and the real purchase time from the supplier by your purchasing department. This delay takes into account the order process in your company, including order negotiation time.

Take for instance the following configuration:

- *Manufacturing Lead Time* : 1,
- *Purchase Lead Time* : 3,
- *Security Days* : 2.

The example above will then be given the following lead times:

- Delivery SHE100: 29 January (= 1st January + 30 days – 2 days),
- Manufacture SHE100: 23 January (= 29 January – 5 days – 1 day),
- Manufacture SIDEPAN: 12 January (= 26 January – 10 days – 1 day),
- Purchase WOOD002 (for SHE100): 15 January (= 26 January – 5 days – 3 days),
- Purchase WOOD002 (for SIDEPAN): 4 January (= 12 January – 5 days – 3 days).

20.9.3 Procurement

In normal system use, you do not need to worry about procurement orders, because they are automatically generated by OpenERP and the user will usually work on the results of a procurement: a production order, a purchase order, a sales order and a task.

But if there are configuration problems, the system can remain blocked by a procurement without generating a corresponding document. Exception management allows you to solve possible issues.

Automating Purchasing and Replenishment

In the Product form view, you can choose between two procurement methods:

- Make to Stock (MTS)
- Make to Order (MTO)

These two methods will impact the way you have to configure your automatic purchasing and replenishment. For the MTS method, you will have to define Minimum Stock Rules to order products when the minimum threshold has been reached, as well as a supplier to define where to order the products. For the MTO method, you have to define a supplier for the product in order to buy new products when a sales order or a manufacturing order is confirmed.

Managing Scheduler Exceptions

In OpenERP, you can have different procurement exceptions. An exception appears in the Procurement Exception view when the system does not know what to do with an object, such as a Manufacturing Order or a Purchase Order.

There are four types of exceptions:

- No bill of materials defined for production: in this case you have got to create a BoM or indicate that the product can be purchased instead (change the Supply Method).
- No supplier available for a purchase: you have to define a supplier in the Supplier tab of the product form.
- No address defined on the supplier partner: you have to complete an address for the supplier for the product in consideration.
- Not enough stock: you have to create a rule for automatic procurement (for example, a minimum stock rule), or manually procure it.

★ Procurement Exceptions							
Create or Import							
Scheduled date	Source Document	Product	Quantity	Unit of Measure	Procurement Method	Status	Latest error
05/15/2013	:MO/00003	[MBI9] Motherboard I9P57	3.000	Unit(s)	Make to Stock	Exception	Procurement ':MO/00003' is in exception: Not enough stock.
05/15/2013	:MO/00003	[CPUa8] Processor AMD 8-Core	3.000	Unit(s)	Make to Stock	Exception	Procurement ':MO/00003' is in exception: Not enough stock.
05/15/2013	:MO/00008	[CPUa8] Processor AMD 8-Core	2.000	Unit(s)	Make to Stock	Exception	Procurement ':MO/00008' is in exception: Not enough stock.
05/15/2013	:MO/00008	[MBI9] Motherboard I9P57	2.000	Unit(s)	Make to Stock	Exception	Procurement ':MO/00008' is in exception: Not enough stock.
05/17/2013	:MO/00001	[KeyQ] USB Keyboard, QWERTY	3.000	Unit(s)	Make to Stock	Exception	Procurement ':MO/00001' is in exception: Not enough stock and no minimum orderpoint rule defined.
05/17/2013	:MO/00007	[KeyQ] USB Keyboard, QWERTY	2.000	Unit(s)	Make to Stock	Exception	Procurement ':MO/00007' is in exception: Not enough stock and no minimum orderpoint rule defined.
05/17/2013	:MO/00009	[MBI9] Motherboard I9P57	5.000	Unit(s)	Make to Stock	Exception	Procurement ':MO/00009' is in exception: Not enough stock.
05/17/2013	:MO/00009	[CPUa8] Processor AMD 8-Core	5.000	Unit(s)	Make to Stock	Exception	Procurement ':MO/00009' is in exception: Not enough stock.
05/17/2013	SO005	[DVD] Blank DVD-RW	3.000	Dozen(s)	Make to Stock	Exception	Procurement 'Blank DVD-RW' is in exception: Not enough stock.
05/17/2013	SO005	[EXT-HDD] External Hard disk	1.000	Unit(s)	Make to Stock	Exception	Procurement 'External Hard disk' is in exception: Not enough stock.
05/17/2013	SO005	[PRINT] Printer, All-in-one	1.000	Unit(s)	Make to Stock	Exception	Procurement 'Printer, All-in-one' is in exception: Not enough stock and no minimum orderpoint rule defined.

Figure 20.29: *Procurement Exceptions*

Some problems are just timing issues and can be automatically corrected by the system (this will be temporary exceptions).

If a product has to be 'in stock' but is not available in your stores, OpenERP will make the exception as 'temporary' or 'to be corrected'. The exception is temporary if the system can procure it automatically, for example, when a procurement rule has been defined for minimum stock.

When an exception is raised, you can check the configuration of your product in order to correct the misconfiguration. Then you can choose to relaunch the scheduler or you can retry to execute the action by

selecting the line, and clicking the *Retry* button, then click *Run Scheduler*.

The screenshot shows a procurement exception for a product named "[KeyQ] USB Keyboard, QWERTY" with a quantity of 2.000. The product has a scheduled date of 05/17/2013 14:26:48, a procurement method of "Make to Stock", and a priority of "Normal". The source document is labeled "Latest error" and the error message states: "Procurement ':MO/00007' is in exception: Not enough stock and no minimum orderpoint rule defined." Below the main details, there is an "Extra Information" section containing fields for Location, BoM, Reservation, Date Closed, Purchase Order, Close Move at end, Task, and Latest Requisition.

Figure 20.30: *Correct a Procurement Exception*

The exception related to the BoM definition comes from the fact that a product with a supply method set to *Produce* has no Bill of Materials. The system does not know how to produce this product and then raises an exception.

Manual Procurement

To procure internally, you can create a procurement order manually. Use the menu *Warehouse* → *Schedulers* → *Procurement Exceptions* and click the *Create* button to do this.

The screenshot shows a manual procurement creation screen for a product named "[C-Case] Computer Case" with a quantity of 10.000. The product has a scheduled date of 05/17/2013 16:36:29, a procurement method of "Make to Order", and a priority of "Normal". The source document is labeled "Latest error". Below the main details, there is an "Extra Information" section containing fields for Location, BoM, Reservation, Date Closed, Purchase Order, Close Move at end, Task, and Latest Requisition. The BoM field is populated with "Computer Case-1 ADPT: Procurements > Stock".

Figure 20.31: *Manual Procurement*

The procurement order will then be responsible for calculating a proposal for automatic procurement for the product concerned. This procurement will start a task, a purchase order for the supplier or a production

depending on the product configuration.

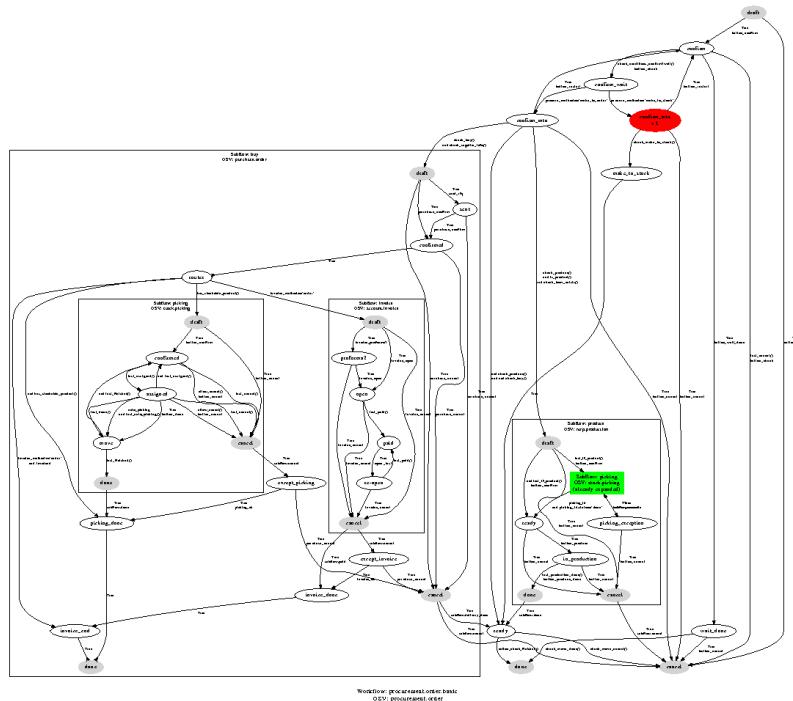


Figure 20.32: Procurement Flow

It is better to encode a procurement order rather than direct purchasing or production. The procurement method has the following advantages:

1. The form is simpler, because OpenERP calculates the different values according to other values and defined rules: purchase date calculated from order date, default supplier, raw materials needs, selection of the most suitable bill of materials, etc.
2. The calculation of requirements prioritises the procurements. If you encode a purchase directly, you short-circuit the planning of different procurements.

Tip:

Shortcuts

On the Product form you have shortcut button Request Procurement that lets you quickly create a new procurement order.

20.10 Working with Subcontractors

In OpenERP, you can also subcontract production operations (for example, painting and item assembly) at a supplier's. To do this, you should indicate on the relevant routing document a supplier location for stock management.

Configure a location dedicated to this supplier with the following data:

- *Location Type:* Supplier,
- *Location Address:* Select an address of the subcontracting partner,
- *Chained Location Type:* Fixed,
- *Chained Location if Fixed:* your Stock,

- *Chaining Lead Time*: number of days before receipt of the finished product.

Then once the manufacturing has been planned for the product concerned, OpenERP will generate the following steps:

- Delivery of raw materials to the stores for the supplier,
- Production order for the products at the supplier's and receipt of the finished products in the stores.

Once the production order has been confirmed, OpenERP automatically generates a delivery order to send to the raw materials supplier. The storesperson can access this delivery order from the menu *Warehouse → Receiver/Deliver By Orders → Internal Moves*. The raw materials will then be placed in stock at the supplier's stores.

Once the delivery of raw materials has been confirmed, OpenERP activates the production order. The supplier uses the raw materials to produce the finished goods which will automatically be put in your own stores. This manufacturing is confirmed when you receive the products from your supplier. Then you will indicate the quantities consumed by your supplier.

Tip:

Subcontract without Routing

If you do not use routing, you can always subcontract work orders by creating an empty routing in the subcontracting bill of materials.

Production orders can be found in the menu *Manufacturing → Manufacturing → Manufacturing Orders*. A production order is always carried out in two stages:

1. Consumption of raw materials,
2. Production of finished products.

Depending on the company's needs, you can specify that the first step is confirmed at the acknowledgement of the manufacturing supplier, and the second at the receipt of finished goods in the warehouse.

20.11 Matching Sales Orders and Bills of Materials

In OpenERP, you can define several bills of materials for the same product. In fact, you can have several manufacturing methods or several approved raw materials for a given product. You will see in the following section that the manufacturing procedure (the routing) is attached to the Bill of Materials, so the choice of bill of materials implicitly includes the operations to make it.

Once several bills of materials have been defined for a particular product, you need to have a system to enable OpenERP to select one of them for use. By default, the bill of materials with the lowest sequence number is selected by the system.

To gain more control over the process during selling or procuring, you can use **Properties**. The menu *Manufacturing → Configuration → Properties* enables you to define properties, which can be set up arbitrarily to help you select a bill of materials when you have a choice of BoMs.

Note:

Properties

Properties is a concept that enables the selection of a method to manufacture a product. Properties define a common language between salespeople and technical people, letting the salespeople have an influence on the manufacturing of the products using non-technical language and the choices decided on by the technicians who define Bills of Materials.

For example, you can define the following property groups and properties:

Table 20.24: Properties

Property Group	Property
Warranty	3 years
Warranty	1 year
Method of Manufacture	Serial
Method of Manufacture	Batch

Once the bills of materials have been defined, you could associate the corresponding properties with them. Then when the salesperson enters a sales order line, he can attach the properties required. If the product has to be manufactured, OpenERP will automatically choose the bill of materials that matches the defined properties in the order most closely.

Note:

Extended View

Note that the properties are only visible in the Bills of Materials and Sales Management if you have select option Allow several bill of materials per products using properties from menu Settings → Configuration → Manufacturing.

Name	Properties composition	Property Group
DDR 512MB	min	RAM
DDR2 1GB	min	RAM
HDD 7200.8 320GB	min	HDD
HDD 7200.8 500GB	min	HDD
CPU Core i5 2.70 Ghz	min	CPU
CPU AMD 8-Core	min	CPU
Laptop 17" 1TB HDD	min	LAP
USB Mouse	min	MOU
Wireless Mouse	min	MOU
Keyboard QWERTY	min	KEY
Keyboard AZERTY	min	KEY
Motherboard A2027	min	MB
Motherboard I9P57	min	MB
Computer Case without Graphics Card	min	CASE
Computer Case with Graphics Card	min	CASE

Figure 20.33: Properties in a Customer Order Line

Example: Manufacturing in a Batch or on a Production Line

As an example, take the manufacturing of the shelf presented above. You can imagine that the company has two methods of manufacturing for this cabinet:

- Manually: the staff assembles the shelves one by one and cuts the wood plank by plank. This approach is usually used to assemble prototypes. It gets you very rapid production, but at a high cost and only in small quantities.
- On a production line: the staff uses machines that are capable of cutting wood by bandsaw. This method is used for production runs of at least 50 items because the lead times using this method are quite lengthy. The delay to start the production is much longer, yet the cost per unit is considerably lower in this volume.

You define two bills of materials for the same cabinet. To distinguish between them, you will define two properties in the same group: manual assembly and production line assembly. In the quotation, the salesperson can set the method of manufacture he wants on each order line, depending on the quantities and the lead time requested by the customer.

Note:

Bills of Materials and Substitute Products

In some software, you use the term substitute for this principle of configurable properties in a bill of materials.

By putting a bill of materials on its own line, you can also implement substitute products. You set the bill of materials to type Sets/Phantom to make the substitution transparent and to prevent OpenERP from proposing an intermediate production order.

20.12 Production and Services

In OpenERP, you can handle three types of goods: two types of products (Stockable or Consumable products) and one type of services.

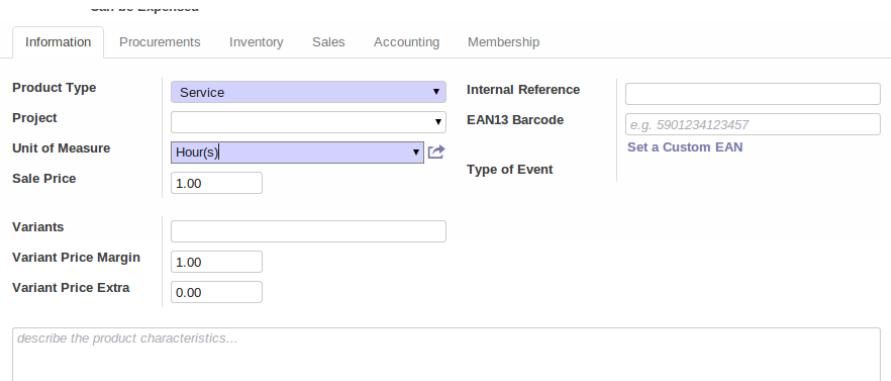
For this last category, OpenERP can react in two different ways. Once a manufacturing order is generated for a product and this product contains a *Service*, a task can be automatically generated or not.

Note:

Tasks

In order to automatically generate a task, you have to install the module project_mrp which requires the installation of the module project.

By default, the generated task is not linked to any project. You can change this behaviour by creating a project and link the service to this project. This can be done in the Product form, on the tab *Information*. Select the project to be linked in the *Project* field.



Information		Procurements	Inventory	Sales	Accounting	Membership
Product Type	Service	Internal Reference				
Project		EAN13 Barcode				
Unit of Measure	Hour(s)	Type of Event				
Sale Price	1.00					
Variant						
Variant Price Margin	1.00					
Variant Price Extra	0.00					
describe the product characteristics...						

Figure 20.34: Link a Service Product to a Project

To illustrate this process, follow the next example:

First, you have to create a project to which you want to link the service. We will call this project *Consulting*. After creating the project, we have to create a new product. Here are the characteristics of this product:

Table 20.25: Configure a New Service

Field	Value
Name	Consulting
Reference	CSLT
Product Type	Service
Procurement Method	Make to Order
Supply Method	Manufacture
Default UoM	Hour
Project	Consulting

Once you have configured your project and your product, you can create a Sales Order to order hours of consultancy. When you confirm the Sales Order, a task will be created.

If you go to *Project* → *Project* → *Tasks*, you will find a new task called: *SO011:[CSLT] Consulting*. This task is linked to the project :guilabel{'Consulting'}. Note that the Sales Order number may be different in your database.

Tasks

Create or Add a new column

Undefined	Analysis	Spec
Remaining Time: 6	Remaining Time: 64	Remain
SO018:Consulting Consulting 05/24/2013 ① 6	Customer analysis + Architecture Data Import/Export Plugin ② 12	New p Resea ③ 22 Experi

The screenshot shows a project management interface with a 'Tasks' section at the top. Below it, there are three main categories: 'Undefined', 'Analysis', and 'Spec'. Each category has a count (1, 3, and 3 respectively) and a '+' sign. Under 'Undefined', there is a task named 'SO018:Consulting' with details: Consulting, 05/24/2013, and a status of ① 6. Under 'Analysis', there is a project named 'Customer analysis + Architecture' with details: Data Import/Export Plugin and a status of ② 12. A small profile picture of a person is next to the project name. The 'Spec' category is partially visible.

Figure 20.35: A Product linked to a Task and a Project

Part VII

Multi-Company Environment

This part of the book concentrates on the multi-company environment of OpenERP. From version 6.0 of OpenERP, you do not have to install any additional modules to enable the multi-company environment. All components are included in the base modules. All you have to do to work in a multi-company environment, is add the Useability/Multi-Companies group to your user.

The multi-company environment allows you to manage operations from different companies with different warehouses, customers and suppliers, products, ...

In the following chapters, we will perform a complete order flow made by a customer in France that does not handle the stock, but delegates it to another company located in Belgium that will deliver the product to the customer.

In order to achieve this, we will follow the schema defined below.

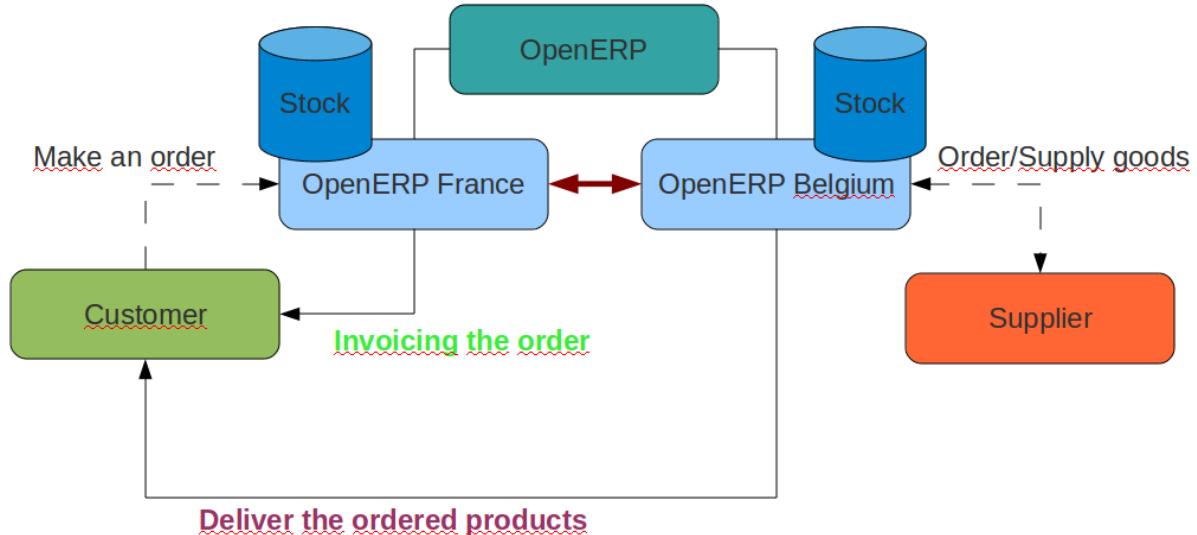


Figure 20.36: Flow Schema

To be able to manage the process, please install the following modules:

- sale
- purchase
- stock
- stock_location (in order to be able to define pull & push flows)

LOGISTICS IN A MULTI-COMPANY ENVIRONMENT

21.1 Configuration

Let us start by configuring the different components we need. In the next sections, we will define:

- **The companies' structure**
 - Companies
 - Charts of Accounts
 - Storage
- Users, suppliers & customers
- **The product**
 - Product definition
 - Push & pull flows

Note:

User Group

Go to Settings → Users → Users and go to tab Access rights of user , Select the Multi Companies , to be able to use OpenERP in a multi-company environment.

21.1.1 Companies Structure

Companies

Three companies have to be defined. One mother company (OpenERP) and two children (OpenERP Belgium and OpenERP France).

On the one hand, the two child companies will be used to support the flow of goods. On the other hand, the mother company will be used to aggregate the different information from OpenERP France and OpenERP Belgium.

★ Company's Structure	
Company Name	Partner
OpenERP	OpenERP
OpenERP BE	OpenERP BE
OpenERP France	OpenERP France
Your Company	Your Company

Figure 21.1: Companies Structure

Tip:

User Access Rights

To view the companies' structure, you have to give access rights to user, select Multi Companies option in user access rights.

Here are the different configurations for the mother and the child companies (for the child companies, do not forget to add a parent company):

Figure 21.2: Companies Configuration

Charts of Accounts

For each company, you have to define an accounting setting. To do this, go to the *Settings → Configuration → Accounting*. Then you can select company in chart of account also select the option *This company has its own chart of accounts*, in the template you can select chart of account as you want, if it is not available in list , you can select option *Install more chart template*. After installing your chart of account , you can apply this configuration.

Figure 21.3: Creating Charts of Accounts

Note:

Accounting Plan

Each of your companies can have its own specific chart of accounts.

Users, Suppliers & Customers

The users are used to log in to the system and to give the appropriate access rights to each person. This concept is different from the employee who is created through the Human Resources module.

Each company needs a user to manage the different operations to complete the flow. You can create one user for each company, but do not forget to select the appropriate company in the Contact section of the User form after have added the company in the Access Rights tab.

This screenshot shows the 'Users / New' interface. It displays a user profile for 'Francis' with a placeholder icon. The 'Name' field is filled with 'Francis'. The 'Login' field contains 'FR'. Under 'Company', 'OpenERP France' is selected. The 'Active' checkbox is checked. Below this, there are tabs for 'Preferences' and 'Access Rights'. Under 'Language', 'English' is chosen. Under 'Timezone', 'Europe/Brussels' is selected. A 'Send reset password instructions by email' button is visible.

Figure 21.4: Defining Users part 1

This screenshot shows the same 'Users / New' interface as Figure 21.4, but with a different configuration. In the 'Allowed Companies' section, 'OpenERP France' is listed and selected. Other companies like 'OpenERP Belgium' and 'OpenERP China' are also visible in the dropdown menu. The rest of the interface remains the same, including the user profile and basic settings.

Figure 21.5: Defining Users part 2

In addition to the user, the companies need suppliers and customers. For OpenERP France, you can define one customer who will order the product that will be defined later, and for OpenERP Belgium, you can define one supplier who will deliver the product to the company.

The customers and suppliers go in the same object called *Partners* which can be classified in three ways: customer, supplier and customer and supplier. This has the advantage that you have to update address data only once.

- Customer: log in with the user of OpenERP France, then go to *Sales → Sales → Customers*

This screenshot shows the 'Customers / FranceTiny (OpenERP France)' interface. The customer record for 'FranceTiny' is displayed. The 'Name' field is 'FranceTiny'. The 'Address' section shows 'Paris' as the city and 'France' as the country. The 'Contact' section includes fields for 'Phone', 'Mobile', 'Fax', 'Email', and 'Title'. There are tabs for 'Meetings', 'Calls', 'Opportunities', and 'Quotations and Sales'. At the bottom, there are sections for 'Internal Notes', 'Sales & Purchases', 'Accounting', 'History', and 'Warnings'.

Figure 21.6: Defining Customers part 1

Figure 21.7: Defining Customers part 2

- Supplier: log in with the user of OpenERP Belgium, then go to *Purchases* → *Purchase* → *Suppliers*

Figure 21.8: Defining Suppliers part 1

Figure 21.9: Defining Suppliers part 2

21.1.2 Product

Definition

Now that we have defined the different actors, we can define our product that will be stored in Belgium and proposed to sell in France. Go to *Sales → Products → Products* and create a new product with the following specifications:

The screenshot shows the 'Products / Computer' screen. At the top, there is a 'Save' button and a 'Discard' link. The main area has a 'Product Name' field containing 'Computer'. Below it is a 'Category' dropdown set to 'All products'. Underneath these are two checked checkboxes: 'Can be Sold' and 'Can be Purchased'. A horizontal tab bar includes 'Information', 'Procurements', 'Inventory', 'Sales', and 'Accounting'. In the 'Information' tab, 'Product Type' is set to 'Stockable Product', 'Unit of Measure' is 'Unit(s)', 'Sale Price' is '65.00', and there are fields for 'Internal Reference' (empty) and 'EAN13 Barcode' (with placeholder 'e.g. 5901234123457'). Below these are sections for 'Variants', 'Variant Price Margin' (set to '1.00'), and 'Variant Price Extra' (set to '0.00'). A large text area at the bottom is labeled 'describe the product characteristics...'.

Figure 21.10: Defining Products

In the *Procurements* tab, you can select the supplier defined above. In the *tab Inventory*, we will define the different flows in order to share the different objects between the companies. To order the product in Belgium from a sales order made in France, we will define a *Pull flow*.

Flows

In our process, we have to create a pull flow, because the process begins with a need from OpenERP France. OpenERP France needs some products ordered by the customers.

The flow will go through our two child companies. The starting point is OpenERP Belgium that will supply OpenERP France that will supply the goods to the customer.

We can draw the process like this: Customer <- [OpenERP France] <- [OpenERP Belgium] <- Supplier

The screenshot shows the 'Open: Pulled Flows' dialog. It contains three columns: 'Conditions', 'Action Type', and 'Source Location'. The 'Conditions' column has 'Name' (Transit from Belgium to France) and 'Destination Location' (OpenERP France). The 'Action Type' column has 'Type of Procurement' (Company) and 'Move' (OpenERP BE). The 'Source Location' column has 'Shipping Type' (Sending Goods), 'Partner Address' (Make to Stock), 'Procure Method' (Cancel Cascade), 'Invoice Status' (Journal), and 'Source Location' (OpenERP BE). At the bottom left is a 'Close' button.

Figure 21.11: Pull Flow Definition

21.1.3 Managing the Storage

In our configuration, we have to define the way in which we will store the products.

The stock will be managed by OpenERP Belgium that will share the products with the other companies. OpenERP France will manage the sales part for these products.

OpenERP France will “transfer” the sales order to OpenERP Belgium that will ship the goods to the customer.

By default, OpenERP creates some locations and warehouses for the first company. As a consequence, we have to create the other warehouses and locations for our child companies. We will start by creating the warehouses, then we will define specific locations and we will finish by setting up the of shops.

Warehouses

In OpenERP, a warehouse represents your places of physical stock. A warehouse can be structured into several locations at multiple levels.

We have to create three new warehouses. One for OpenERP, one for OpenERP Belgium and one for OpenERP France.

Warehouses				
Create or Import				
Name	Location Input	Location Stock	Location Output	Owner Address
OpenERP	Stock	Stock	Output	
Warehouse Belgium	OpenERP BE	OpenERP BE	OpenERP BE	
Warehouse France	OpenERP France	OpenERP France	OpenERP France	

Figure 21.12: Warehouses

Go to *Warehouse → Configuration → Warehouses* and create the different warehouses according to the parameters shown in picture *Warehouse Parameters*.

Warehouses / Warehouse France		
Save or Discard		
Name		
Warehouse France		
Location Input	OpenERP France	Company
Location Stock	OpenERP France	Owner Address
Location Output	OpenERP France	

Figure 21.13: Warehouse Parameters

Locations

Locations are used to manage all types of storage places, such as at the customer and production counterparts.

In order to store products, we will create one location for the two child companies. It will support the flow of goods between those companies.

Locations	
Create or Import	
Location Name	Location Type
OpenERP BE	Internal Location
OpenERP France	Internal Location
Output	Internal Location
Physical Location/OpenERP	Internal Location
Physical Location/OpenERP / Output	Internal Location
Physical Location/OpenERP / Stock	Internal Location
Physical Locations / OpenERP Belgium	Internal Location
Physical Locations / OpenERP France	Internal Location

Figure 21.14: Locations

Go to *Warehouse → Configuration → Locations* and create the different locations with the parameters defined in

the picture *Location Parameters*.

Figure 21.15: *Location Parameters*

Shops

OpenERP France needs a shop. The objective of this shop is to allow OpenERP France to receive orders from customers and then send it to OpenERP Belgium for the delivery of the products.

Figure 21.16: *Defining a Shop*

Go to *Sales* → *Configuration* → *Shop* to define a shop for OpenERP France.

21.2 Process: Sales and Purchases

At this point, we have defined everything that we need, we can now execute the process.

The following example will be structured as follows:

First, we will make a sales order for one unit of our product (Computer) in the company OpenERP France for the customer FranceTiny. Then this will be sent to the company OpenERP BE that stocks the Computers. An order of one unit will be sent to OpenERP BE from OpenERP France. OpenERP will purchase the product from its supplier (in this case, Dell Belgium). Second, OpenERP France will have to invoice the delivered quantities sent by OpenERP Belgium to FranceTiny.

21.2.1 Sales Order

At this point, you have to login as a user of OpenERP France to make a Sales Order coming from a customer of this company.

The screenshot shows the 'Sales Orders / SO0014' interface. At the top, there are buttons for 'Save or Discard', 'Send by Email', 'Print', 'Confirm Sale', 'Cancel Quotation', and status indicators: 'Draft Quotation', 'Quotation Sent', 'Sales Order', and 'Done'. The main area is titled 'Quotation SO0014'. It contains fields for Customer (FranceTiny (OpenERP France)), Invoice Address (OpenERP France), Delivery Address (OpenERP France), Date (03/29/2013), Shop (Shop France), Customer Reference, and Pricelist (Public Pricelist (EUR)). Below this is a table for 'Order Lines' with one item: Computer (Description: Computer, Quantity: 1.000 Unit(s), Unit Price: 65.00, Cost Price: 35.00, Discount (%): 0.00, Subtotal: 65.00). There is also an 'Add an item' button. The 'Other Information' tab is visible. At the bottom, it shows 'Delivery Method' (selected), 'Margin' (30.00 €), 'Untaxed Amount': 65.00 €, 'Taxes': 0.00 €, 'Total': 65.00 €.

Figure 21.17: Defining a Sales Order

You should not forget to set the correct parameters in the second tab *Other Information* to select the *Shipping Policy* and :guilabel:`Create Invoice` field. Here we select the *Deliver all products at once* as *Shipping Policy* and *On Delivery Order* as *Create Invoice*.

Confirm the Sales Order, then run the *Scheduler* (*Warehouses* → *Schedulers* → *Run Schedulers*) and run the Procurement from each company (OpenERP France, OpenERP and OpenERP BE).

At this time, a *Purchase Order* and a *Delivery Order* have been generated. The Purchase Order is in the Request For Quotation state and you have to convert it into a Purchase Order to confirm the purchase.

The Delivery Order is in Waiting Availability state because you have to buy the products before delivery.

The screenshot shows the 'Quotations / PO00015' interface. At the top, there are buttons for 'Edit', 'Create', 'Print', 'More', 'Cancel Order', 'Receive Products', 'Receive Invoice', and status indicators: 'Draft PO', 'RFQ Sent', 'Purchase Order', and 'Done'. The main area is titled 'Purchase Order PO00015'. It contains fields for Supplier (Deli Belgium (OpenERP BE)), Supplier Reference, Pricelist (Default Purchase Pricelist (EUR)), Order Date (03/29/2013), Source Document (SO0014:Transit from Belgium to France), Destination Warehouse Company (OpenERP BE). The 'Incoming Shipments' and 'Invoices' tabs are visible. Below this is a table for 'Purchase Order' with one item: Computer (Description: Computer, Scheduled Date: 03/29/2013, Company: OpenERP BE, Analytic Distribution, Quantity: 1.000 Unit(s), Product Unit of Measure, Unit Price: 35.00, Taxes: 0.00, Subtotal: 35.00). At the bottom, it shows 'Untaxed Amount': 35.00 €, 'Taxes': 0.00 €, 'Total': 35.00 €.

Figure 21.18: Purchase Order

Once the purchase order has been confirmed and the reception is completed, we can process the delivery order.

Delivery Order

Once the delivery order is processed, the products are sent to the customer and we can invoice the order from OpenERP France on the delivered quantities.

The delivery order will be processed from OpenERP BE. OpenERP BE is the company that manages the stock of products. This company is responsible for the delivery of the products to the final customers. However, the invoicing process will be handled by OpenERP France, because it is the company that received the order from the customer.

Figure 21.19: Deliver the Products

From the user of OpenERP France, we can create the invoice for the order (*Sales → Invoicing → Order Lines to Invoice*), then pass the invoice from the Draft state to the Open state. To finalize the invoicing process, you have to go to *Accounting → Customers → Customers Invoices* to execute the payment process.

And if you have given above configuration of Sale order, the *Create Invoice* field as *On Delivery Order*, you will find button Create Invoice after Deliver of that Product.

Figure 21.20: Create the Invoice

Delivery Ord... / OUT/00005 / Customer In... / Invoice

Edit Create Print More

Validate Refund Invoice Cancel Invoice Draft Pro-forma Open Paid

Pro Forma Invoice

Customer	FranceTiny (OpenERP France) Paris France	Invoice Date	Sales Journal (EUR)
Fiscal Position		Journal	110200 Debtors
		Account	
		Currency	EUR

Invoice Lines Other Info Payments

Product	Description	Account	Analytic Account	Quantity	Unit of Measure	Unit Price	Discount (%)	Taxes	Amount
Computer	Computer	200000 Product Sales		1.000	Unit(s)	65.00	0.00		65.00

Subtotal : 65.00 €
Tax : 0.00 €
Total : **65.00 €**
Balance : 0.00 €

Payment Terms Additional Information

Figure 21.21: Validate the Invoice

Part VIII

Manage your Business

These two chapters are about selling and purchasing products and services.

DRIVING YOUR SALES

This chapter describes OpenERP's sales management, following the complete sales order process from quotation to customer order, including the management of deliveries and invoicing. It does not look at customer relations and pre-sales, which are handled by the CRM (Customer Relationship Management) modules described in an earlier part of the book.

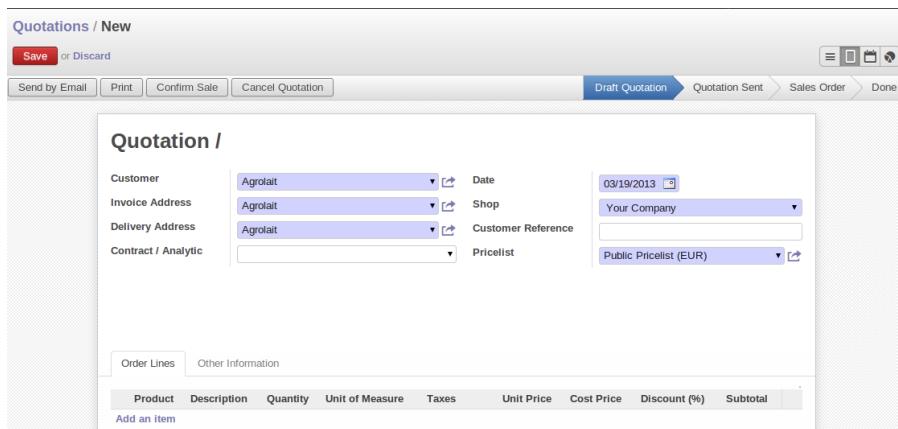
It also describes the management of carriers, margin control and reporting, price management and the handling of various types of sales discount campaigns.

For this chapter you should start with a fresh database that includes demonstration data, with `sale` and its dependencies installed and no particular chart of accounts configured.

22.1 Managing your Sales Quotations

In OpenERP, now a quotation and an order are handled in the different menu. You can consider an order to be a quotation that has evolved, because it has been confirmed by the customer. Or, conversely, that a quotation is an order that has not been validated or cancelled yet. Your quotations can be opened using the menu *Sales → Sales → Quotations*.

To enter details of a new quotation, you can use the menu *Sales → Sales → Quotations* and then select *Create*. OpenERP opens a new window allowing you to enter data into a new blank quotation form. You can also create a quotation directly from an opportunity, as explained in a previous chapter.



The screenshot shows the 'Quotations / New' window in OpenERP. At the top, there are buttons for 'Save' and 'Discard', and links for 'Send by Email', 'Print', 'Confirm Sale', and 'Cancel Quotation'. A progress bar indicates the status: 'Draft Quotation' (blue), 'Quotation Sent' (grey), 'Sales Order' (grey), and 'Done' (grey). Below the progress bar, the main form is titled 'Quotation /'. It contains several dropdown fields: 'Customer' (Agrolait), 'Invoice Address' (Agrolait), 'Delivery Address' (Agrolait), 'Contract / Analytic' (empty), 'Date' (03/19/2013), 'Shop' (Your Company), 'Customer Reference' (empty), 'Pricelist' (Public Pricelist (EUR)), and a 'Comments' text area. At the bottom of the form, there are tabs for 'Order Lines' and 'Other Information', and a table header with columns: Product, Description, Quantity, Unit of Measure, Taxes, Unit Price, Cost Price, Discount (%), and Subtotal. A 'Add an item' button is located at the bottom left of the table area.

Figure 22.1: New Quotation

Some information is automatically specified by the system:

- an internal reference for the quotation or order,
- the sales point that the order will be delivered from,
- the order date,

- the pricelist for the current Quotation.

You can modify any of that information before validating the quotation. The customer reference is shown in the right side. This optional field is for the customer's own reference – if the customer does not supply one, just leave it empty.

In new quotation form ,start by entering the customer name, by selecting the correct customer from the list of customers in the system. From the quotation, you can create a new customer.

Once the customer name has been selected, different fields of the order are completed automatically, based on the configuration of that customer:

- *Delivery Address* : address used on the delivery order. By default, OpenERP proposes the delivery address from the partner form. If no specific delivery address is defined, the default address will be used instead.
- *Invoice Address* : address used to send the invoice to the customer. By default, OpenERP proposes the address labelled *Invoice* from the partner form. If no specific invoice address is defined, the default address will be used instead.
- *Invoice Type* : available in *Other Information* tab, shows the invoice type(daily/monthly), if configure for that selected customer.
- *Payment Term* : also available in the *Other Information* tab, it shows the payment method that the customer will follow, for example 30 Days End of Month.

You can modify any of these fields on the order as you go.

You can also set an analytic account for your order. This account will be used during invoicing to generate accounting entries corresponding to the invoice automatically. This is extremely useful for assigning revenues to the project or case specified by this order.

Tip:

Analytic Accounts

If you are managing by task, the analytic account to be selected is the one that corresponds to the project for the order. The sales carried out by the order can be allocated to the project so that profitability calculations can be made.

Once the information has been entered, you can enter data for the order lines in *Order Lines* tab .

Description	Quantity	Unit of Measure	Unit Price	Discount (%)	Amount
[ADPT] USB Adapter	1.000	Unit(s)	18.00	0.00	

Figure 22.2: Entering a New Sales Order Line

First of all, select the product that is to be sold to the customer. OpenERP shows some useful information in the list of products to help you making a sales quotation:

- *Quality On Hand* : physically present in your warehouses. This value depends on the Shop (sales point) selected in the order header. Different shops can be linked to different warehouses, giving different stock levels, or can use the same warehouse.
- *Forecasted Quantity* : shows a salesperson the quantity that can be sold, taking into account both stock reserved for other orders and the number of products planned to arrive in the short term.
- *Public Price* : the basic sales price for the given product. It provides a basis for the salesperson to be able to judge whether to offer a discount to the customer, and how much the discount should be.

Search: Product

Internal Reference	Name	Variants	Unit of Measure	Quantity On Hand	Forecasted Quantity	Public Price	Price	Status
ADPT	USB Adapter		Unit(s)	0.000	5.000	18.00	0.00	
CARD	Graphics Card		Unit(s)	16.000	16.000	885.00	0.00	
C-Case	Computer Case		Unit(s)	-1.000	-1.000	25.00	0.00	
CD	Blank CD		Dozen(s)	0.000	0.000	20.00	0.00	
CPUa8	Processor AMD 8-Core		Unit(s)	0.000	15.000	1980.00	0.00	
CPUi5	Processor Core i5 2.70 Ghz		Unit(s)	0.000	0.000	2100.00	0.00	
DC	Datacard		Unit(s)	0.000	50.000	40.00	0.00	
DVD	Blank DVD-RW		Dozen(s)	0.000	25.000	24.00	0.00	
EXT-HDD	External Hard disk		Unit(s)	0.000	10.000	405.00	0.00	
GRAPs/w	GrapWorks Software		Unit(s)	0.000	4.000	173.00	0.00	
HDD-DEM	HDD on Demand		Unit(s)	0.000	0.000	1250.00	0.00	
HDD-SH1	HDD SH-1		Unit(s)	39.000	39.000	975.00	0.00	
HDD-SH2	HDD SH-2		Unit(s)	45.000	45.000	1150.00	0.00	
HEAD	Headset standard		Unit(s)	0.000	0.000	60.00	0.00	

Create or Cancel

Figure 22.3: Selecting a Product in a Sales Order Line

Once the product to be sold to the customer has been selected, OpenERP automatically completes all the other required fields: quantity, unit of measure, description, unit price, discount, procurement method, lead times and applicable taxes. All of this information comes from the product form.

Tip:

Visible Discount

If a discounted price is taken from a price list, by default that figure is shown as the sales price to the customer. He will see a discount of 0% along with the unit price that is different from the list price. If you install the module `product_visible_discount` from `extra-addons`, you can configure whether you want to make the discount explicitly visible in an order form as a percentage difference from the list price, or just show a reduced unit price as in the default configuration.

Note:

One-off Sales

If a product is sold to a customer only once, you do not have to create a completely new product form just for that sale. You can manually complete all the information in the order without actually creating a product: description, price, quantity, lead time, taxes. In this case, OpenERP will not generate a delivery note because the a pure description is not a product, and so it is not in stock.

When all of the products are entered, you can print the quotation by clicking *Print* button on the form.

OpenERP opens the quotation in PDF to enable to you to check it before printing.

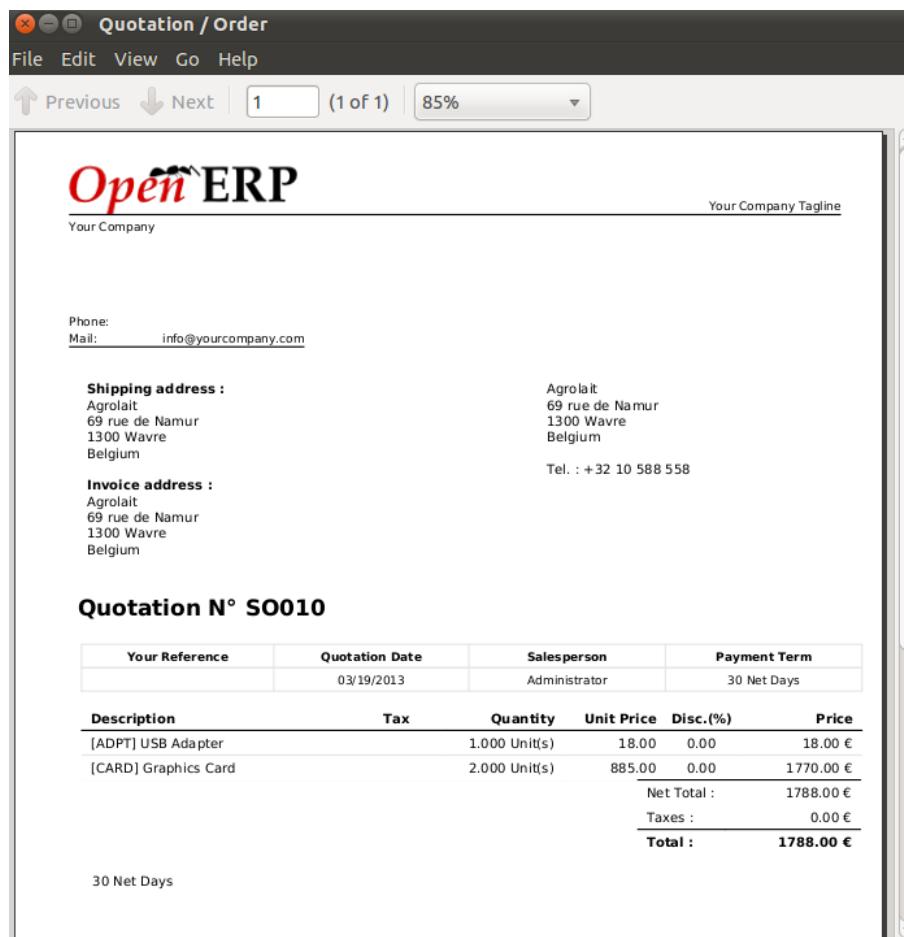


Figure 22.4: Printing a Sales Quotation

Also you can send it to the customer by clicking *Send by Email* button on the form . After sending email , state will be change to Quotation Sent

Product	Description	Quantity	Unit of Measure	Taxes	Unit Price	Cost Price	Discount (%)	Subtotal
[ADPT] USB Adapter	[ADPT] USB Adapter	1.000	Unit(s)		18.00	13.00	0.00	18.00
[CARD] Graphics Card	[CARD] Graphics Card	2.000	Unit(s)		885.00	876.00	0.00	1770.00
								Untaxed Amount : 1788.00 €
								Taxes : 0.00 €
								Total : (update) 1788.00 €

Figure 22.5: Order after sending an e-mail in Quotation Sent state

When the order is confirmed by the customer, you can confirm the quotation to turn in into a sales order. You

can also just cancel the window without confirming the order to leave it in Draft Quotation state. To see all the current quotations, you can use the menu Sales → Sales → Quotation. (But Quotations menu contains only those Quotations which are in Draft Quotation and Quotation Sent state)

The process of Sale Order is like ,following figure.

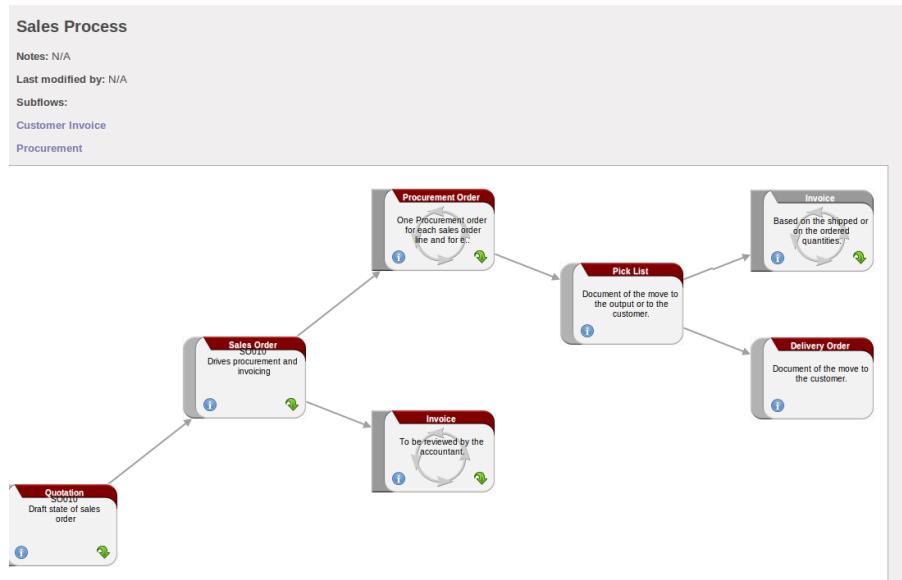


Figure 22.6: Process View for a Sales order

22.2 Packaging

Products can be managed in several packaged forms. For example, if you sell batteries you can define the following packages for a given battery product:

- Piece: a battery,
- Blister Pack: a pack of 4 batteries,
- Pack of 100 blisters: 400 batteries,
- Palette: 40 packs for a total of 16,000 batteries.

OpenERP's package management enables you to sell the same product in several different forms. The salesperson could sell separately, one battery or a palette of batteries. In the order, you can select the default packaging type as a function of the quantities ordered.

For example, if the customer wants to buy 30,000 batteries, the salesperson can select the `palette` package. OpenERP will then propose to sell 32,000 batteries, which corresponds to two palettes. Or the salesperson can select 75 packs.

The available packages are defined in the product form, in the *Sales* tab . The first item on the list is the one that will be used by default.

Once a package has been defined on the order, OpenERP will throw up an alert if the ordered quantities do not correspond to the proposed packages. The quantity must be a multiple of the field *Quantity by Package* defined

on the packaging form.

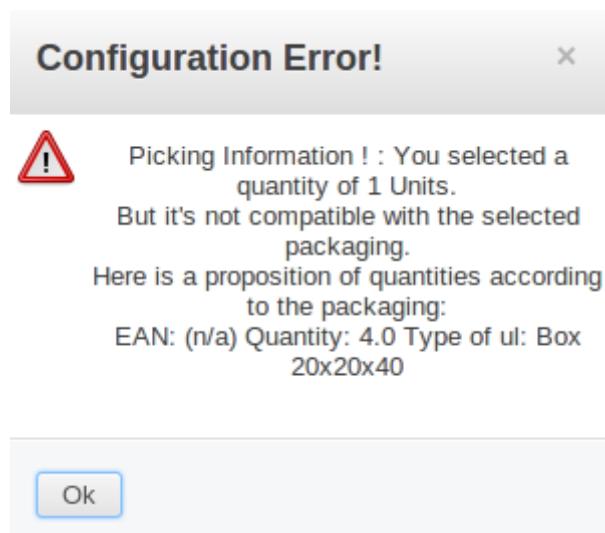


Figure 22.7: Alert on the Quantities sold compared to the Packaging

Do not confuse the management of packaging with the management of multiple units of measure. The Unit of Measure is used to manage the stock differently according to the various units. With packages, the stock is always managed by individual items, but information about the package to use is supplied to the storesperson along with that item.

Even if the effects are the same, the printed documents will be different. The two following operations have the same effect on stock movement levels, but will be printed differently on the sales order and the packing order as where quantities are concerned:

- 32,000 batteries, delivered on two palettes,
- 2 palettes of batteries, with no information about packaging.

If the customer wants to order a palette and 10 packs, the salesperson can put two order lines on the sales order using the same product with different units of measure.

It is sometimes more useful to define different products than to define several possible packages for the same product. A case of beer in a supermarket is a good example. A case holds 24 bottles, plus the empty case itself. The customer can buy bottles by the piece or a case of 24 bottles at one go.

You could define two packages for the `Bottle of beer` : `PCE` and `case`. But this representation does not let you manage the stock and price of empty cases. So you might instead prefer a Bill of Materials, defining and using three different products:

- the empty case for the beer,
- the bottle of beer,
- the case of 24 bottles of beer.

You also define the bill of materials below which determines the make-up of the case of 24 beers:

- Case of 24 bottles of beer: 1 unit,
- Bottle of beer: 24 units,
- Empty case of beer: 1 unit.

Each of these three products has a different price. The products `Bottle of beer` and `Empty case of beer` have a stock level that needs to be managed. The `Case of 24 bottles of beer` has no stock because, if you sell the product, OpenERP automatically moves the stock in two lines, one for the empty case and the other for the 24 individual bottles of beer. For more information on bills of materials, see chapter *ch-mnf*.

22.3 Alerts

To manage alerts on customers, you can install the warning module. Once that is installed, you will be able to configure a series of alerts on the customers by setting parameters in the new *Warnings* tab on the form.

You can select any of the following types of warnings and create different warnings for purchases and for sales:

- *No Message*: This option will not display a message.
- *Warning*: This option will show the user the message entered.
- *Blocking Message*: The message displayed will cause an exception and block the workflow.

You can activate alerts for a series of events. For each alert, you should enter a message that will be displayed when the event concerned is started.

The screenshot shows the Odoo customer form for 'Agrolait'. At the top, there's a toolbar with 'Save' and 'Discard' buttons, and a navigation bar with icons for Meetings, Calls, Opportunities, Quotations and Sales, and a search bar. Below the toolbar, the customer details are listed: Name (Agrolait), Address (69 rue de Chimay, Wavre, 1300 Belgium), Phone (+32 10 588 558), Website (www.agrolait.com). The 'Warnings' tab is selected at the bottom of the form. Under 'Warning on the Sales Order', it says 'Warning' and 'ATTENTION : Sale Order is being generated.' Under 'Warning on the Purchase Order', it says 'No Message'. There are also tabs for 'Warning on the Picking' and other sections like Contacts, Internal Notes, Sales & Purchases, Accounting, History, and Geo Localization.

Figure 22.8: Example Alert on Customer Agrolait

The available warnings in the customer form are:

- Create a warning for a sales order,
- Create a warning for a purchase order,
- Create a warning for a delivery to a partner (or receiving an item),
- Create a warning when invoicing a partner.

From above example, you enter an alert for the sale order of a customer, so alert will be appear when sale order

will be created for that customer, the alert message will be attached as shown in the following figure.

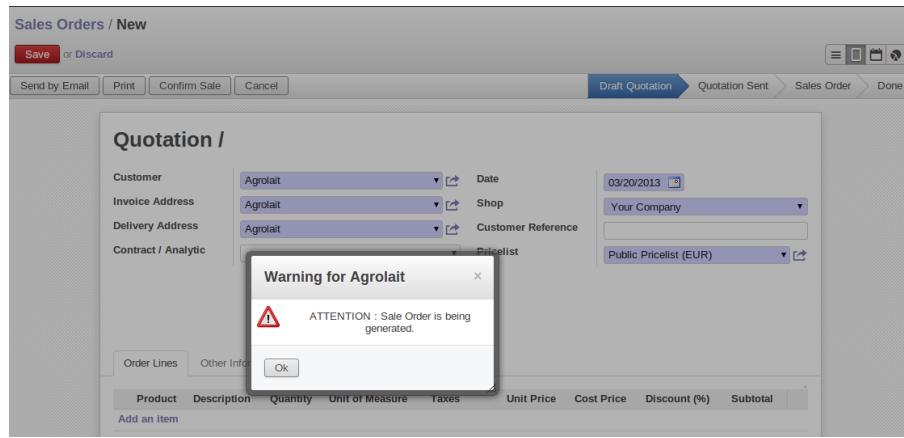


Figure 22.9: Alert from Sale Order of a Customer

A practical example:

Now when could you use such an alert? Suppose that your customer asks you to never make any deliveries on Tuesday morning, because the street is blocked due to a weekly market. You surely would like your transporter to be aware of this, so it could be useful to have a kind of message printed by default on each delivery order for this customer. To do this, you could create a Warning on the Picking in the **Customer** form of the partner concerned, saying that no deliveries are allowed on Tuesday morning.

22.4 Control Deliveries and Invoicing

22.4.1 Configuring Orders

The way the order is configured will determine its future behaviour , following fields are available *Other Information* tab of *Sale Orders* form:

- **Shipping Policy :**
 - Partial: Deliver each product when available ,
 - Complete: Deliver all products at once.
- **Create Invoice :**
 - On demand: A draft invoice can be created from the sales order when needed.
 - On delivery order: A draft invoice can be created from the delivery order when the products have been delivered.
 - Before delivery: A draft invoice is created from the sales order and must be paid before the products can be delivered.
- **Invoice on :** Shipped Quantities and Order Quantities. The sale order will automatically create the invoice proposition (draft invoice). Ordered and delivered quantities may not be the same. You have to choose if you want your invoice based on ordered or shipped quantities. If the product is a service, shipped quantities means hours spent on the associated tasks. By default it is Order Quantity and in 7.0 it is invisible field.

22.4.2 Picking Mode

The picking mode determines the way the storesperson will do the picking. If the order is put into *Partial Delivery* mode, the picking order will appear in the list of things for the storesperson to do as soon as any of the products on the order is available.

The storesperson will then be able to make a partial delivery of the quantities actually available and do a second picking operation later when the remaining products are available in stock.

If the picking mode is *Complete Delivery*, the picking order will not appear in the list of pickings to do until all of the products are available in stock. This way, there will only be a single delivery for any such order.

If the storesperson wants to do so, the delivery mode can be modified on each picking list even after the order has been confirmed.

In the case of invoicing from picking, the cost of delivering the products will be calculated according to multiple deliveries. This risks incurring a higher cost because of the separate deliveries. If invoicing is done from the order, the customer will only be invoiced once for the whole delivery, even if the delivery of several items has already been made.

22.5 Point of Sale

You can manage your retail business and its account transactions using point_of_sale module.

This module provides fast and easy way to manage sales orders. It allows you to manage your shop sales very easily with a fully web based touchscreen interface. The primary function of point-of-sale is to make transactions easy to manage without sacrificing quick, efficient service or customer data. There are different ways of making payments and to split them between different payment modes. Computation of amount of money and creation and confirmation of the pickings are done automatically.

You can click on *Install* button given below the Point of Sales on the home page to install this module:

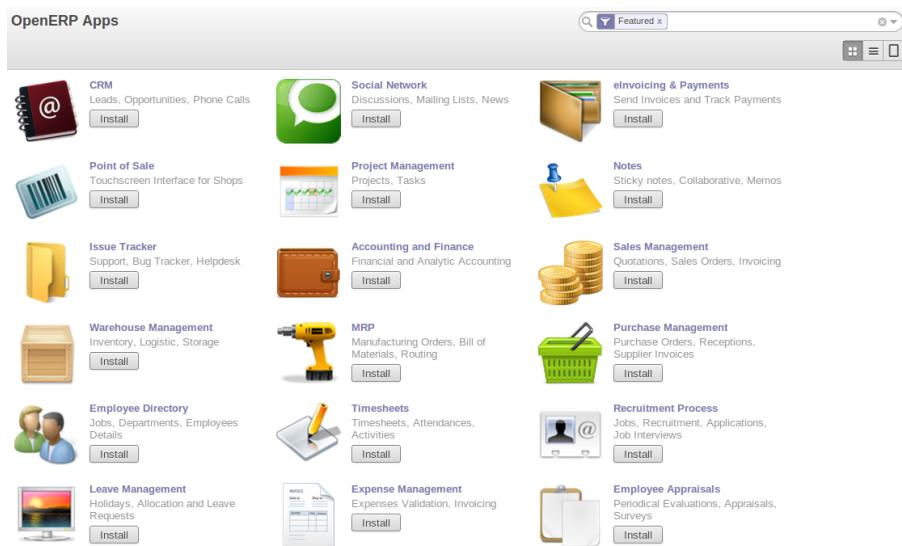


Figure 22.10: Home page to install point_of_sale module

The point of sale provides maximum efficiency, with all retail transactions conducted. Since the point-of-sale application is parameter-driven, you determine what, if any, information, you must enter to begin an order. For most businesses with a point-of-sale operation, a cash sale is the most common type of transaction. Depending on the way you set up your parameters, the Cash Sale Customer will be displayed and the paycode will default to cash.

Daily sales of products, picking and delivery of the products and invoicing are the main features that is provided by this module. In and out of the cash is being maintained using Cash Registers. Each cash register is created based on the Cash / Bank Journals so it will make easier to create journal entries and thus we can keep track of all accounting entries in appropriate accounts.

22.5.1 Generate Sale Orders

For any retail business, the process flow of point of sale starts by making the sales orders. To start point of sale touchscreen application you can click on *Point of Sale → Daily Operations → Your Session*. And click button **New Session**. It will open the following screen:

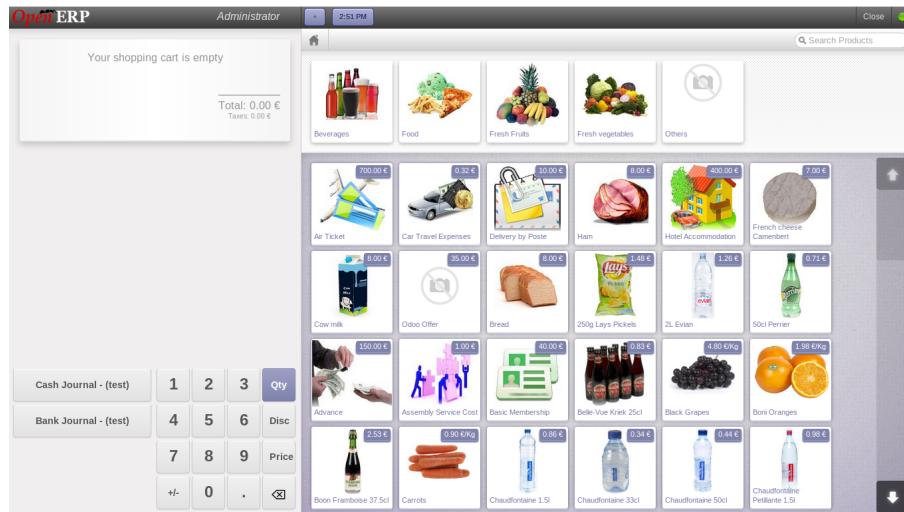


Figure 22.11: POS order view

There are three steps to make a complete sale order:

- Select products, quantity, discount, etc.
- Make payment with or without selecting cash registers.
- Print receipt of the payment.

There are thumbnails of Products on the right side of the screen. You can click on the product you are selling and that product will be added in your list which you can see on the up left corner of the screen.

You can use the combinations of numbers with Qty, Disc and Price. If you want to add quantity then first you need to click on **Qty** button and press the numbers to enter the quantity. Same goes with **Disc** and **Price** buttons.

You can see it in the following screen:

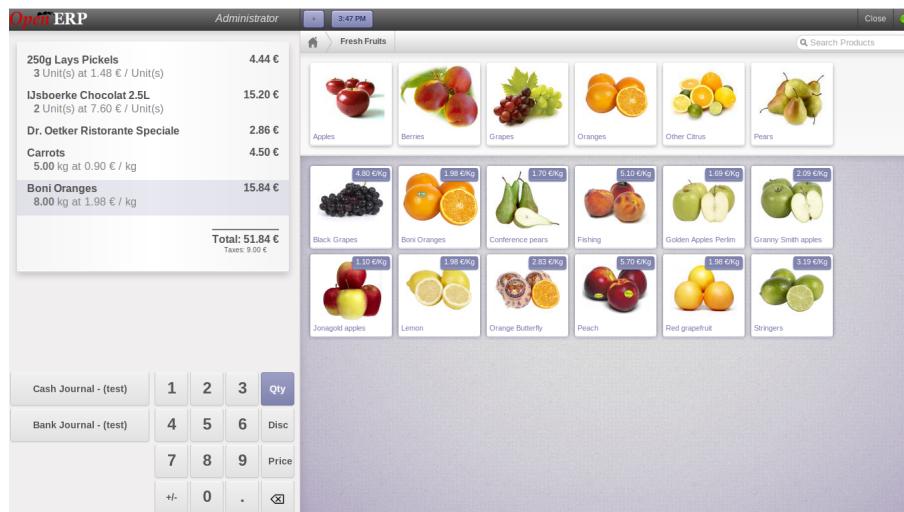


Figure 22.12: Making a sale order by selecting products

22.5.2 Making Payment

You need to make payment to complete a sale order. In OpenERP we provide you certain payment modes using which you can pay for your sale order.

After finishing your order you can click on any of the Cash registers listed on the left side. This will open a new screen which will display the total amount to be paid and selected register name. You can see it in the following figure:

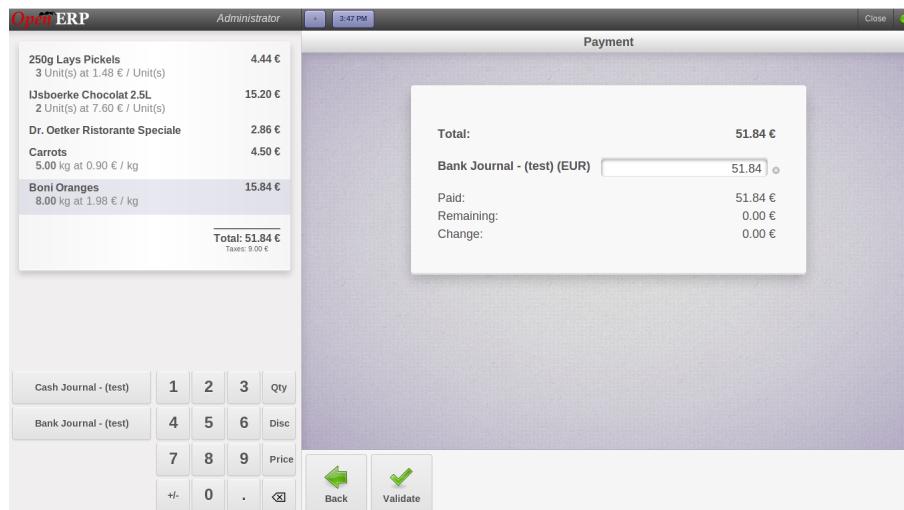


Figure 22.13: Payment of sale order

There will be a **Validate** button on the screen. When you click on it a new screen will appear which consists of a payment receipt of the sale order.

22.5.3 Payment Receipt

After you validate your sale order you will get a payment receipt and two button will appear **Next Order** and **Print**, You can see it in the following screen:

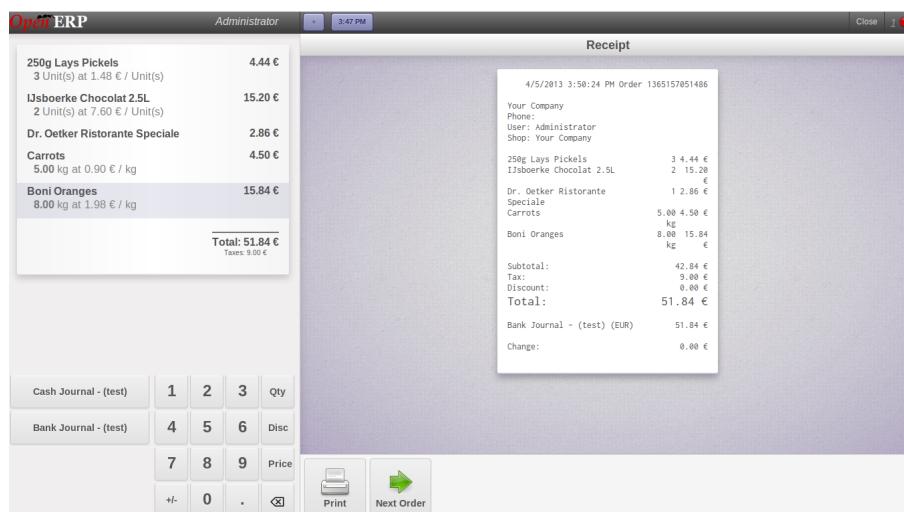


Figure 22.14: Payment receipt

If you click on print , you will find printed receipt as following figure,



Figure 22.15: Printed Payment receipt

22.6 Management of Carriers

To manage deliveries in OpenERP, you can install the `delivery` module from setting menu.

This module enables you to manage:

- the different carriers with whom you work,
- the different transport methods,
- cost calculation and invoicing of each delivery,
- the transport methods and their tariffs.

Once the `delivery` module has been installed, the first thing to do is to configure the different modes of delivery accepted by your company. Go to the menu *Warehouse* → *Configuration* → *Delivery Method* to create your

company's delivery modes.

For each delivery mode, you should define the following elements:

- Name of the delivery mode,
- The partner associated with the transport (which can be your own company),
- The associated product.

Let's give you an example:

Table 22.1: Example Delivery Modes

Carrier	Carrier Partner	Delivery Product
Express Track	Mail Office	Express Track Delivery
Priority Courier	Mail Office	Courier Express Delivery
EFG Standard	EFG Inc	Delivery EFG
EFG Express	EFG Inc	Delivery EFG Express

Information about the invoicing of transport (such as accounts, applicable taxes) is entered in the product linked to the delivery mode. Ideally the product should be configured with *Product Type Service* and *Procurement Method Make to Stock*.

You can use the same product for several delivery modes. This simplifies the configuration, but it has the disadvantage that you will not be able to separate your sales figures by delivery mode.

22.6.1 Tariff Grids

Unlike ordinary products, delivery prices are not proposed through pricelists but through delivery grids, designed specifically for this purpose. For each delivery mode, you enter one or several tariff grids. Each grid is used for a given region/destination.

For example, for the postal tariffs for Priority Courier, you generally define the three tariff grids for Mail Office:

- National Courier,
- Courier in Europe,
- Courier Outside Europe.

To define a new delivery grid, use the menu *Warehouse* → *Configuration* → *Delivery* → *Delivery Pricelist*. Give a name to your delivery grid and define the region for which the tariffs in the grid will apply in the second tab *Destination*. There you can set:

- A list of countries (for UK or Europe, for example),
- A list of states,
- A range of postal codes (for Paris you might have 75000 – 75900).

Then you have to set the rules for calculating the transport price in the first tab *Grid definition*. First of all, give the rule a name. Then set the condition for which this rule is applicable, for example *Weight < 0.5kg*.

Note:

Weights

Weights are always expressed in kilograms. You can define a number with a decimal point or comma, so to set 500g you would put 0.5 in the weight rule.

Next you can set the sales price and the cost price. Prices can be expressed in various ways:

- a fixed price,
- a variable price, as a function of weight, volume, weight x volume or price.

For example, mailing within France using current tariffs would be defined as shown in the table below:

Table 22.2: Example Tariff Rules

Name	Condition	Price	Price Type
S	Weight < 3 kg	6.90	Fixed
M	Weight < 5 kg	7.82	Fixed
L	Weight < 6 kg	8.53	Fixed
XL	Weight < 7 kg	9.87	Fixed

You can also define rules that depend on the total amount on the order. For example to offer fixed price delivery if the total order amount is greater than 150 USD, add the following rule:

Table 22.3: Additional Tariff Rule

Name	Condition	Price	Price Type
Franked > 150 USD	Price > 150 USD	10	Fixed

22.6.2 Delivery Modes

Once the delivery modes and their corresponding tariffs have been defined, you can use them in a Sales Order. There are two methods for doing that in OpenERP.

- Delivery based on Ordered Quantities,
- Delivery based on Shipped Quantities.

22.6.3 Delivery based on Shipped Quantities

To invoice the delivery according to the items shipped, you set the delivery mode in the *Delivery Method* field on the tab , *Order Lines* of Sales Order, to *Invoice from Delivery*.

You can then confirm the order, and when the goods are available you can also validate the delivery order.

The transport costs will not be added to the sales order, but only to the invoice. When the manager has generated the invoices corresponding to the deliveries carried out, OpenERP automatically adds a line on each invoice corresponding to the delivery charge, calculated on the basis of the items actually sent.

22.7 Keep Track of your Margins

For every company, keeping a clear sight on and a good control of margins is crucial. Even if you have a good sales level, it will not guarantee company profitability if margins are not high enough. OpenERP provides a number of methods allowing you to monitor your sales margins. The main ones are:

- Margins on a sales order,
- Margins by product,
- Using pricelists.

22.7.1 Margins on Sales Orders

If you want to check your margins on sales orders, you can install the `sale_margin` module from *Settings* menu. This will add margins calculated on each order line and on the order total.

Sales Order SO011

Customer	Campocamp 93, Press Avenue 73377 Le Bourget du Lac France	Date	03/25/2013
Shop	Your Company	Customer Reference	
Invoice Address	Campocamp 93, Press Avenue 73377 Le Bourget du Lac France	Pricelist	Public Pricelist (EUR)
Delivery Address	Campocamp 93, Press Avenue 73377 Le Bourget du Lac France		

Order Lines Other Information

Product	Description	Quantity	Unit of Measure	Taxes	Unit Price	Cost Price	Discount (%)	Subtotal
[ADPT] USB Adapter	[ADPT] USB Adapter	10.000	Unit(s)		18.00	13.00	0.00	180.00

Margin 50.00 €

Untaxed Amount :	180.00 €
Taxes :	0.00 €
Total :	180.00 €

Figure 22.16: An order with the module `sale_margin`

The margin on each line is defined as the quantity sold multiplied by the sales price for the customer less the cost price of the products. By default, products are managed using standard price in OpenERP (cost price fixed manually and reviewed once per year). You can change that to Average Price, meaning that the product cost fluctuates with purchases from suppliers. After product receipt you can include fixed costs, such as delivery costs, in the cost of each product.

OpenERP supports a third method of updating the cost price of products. This is through the button *Update* on the product form which lets you automatically recalculate the cost price for the selected product. The cost price is calculated from the raw materials and the operations carried out (if the products have been manufactured internally, so that you have set their costs).

22.7.2 Margins by Product

To track margins by product, install the module `product_margin`. Once the module is installed you can see the margins by product by using the menu *Reporting* → *Purchase* → *Product Margins*.

When you have clicked the menu option concerned, OpenERP asks for an analysis period and the state of invoices (draft, open, paid). If no period is given, OpenERP will calculate margins on all of the operations without restriction. By default, however, OpenERP proposes a period of the last 12 months for analysis.

You can also filter the analysis on certain types of invoice:

- All invoices, including unvalidated draft invoices,
- All open and/or paid invoices,
- Paid invoices only.

New / Product Margins												
Create												
Name	Internal Reference	Avg. Unit Price	# Invoiced in Sale	Turnover	Sales Gap	Total Cost	#Purchased	Total Margin	Expected Margin	Total Margin Rate(%)	Expected Margin (%)	
USB Adapter	ADPT	18.00	10.00	180.00	0.00	0.00	0.00	180.00	180.00	100.00%	100.00%	
Air Ticket	AT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00%	
Graphics Card	CARD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00%	
Car Travel Expenses	CarTRA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00%	
Computer Case	C-Case	25.00	1.00	25.00	0.00	0.00	0.00	25.00	25.00	100.00%	100.00%	
Blank CD	CD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00%	

Figure 22.17: Product Margins

You then get a margin analysis table. The following fields are displayed for the sales of each product:

- *Avg. Unit Price*: the average unit sales price,
- *Catalog Price*: the list price based on this product,
- *# Invoiced in Sale*: the number of sold products that have been invoiced,
- *Sales Gap*: the difference between the revenue calculated from list price and volume, and the actual sales,
- *Turnover*: the actual sales revenue for the product selected,
- *Expected Sale*: the number of products sold multiplied by the list price.

New / Product Mar... / [ADPT] USB Adapter																							
Save or Discard																							
Name	Internal Reference	ADPT																					
Margins																							
Analysis Criteria																							
Margin Date From	01/01/2013																						
Margin Date To	12/31/2013																						
Invoice State	Open and Paid																						
Sales																							
Avg. Unit Price	18.00																						
Catalog Price	18.00																						
# Invoiced in Sale	10.00																						
Sales Gap	0.00																						
Turnover	180.00																						
Expected Sale	180.00																						
Purchases																							
Avg. Unit Price	0.00																						
Standard Price	13.00																						
# Invoiced in Purchase	0.00																						
Purchase Gap	0.00																						
Total Cost	0.00																						
Normal Cost	0.00																						
Margins																							
Total Margin	180.00																						
Expected Margin	180.00																						
Total Margin Rate(%)	100.00%																						
Expected Margin (%)	100.00%																						

Figure 22.18: Margin Details for a Given Product

The following fields are given by product for purchases:

- *Avg. Unit price* : the average unit purchase price,
- *Standard price* : the standard cost price of the product for the company,
- *# Invoiced in Purchase* : the number of purchased products,
- *Purchase Gap*: the difference between the total actual cost and the standard cost multiplied by the number of units purchased,
- *Total Cost*: the total cost of purchases for the product under consideration,
- *Normal Cost*: the number of products sold multiplied by the standard cost price.

The following fields are given by product for margins:

- *Total Margin*,
- *Expected Margin*,
- *Total Margin in percent*,
- *Expected Margin in percent*.

22.8 Pricing Policies

Some companies are notorious for their complicated pricelists. Many forms of price variation are used, such as end-of-year refunds, discounts, change of terms and conditions with time, various prepayments, cascaded rebates, seasonal promotions, and progressive price reductions.

Note:

Rebate, Refund, Reduction

In some accounting jurisdictions you have to differentiate between the three following terms:

- *Rebate: reimbursement to the client, usually at the end of the year, that depends on the quantity of goods purchased over a period.*
- *Refund: reduction on the order line or invoice line if a certain quantity of goods is purchased at one time or is sold in a framework of a promotional activity.*
- *Reduction: a one-off reduction resulting from a quality defect or a variation in a product's conformance to a specification.*

Intelligent price management is difficult, because it requires you to integrate several conditions from clients and suppliers to create estimates quickly or to invoice automatically. But if you have an efficient price management mechanism you can often keep margins raised and respond quickly to changes in market conditions. A good price management system gives you scope for varying any and all of the relevant factors when you are negotiating a contract.

To help you work most effectively, OpenERP's pricelist principles are extremely powerful yet are based on simple and generic rules. You can develop both sales pricelists and purchase pricelists for products capable of accommodating conditions such as the date period, the quantity requested and the type of product.

Tip:

Do not confuse the Different Price Specifications

Do not confuse the sales price with the basic price of the product. In OpenERP's basic configuration, the sales price is the list price specified in the product form, but a customer can have a different sales price depending on the conditions.

The same applies to the purchase price and standard cost. Purchase price is your suppliers' selling price, which changes in response to different criteria such as quantities, dates, and supplier. This is automatically set by the accounting system. You will find that the two prices have been set by default to the same for all products with the demonstration data, which can be a source of confusion. You are free to set the standard cost to something different.

Each pricelist is calculated from defined policies, so you will have as many sales pricelists as active sales policies in the company. For example, a company that sells products through three sales channels could create the following price lists:

1. Main distribution:

- pricelist for Walbury,
- pricelist for TesMart,

2. Postal Sales.

3. Walk-in customers.

A single pricelist can exist in several versions, only one of which is permitted to be active at a given time. These versions let you set different prices at different points in time. So the pricelist for walk-in customers could have five different versions, for example: Autumn, Summer, Summer Sales, Winter, Spring. Direct customers will see prices that change with the seasons.

Each pricelist is expressed in a single currency. If your company sells products in several currencies, you will have to create as many pricelists as you have currencies.

The prices on a pricelist can depend on another list, which means that you do not have to repeat the definition of all conditions for each product. So a pricelist in USD can be based on a pricelist in EUR. If the currency conversion rates between EUR and USD change, or the EUR prices change, the USD rates can be **automatically** adjusted.

22.8.1 Creating Price Lists

You can define a pricelist from the menu *Sales → Configuration → Pricelists → Pricelists*.

For each list you should define:

- a *Name* for the list,
- a *Type* of list: *Sale* for customers or *Purchase* for suppliers,
- the *Currency* in which the prices are expressed.

Price List Versions

Once the pricelist is defined you have to link at least one version. You can create a new version directly from the pricelist or from the *Sales → Configuration → Pricelists → Pricelist Versions* menu. The version contains all of the rules that enable you to calculate a price for a product and a given quantity.

Start by setting the *Name* of this associated version. If the list only has a single version, you can use the same name for the pricelist and the version. In the *Price List* field, select the pricelist you created (this is not necessary if you create the version directly from the pricelist).

Then set the *Start Date* and *End Date* of this version. The fields are both optional: if you do not set any dates the version will be permanently active. Only one version may be active at any one point, so bear this in mind when creating them. Use the *Active* field in the versions to activate or disable a pricelist version.

Note:

Automatically Updating the Sales Pricelist

Any sales pricelist can be set to depend on one of the other pricelists. So you could create your sales pricelist based on the supplier's purchase pricelist, to which you add a margin. The prices are automatically calculated as a function of the purchase price and need no further manual adjustment.

Calculation Rules

A pricelist version is made up of a set of rules that apply to the basic product prices.

The screenshot shows the 'Create: Price List Items' dialog box. At the top, it says 'Rule Name: CARD'. Below that, there are fields for 'Product' (set to '[CARD] Graphics Card'), 'Product Category' (empty), 'Min. Quantity' (set to 50), and 'Sequence' (set to 5). Under 'Price Computation', the 'Based on' dropdown is set to 'Public Price'. Below this, there are fields for 'New Price = Base Price * (1 + Min. Margin) + Max. Margin'. The values are: Base Price 0.00, Min. Margin 0.2000, and Max. Margin 0.00. At the bottom, there are buttons for 'Save & Close', 'Save & New', and 'Discard'.

Figure 22.19: Rule in a Pricelist Version

You define the conditions for a rule . The rule applies to the *Product* or *Product Template* and/or the named *Product Category*. If a rule is applied to a category, then it is automatically applied to all of its subcategories too (using the tree structure for product categories).

If you set a minimum quantity in *Min. Quantity*, the rule will only apply to a quantity equal to or larger than the quantity set. This way, you can define reduced rates in steps according to the quantities ordered.

Several rules can be applied to an order. OpenERP evaluates these rules by sequence number, to determine which rule(s) to apply to the specified price calculation. If several rules are valid, only the first in sequence is used for the calculation. The *Sequence* field determines the order, starting with the lowest number and working up.

Once a rule has been selected, the system has to determine how to calculate the price from the rule. This operation is based on the criteria set out in the lower part of the form, labelled *Price Computation*.

The first field to complete is *Based on*. Set the way in which the partner price will be calculated, choosing between:

- the *Public Price* set in the product file,
- the *Cost Price* set in the product file,
- an *Other Pricelist* given in the field *If Other Pricelist*,
- the price that varies as a function of a supplier defined in the *Supplier Prices on the product form*.

Several other criteria can be considered and added to the list, as you will see in the following section.

Next, various operations can be applied to the basic price to calculate the sales or purchase price for the partner, according to the specified quantities. To calculate it, you apply the formula shown on the form: *Price = Base Price x (1 + Field1) + Field2*.

The first field, *Field1*, defines a discount or a supplement. Set it to -0.20 for a discount of 20% from the basic price. If your price is based on standard cost, you can set 0.15 to get a 15% price uplift compared to the standard costs.

Field2 sets a fixed supplement to the price, expressed in the currency of the pricelist. This amount is just added (or subtracted, if negative) to the amount calculated with the *Field1* discount.

Then you can specify a rounding method. The rounding calculation is carried out to the nearest number. For example if you set 0.05 in this example, a price of 45.66 will be rounded to 45.65, and 14,567 rounded to 100 will give a price of 14,600.

Note:

Swiss Special Situation

In Switzerland, the smallest monetary unit is 5 cents. There are not any 1 or 2 cent coins. So you set OpenERP's rounding to 0.05 to round everything in a Swiss franc pricelist.

The supplement from *Field2* is applied before the rounding calculation, which enables some interesting effects. For example, if you want all your prices to end in 9.99, set your rounding to 10 and your supplement to -0.01 in *Field2*.

Minimum and Maximum margins enable you to guarantee a given margin over the base price. A margin of 10 USD enables you to stop the discount from returning less than that margin. If you put 0 into this field, no effect is taken into account.

Once the pricelist is defined, you can assign it to a customer. Go to the Customer form and select its *Sales & Purchases* tab. You can then change the *Purchase Pricelist* and the *Sale Pricelist* that is loaded by default for the customer.

Decimal Accuracy

There are several configuration settings related to the decimal accuracy of prices, or the number of decimal places to hold with each price field. To change the accuracy of a field, follow these steps:

1. First make sure that you have give the access rights to user.

2. Go to *Settings* → *Technical* → *Database Structure* → *Decimal Accuracy*. This list contains a number of predefined elements.
3. Open the entry you want to change. *Purchase Price* and *Sale Price* are the most common ones related to prices, but some fields are controlled by the *Account* entry.
4. Type a new value in the digits field, and save the entry. Do not change the description in the *Usage* field, or it will stop working.
5. Close the screen where you were editing prices and reopen it. The price field should now have the number of digits you asked for.

22.8.2 Example of a Pricelist

Take the case of an IT systems trading company, for which the following product categories have been configured:

All products

1. Accessories
 - Printers
 - Scanners
 - Keyboards and Mice
2. Computers
 - Portables
 - Large-screen portables
 - Computers
 - Office Computers
 - Professional Computers

In addition, the products presented in the table below are defined in the currency of the installed chart of accounts.

TABLE

Table 22.4: Examples of products with their different prices

Product	Sale Price	Cost Price	Default supplier price	
Acclo Portable	1,200	887	893	
Toshibishi Portable	1,340	920	920	
Berrel Keyboard	100	50	50	
Office Computer	1,400	1,000	1,000	

Default Price Lists

The screenshot shows the configuration of a public pricelist named "Public Pricelist". The pricelist is active and uses the EUR currency. It is a "Sale Pricelist" type. Below the main form, there is a table for managing price list items. The table has columns for Name, Active, Start Date, and End Date. A single row is visible, labeled "Default Public Pricelist Version", with its Active status checked. At the bottom of the table, there is a button labeled "Add an Item".

Figure 22.20: Default pricelist after installing OpenERP

When you install the software, two pricelists are created by default: one for sales and one for purchases. Each of them contains only one pricelist version and only one line in that version.

The price for sales defined in the Default Public Pricelist is set by default to the Public Price of the product, which is the Sales Price in the Product form.

The price for purchases defined in the Default Purchase Pricelist is set by default in the same way to the Cost Price of the product.

Trading Company

Take the case of a trading company, where the sales price for resellers can be defined like this:

- For portable computers, the sale price is calculated from the list price of the supplier Acclo, with a supplement of 23% on the cost of purchase.
- For all other products the sales price is given by the standard cost in the product file, to which 31% is added. The price should end in .99 .
- The sales price of Berrel keyboards is fixed at 60 for a minimum quantity of 5 keyboards purchased. Otherwise it uses the rule above.
- Assume that the Acclo pricelist is defined in OpenERP. The pricelist for resellers and the pricelist version then contains three lines:

1. Acclo line:

- *Product Category*: Portables ,
- *Based on*: Other pricelist ,
- *Pricelist if other*: Acclo pricelist ,
- *Field1* : 0.23 ,
- *Priority* : 1 .

2. Berrel Keyboard line:

- *Product Template*: Berrel Keyboard ,
- *Min. Quantity* : 5 ,
- *Field1* : 1.0 ,
- *Field2* : 60 ,
- *Priority* : 2 .

3. Other products line:

- *Based on*: Standard Price ,
- *Field1* : 0.31 ,
- *Field2* : -0.01 ,
- *Rounding* : 1.0 .
- *Priority* : 3 .

It is important that the priority of the second rule is set below the priority of the third in this example. If it were the other way around, the third rule would always be applied, because a quantity of 5 is always greater than a quantity of 1 for all products.

Also note that to fix a price of 60 for the 5 Berrel Keyboards, the formula `Price = Base Price x (1 + 1.0) + 60` has been used.

Establishing Customer Contract Conditions

The trading company can now set specific conditions to a customer, such as the company TinAtwo, who might have signed a valid contract with the following conditions:

- For Toshiba portables, TinAtwo benefits from a discount of 5% of resale price.
- For all other products, the resale conditions are unchanged.

The sales price for TinAtwo, called *TinAtwo contract*, contains two rules:

1. Toshiba portable:

- *Product*: Toshiba Portable,
- *Based on*: Other pricelist,
- *Pricelist if other*: Reseller pricelist,
- *Field1*: 0.05 ,
- *Priority*: 1 .

2. Other Products:

- *Product*:
- *Based on*: Other pricelist,
- *Pricelist if other*: Reseller pricelist,
- *Priority*: 2 .

Once this list has been entered, you should look up the partner form of TinAtwo again. Click the *Sales & Purchases* tab to set the *Sale Pricelist* field to *TinAtwo Contract*. If the contract is only valid for one year, do not forget to set the *Start Date* and *End Date* fields in the *Pricelist Version*.

Then when salespeople prepare an estimate for TinAtwo, the prices proposed will automatically be calculated from the contract conditions.

22.8.3 Pricelists and Managing Currencies

If your trading company wants to start a product catalog in a new currency you can handle this several ways:

- Enter the prices in a new independent pricelist and maintain the lists in the two currencies separately,
- Create a field in the product form for this new currency and make the new pricelist depend on this field: prices are then maintained separately, but in the product file,
- Create a new pricelist for the second currency and make it depend on another pricelist or on the product price: the conversion between the currencies will then be done automatically at the prevailing currency conversion rate.

DRIVING YOUR PURCHASES

In the preceding chapters you saw how to use customer invoices and delivery notes in OpenERP. This chapter is about the management of purchases, the process ahead of these two operations. You will now see how OpenERP handles and simplifies this and the control of purchases from suppliers.

For this chapter you can continue using the database already created or you should start with a fresh database that includes demonstration data, with `purchase` and its dependencies installed and no particular chart of accounts configured.

23.1 All the Elements of a Complete Workflow

The supplier or purchase order is the document that lets you manage price negotiations, control supplier invoices, handle goods receipts and synchronize all of these documents.

Let us start by looking at the following order workflow:

1. Price request to the supplier,
2. Confirmation of purchase,
3. Receipt and control of products,
4. Control of invoicing.

23.1.1 Setting up your Database

To set up a system for these examples, create a new database with demonstration data in it, and give all possible access rights to login user. You can enter your own company details when asked, or just use the default if you want.

Then, from Setting menu, install the `purchase` module, which also installs several other modules as dependencies. Continue the remainder of this chapter logged in as the `admin` user.

23.1.2 Price Request from the Supplier

To enter data for a new supplier price request (i.e. request for quotation), use the menu *Purchases* → *Purchase* → *Quotations*. When you click *Create*, OpenERP opens a blank quotation form that you use for requesting prices from a supplier. This is shown in the figure *Data Entry for a Purchase Order*. If the price request came from an automatic procurement created by OpenERP, you will find a reference to the document that generated the request

in the *Origin* field.

The screenshot shows the 'Quotations / New' interface. At the top, there are buttons for 'Save' or 'Discard', 'Send by Email', 'Print', 'Confirm Order', 'Cancel Order', and a toolbar with icons for Draft PO, RFQ Sent, Purchase Order, and Done. The main area is titled 'Request for Quotation /'. It has sections for 'Supplier' (Axelor), 'Order Date' (03/25/2013), 'Source Document', 'Pricelist' (Default Purchase Pricelist (EUR)), 'Destination Warehouse' (Your Company), and 'Company' (Your Company). Below this, there are tabs for 'Purchase Order' (selected) and 'Incoming Shipments & Invoices'. A table lists products: [ADPT] USB Adapter and [CARD] Graphics Card. The table columns include Product, Description, Scheduled Date, Company, Analytic Distribution, Quantity, Product Unit of Measure, Unit Price, Taxes, and Subtotal. Both items have a quantity of 15.000 and a unit price of 13.00.

Figure 23.1: Data Entry for a Purchase Order

Note:

Managing Alerts

If you install the *warning module*, you will be able to define alerts that appear when the purchaser enters a price request or order. You can set alerts on the supplier.

The internal reference, the date and the warehouse the products should be delivered to, are completed automatically by OpenERP, but you can change these values if needed. Next, when you select a supplier, OpenERP automatically completes the contact address for the supplier. The pricelist is also automatically completed from the pricelist in the supplier form. This should bring in all of the conditions that you have negotiated with the supplier for a given period.

Tip:

Supplier Selection

Searching for a supplier is limited to all of the partners in the system that have the Supplier checkbox checked. If you do not find your supplier, it might be worth checking the whole list of all partners to make sure that the supplier does not yet exist without the Supplier checkbox being checked.

Once the main body of the purchase order has been completed, you can enter the product lines.

The screenshot shows the 'Create: Order Lines' interface. It has fields for Product ([ADPT] USB Adapter), Quantity (15.000), Unit Price (13.00), Taxes, Scheduled Date (03/25/2013), Analytic Distribution, and Company. Below these, there are tabs for 'Notes' and 'Invoices and Receptions'. A large text area contains the note 'USB Adapter'. At the bottom, there are buttons for 'Save & Close', 'Save & New', and 'or Discard'.

Figure 23.2: Purchase Order Line

When you have selected the product, OpenERP automatically completes the other fields in the form:

- *Product UoM*, taken from the *Purchase Unit of Measure* field in the product form,
- The *Description* of the product in the supplier's language,
- *Scheduled Date*, calculated from the order date and the delivery lead time for the supplier (for the given product),
- *Unit Price*, taken from the supplier's pricelist,
- *Taxes*, taken from the information on the product form and partner form, depending on the rules seen in *Financial Analysis*.

Tip:

Product Wording and Code

When you enter supplier names in the product form, you can set a name and a product code for each individual supplier. If you do that, OpenERP will then use those details instead of your own internal product names for that selected supplier.

If you work with management by case, you can also set the analytic account that should be used to report all the purchase costs. The costs will then be reported at the receipt of the supplier invoice.

Tip:

Management by Case

Analytic accounts can be very useful for all companies that manage costs by case, by site, by project or by folder. To work with several analytic axes, you should install the module `purchase_analytic_plans`, from Settings menu.

To make sure that the analytic account is automatically selected according to the partner, the date, the products or the user, you can install the module `account_analytic_default` (which is installed automatically as a dependency of `purchase_analytic_plans`).

In the *Purchase Order* tab below the product line, you can enter a note that will be attached when the order confirmation or price quotation is printed. This note can be predefined on the product form to automatically appear on each order for that product. For example, you can enter "Do not forget to send by express delivery as specified in our contract reference 1234."

Once the document has been completed, you can print it by clicking *Print* button on the form.



Figure 23.3: Printing the Supplier Price Quotation

You can also send an e-mail by clicking *Send by Email* button on the form . Now it will be in the RFQ Sent state.

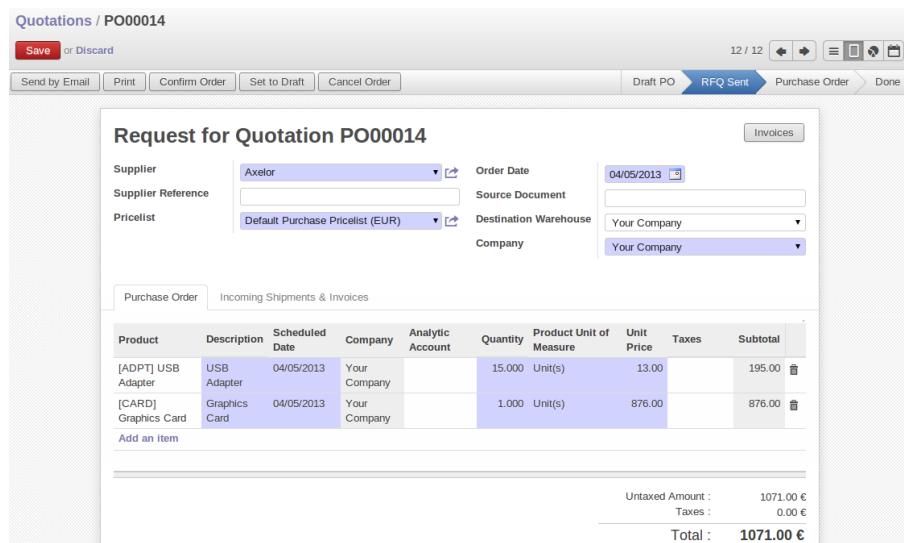


Figure 23.4: Quotation after sending an e-mail in RFQ Sent State

When you receive a response from the supplier, use the menu *Purchases* → *Purchase* → *Quotations*. Select the order and complete its details.

When you want to approve the order, use the button *Confirm Order*. The price request then passes into the Purchase Order state. No further changes are possible.

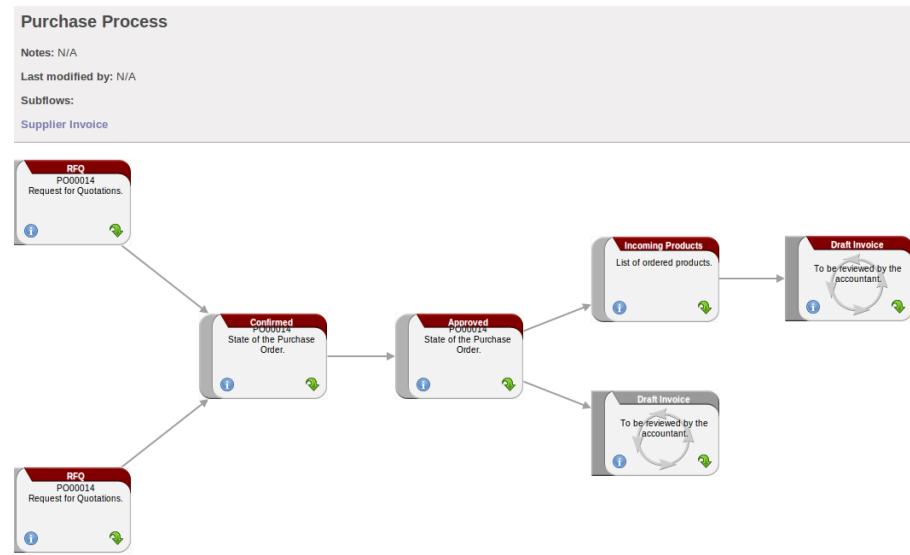


Figure 23.5: Purchase Order Process

23.1.3 Goods Receipt

Once the order has been approved, OpenERP automatically prepares the goods receipt order in the draft state for you. To get a list of the products you are waiting for from your suppliers, use the menu *Warehouse → Receiver/Deliver By Orders → Incoming Shipments*.

Tip:

Purchasing Services

If you buy services from your supplier, OpenERP does not generate a goods receipt note. There is no service receipt equivalent to a goods receipt.

Select the document that corresponds to the item that you are receiving. Usually, the goods receipt note is found by making a search on the order reference or the supplier name. You can then confirm the receipt of the products.

As described in *Your Warehouse*, if you receive only part of the order, OpenERP manages the remainder of that order. A second receipt note is then automatically created for the goods not received. You can cancel it if you think that you will never receive the remaining products.

After receiving the goods, OpenERP will show you which orders are open and the state of their receipt and invoicing if you return to the list of orders.

★ Purchase Orders							
Create or Import							
Reference	Order Date	Supplier	Expected Date	Source Document	Untaxed	Total	Status
PO00030	03/26/2013	ASUSTeK	03/26/2013		13.00	13.00	Done
PO00029	03/25/2013	China Export	03/25/2013	SO018	60.00	60.00	Purchase Order
PO00027	03/25/2013	Vicking Direct	03/15/2013		150.00	150.00	Cancelled
PO00026	03/25/2013	Delta PC	03/10/2013		300.00	300.00	Done
PO00023	03/24/2013	Medipole	03/31/2013	OP/00006	65.00	65.00	Purchase Order
PO00021	03/24/2013	Vicking Direct	03/29/2013	OP/00004	1750.00	1750.00	Purchase Order
PO00006	03/25/2013	Vicking Direct	03/25/2013		1335.00	1335.00	Done
PO00002	03/25/2013	China Export	03/27/2013		3718.00	3718.00	Purchase Order
PO00001	03/25/2013	ASUSTeK	03/26/2013		28729.30	28729.30	Purchase Order
					36120.30	36120.30	

Figure 23.6: List view of Purchase Orders

23.1.4 Control of Invoicing

To control supplier invoicing, OpenERP provides three systems as standard, which can differ order by order:

- *Based on Purchase Order lines* : place individual lines in ‘Invoice Control > Based on P.O. lines’ from where you can selectively create an invoice,
- *Based on generated draft invoice* : create a draft invoice you can validate later,
- *Bases on incoming shipments* : let you create an invoice when receptions are validated.

The mode of invoicing control is set in the second tab *Incoming Shipments & Invoices* of the purchase order in the field *Invoicing Control*.

The screenshot shows the 'Purchase Order' screen for PO00029. At the top, there are buttons for 'Edit', 'Create', 'Print', 'Attachment(s)', 'More', 'Cancel Order', and a red 'Receive Invoice' button. Below these are tabs for 'Draft PO', 'RFQ Sent', 'Purchase Order', and 'Done'. The main area displays the Purchase Order details: Supplier (China Export), Supplier Reference, Order Date (03/25/2013), Source Document (SO018). Below this, there are two tabs: 'Purchase Order' (selected) and 'Incoming Shipments & Invoices'. Under 'Purchase Order', the 'Expected Date Received' is 03/25/2013. Under 'Incoming Shipments & Invoices', the 'Invoicing Control' field is set to 'Based on generated draft invoice'. Other fields include 'Invoice Received', 'Payment Term', 'Fiscal Position', 'Purchase Requisition', 'Validated by' (Administrator), and 'Date Approved' (03/26/2013).

Figure 23.7: Purchase Order, Invoice Control

Tip:

Default Value

A company generally uses a single invoicing control method for all of its invoices. So you are advised to set a default value in the Invoicing Control field after installation.

23.1.5 Control based on Orders

If you selected your invoicing control based on orders, OpenERP will automatically generate a supplier invoice in the draft state when the order is confirmed. You can obtain a list of invoices waiting using the menu *Accounting → Suppliers → Supplier Invoices* and enabling the Draft filter.

When you receive a paper invoice from your supplier, all you need to do is validate the invoice pre-generated by the system. Do not forget to check the price and the quantities. When the invoice is confirmed, the accounting entries represent the cost of purchase and are automatically entered into the system.

The supplier order is automatically set as Paid when you pay the supplier invoice.

This method of controlling invoices is often used in service companies, because the invoiced amounts correspond to the ordered amounts. In logistics, by contrast, you most often work with invoicing controlled by goods receipt.

23.1.6 Control based on Goods Receipt

To control your supplier invoices based on goods receipt, set the field *Invoicing Control* on the second tab of the order to *Based on incoming shipments*.

In this case, no invoice, draft state or any other, is generated by the order. On the goods receipt note, the field *Invoice Control* is set to *To Be Invoiced*.

The storesperson can then receive different orders. If he wants to generate the draft invoice for a goods receipt, he can click the action *Create Invoice*. OpenERP then asks you for the journal for this invoice. It then opens that or the generated invoices (in the case of creating invoices for several receipts at one time) which enables you to modify it before confirming it.

This approach is useful when you receive the invoice at the same time as the item from the supplier. Usually, invoices are sent by post some days later. In this case, the storesperson leaves the item unchanged without generating an invoice. Then, once per day or once per week the accountant will create the draft invoices based on all the receipts for the day. To do that, he uses the menu *Purchases → Invoice Control → On Draft Invoices*. He clicks the action *Validate* to generate all draft invoices from the list of receipts that have not yet been invoiced.

At that point, the accountant can decide if he wants to generate an invoice per item or group all items for the same partner into the same invoice.

Invoices are then handled just like those controlled from *On Order*. Once the invoice arrives at the accounting service, he just compares it with the invoices waiting to control what the supplier invoices you.

Tip:

Delivery Charges

To manage delivery charges, install the module *delivery* from Settings menu. This will automatically add delivery charges to the creation of the draft invoice as a function of the products delivered or ordered.

23.1.7 Tenders

To manage tenders, you should use the module *purchase_requisition*, you can install this module direct from *Settings* menu or you can select *Manage purchase requisitions* option from configuration of Purchases in *Settings* menu. This lets you create several supplier price requests for a single supply requirement. Once the module is installed, OpenERP adds a new *Purchase Requisitions* menu in *Purchases → Purchase*. You can then define the new tenders.

Reference	Order Date	Supplier	Company	Destination	Expected Date	Source Document	Status
PO00034	03/26/2013	ASUSTeK	Your Company	Physical Locations / Your Company / Stock	03/26/2013	TE00004	Draft PO

Figure 23.8: Defining a Tender

To enter data for a new tender, use the menu *Purchases → Purchase → Purchase Requisitions* and select *Create*. OpenERP then opens a new blank tender form. The reference number is set by default and you can enter information about your tender in the other fields.

If you want to enter a supplier's response to your tender request, add a new draft purchase order into the list on the *Quotation* of your tender document. If you want to revise a supplier price in response to negotiations, edit any appropriate purchase order that you have left in the draft state and link that to the tender.

When one of the orders about a tender is confirmed, all of the other orders are automatically cancelled by OpenERP if you selected the Purchase Requisition (exclusive) type. That enables you to accept just one order for a particular tender. If you select Multiple requisitions, you can approve several purchase orders without cancelling other orders from this tender.

23.1.8 Price Revisions

OpenERP supports several methods of calculating and automatically updating product costs:

- Standard Price: manually fixed, and revalued automatically and periodically,
- Average Price: updated at each receipt to the warehouse.

This cost is used to value your stock and represents your product costs. Included in that cost is everything directly related to the received cost. You could include such elements as:

- supplier price,
- delivery charges,
- manufacturing costs,
- storage charges.

Standard Price

The mode of price management for the product is shown in the tab *Procurements* on the product form. On each individual product, you can select if you want to work in Standard Price or on weighted Average Price.

The Standard Price setting means that the product cost is fixed manually for each product in the field *Cost Price*. This is usually revalued once a year based on the average of purchase costs or manufacturing costs.

You usually use standard costs to manage products where the price hardly changes over the course of the year. For example, the standard cost could be used to manage books, or the cost of bread.

Those costs that can be fixed for the whole year bring certain advantages:

- you can base the sale price on the product cost and then work with margins rather than a fixed price per product,
- accounting is simplified because there is a direct relationship between the value of stock and the number of items received.

To get an automated periodic revaluation of the standard price you can use the action *Update* on the product form, enabling you to update prices of all the selected products. OpenERP then recalculates the price of the products as a function of the cost of raw materials and the manufacturing operations given in the routing.

Average Price

Working with standard prices does not lend itself well to the management of the cost price of products when the prices change a lot with the state of the market. This is the case for many commodities and energy.

In this case, you would want OpenERP to automatically set the price in response to each goods receipt movement into the warehouse. The deliveries (exit from stock) have no impact on the product price.

Tip:***Calculating the Price***

At each goods receipt, the product price is recalculated using the following accounting formula: $NP = (OP * QS + PP * QR) / (QS + QR)$, where the following notation is used:

- *NP*: New Price,
- *OP*: Old Price,
- *QS*: Quantity actually in Stock,
- *PP*: Price Paid for the quantity received,
- *QR*: Quantity Received.

If the products are managed as a weighted average, OpenERP will open a window that lets you specify the price of the product received at each goods receipt. The purchase price is, by default, set from the purchase order, but you can change the price to add the cost of delivery to the various received products.

Once the receipt has been confirmed, the price is automatically recalculated and entered on the product form.

23.2 Purchase Analysis through Analytic Accounts

23.2.1 Powerful Statistics

OpenERP enables you to perform analysis of purchases by period (year, month), by state (quotations, orders), supplier, product, category, warehouse and so on. This is made possible through a search view accessed through the menu *Reporting → Purchase → Purchase Analysis*.

Group	# of Lines	Quantity	Average Price	Total Price	Products Value	Purchase-Standard Price	Days to Validate	Days to Deliver
▼ Axelor (1)	1	1.00	0.00	0.00	0.00	[progress bar]	-5.00	1.00
test (1)	1	1.00	0.00	0.00	0.00	[progress bar]	-5.00	1.00
▼ China Export (2)	2	32.00	110.75	3718.00	3760.00	[progress bar]	0.00	4.00
[MM-SPK] Multimedia Speakers (1)	1	20.00	132.50	2650.00	2680.00	[progress bar]	0.00	2.00
[PD-SP2] Pen drive, SP-2 (1)	1	12.00	89.00	1068.00	1080.00	[progress bar]	0.00	2.00
▼ Vicking Direct (3)	3	16.00	92.50	1335.00	1358.00	[progress bar]	0.00	8.00
[GRAPSiW] GrapWorks Software (1)	1	4.00	154.50	618.00	620.00	[progress bar]	0.00	0.00
[INK] Ink Cartridge (1)	1	9.00	58.00	522.00	540.00	[progress bar]	0.00	4.00
[TONER] Toner Cartridge (1)	1	3.00	65.00	195.00	198.00	[progress bar]	0.00	4.00
	6	49.00		5053.00	5118.00		-5.00	13.00

Figure 23.9: *Analysis of Purchases*

This analysis is carried out on supplier orders and not on invoices or the quantities actually received. To get an analysis by product, use the module `product_margin`. The function of this module is described in detail in the chapter *Driving your Sales*.

To analyze the received quantities, you can use the statistical reports in Warehouse.

To manage purchases by project, you should use analytic accounts. You can set an analytic account on each line of a supplier order. The analytic costs linked to this purchase will be managed by OpenERP from the goods receipt and confirmation of the supplier invoice.

The `hr_timesheet_invoice` module lets you re-invoice the analytic costs automatically using parameters in the analytic accounts such as sale pricelist, associated partner company, and maximum amount.

So you can put an invoice order with a defined invoice workflow in place based on the analytic accounts. If you are working `Make to Order`, the workflow will be:

1. Customer Order,
2. Procurement Order on supplier,
3. Receive invoice and goods from the supplier,
4. Delivery and invoicing to the customer.

When re-invoicing based on costs you would get the following workflow:

1. Enter the customer contract conditions from the analytic accounts,
2. Purchase raw materials and write the services performed into the timesheets,
3. Receive the supplier invoice and the products,
4. Invoice these costs to the customer.

Tip:

Analytic Multi-plans

If you want several analysis plans, you should install the module purchase_analytic_plans.

These let you split a line on a supplier purchase order into several accounts and analytic plans.

Sitting at the heart of your company's processes, analytic accounts (or cost accounts) are indispensable tools for managing your operations well. Unlike your financial accounts, they are for more than accountants - they are for general managers and project managers, too.

You need a common way of referring to each user, service, or document to integrate all your company's processes effectively. Such a common basis is provided by analytic accounts (or management accounts, or cost accounts, as they are also called) in OpenERP.

Analytic accounts are often presented as a foundation for strategic enterprise decisions. But because of all the information they pull together, OpenERP's analytic accounts can be a useful management tool, at the center of most system processes.

There are several reasons for this:

- they reflect your entire management activity,
- unlike the general accounts, the structure of the analytic accounts is not regulated by legal obligations, so each company can adapt it to its needs.

Note:

Independence from General Accounts

In some software packages, analytic accounts are managed as an extension of general accounts – for example, by using the two last digits of the account code to represent analytic accounts.

In OpenERP, analytic accounts are linked to general accounts but are treated totally independently. So you can enter various different analytic operations that have no counterpart in the general financial accounts.

While the structure of the general chart of accounts is imposed by law, the analytic chart of accounts is built to fit a company's needs closely.

Just as in the general accounts, you will find accounting entries in the different analytic accounts. Each analytic entry can be linked to a general account, or not, as you wish. Conversely, an entry in a general account can be linked to one, several, or no corresponding analytic accounts.

You will discover many advantages of this independent representation below. For the more impatient, here are some of those advantages:

- you can manage many different analytic operations,
- you can modify an analytic plan on the fly, during the course of an activity, because of its independence,
- you can avoid an explosion in the number of general accounts,
- even those companies that do not use OpenERP's general accounts can use the analytic accounts for management.

Tip:

Who Benefits from Analytic Accounts?

Unlike general accounts, analytic accounts in OpenERP are not so much an accounting tool for Accounts as a management tool for everyone in the company. (That is why they are also called management accounts.) The main users of analytic accounts should be the directors, general managers and project managers.

Analytic accounts make up a powerful tool that can be used in different ways. The trick is to create your own analytic structure for a chart of accounts that closely matches your company's needs.

For this chapter, you should start with a fresh database that includes demo data, with `sale` and its dependencies installed, and no particular chart of accounts configured.

23.2.2 To Each Enterprise its own Analytic Chart of Accounts

To illustrate analytic accounts clearly, you will follow three use cases, each in one of three different types of company:

1. Industrial Manufacturing Enterprise.
2. Law Firm.
3. IT Services Company.

Case 1: Industrial Manufacturing Enterprise

In industry, you will often find analytic charts of accounts structured into the departments and products that the company itself is built on.

So the objective is to examine the costs, sales and margins by department and by product. The first level of the structure comprises the different departments, and the lower levels represent the product ranges that the company makes and sells.

Note:

Analytic Chart of Accounts for an Industrial Manufacturing Company

1. Marketing Department
2. Commercial Department
3. Administration Department
4. Production
 - Product Range 1
 - Sub-groups
 - Product Range 2

In daily use, it is useful to mark the analytic account on each purchase invoice. The analytic account is the one to which the costs of that purchase should be allocated. When the invoice is approved, it will automatically generate the entries for both the general and the corresponding analytic accounts. So, for each entry on the general accounts, there is at least one analytic entry that allocates costs to the department that incurred them.

Here is a possible breakdown of some general accounting entries for the example above, allocated to various analytic accounts:

Table 23.1: Breakdown of general and analytic accounting entries (Case 1)

General accounts					Analytic accounts	
Title	Account	Debit	Credit	Account	Value	
Purchase of Raw Material	600	1500		Production / Range 1	-1 500	
Subcontractors	602	450		Production / Range 2	-450	
Credit Note for defective materials	600		200	Production / Range 1	200	
Transport charges	613	450		Production / Range 1	-450	
Staff costs	6201	10000		Marketing	-2 000	
				Commercial	-3 000	
				Administrative	-1 000	
				Production / Range 1	-2 000	
				Production / Range 2	-2 000	
PR	614	450		Marketing	-450	

The analytic representation by department enables you to investigate the costs allocated to each department in the company.

So, the analytic chart of accounts shows the distribution of the company's costs using the example above:

Table 23.2: Analytic chart of accounts
(Case 1)

Account	Total
Marketing Department	-2 450
Commercial Department	-3 000
Administration Department	-1 000
Production	-6 200
Product Range 1	-3 750
Product Range 2	-2 450

In this example of a hierarchical structure in OpenERP, you can analyze not only the costs of each product range but also the costs of the whole of production. The balance of a summary account (*Production*) is the sum of the balances of the child accounts.

A report that relates both general accounts and analytic accounts enables you to get a breakdown of costs within a given department. An analysis of the Production / Product Range 1 department is shown in this table:

Table 23.3: Report merging both general and analytic accounts for a department (Case 1)

Production / Product Range 1	
General Account	Amount
600 – Raw Materials	- 1 300
613 – Transport charges	- 450
6201 – Staff costs	-2 000
Total	-3 750

The examples above are based on a breakdown of the costs of the company. Analytic allocations can be just as effective for sales. That gives you the profitability (sales - costs) of different departments.

Note:

Representation by Unique Product Range

This analytic representation by department and by product range is usually used by trading companies and industries.

A variant of this is not to break it down by sales and marketing departments but to assign each cost to its corresponding product range. This will give you an analysis of the profitability of each product range.

Choosing one over the other depends on how you look at your marketing effort. Is it a global cost allocated in some general way, or does each product range have responsibility for its own marketing costs?

Case 2: Law Firm

Law firms generally adopt management by case, where each case represents a current client file. All of the expenses and products are then attached to a given file.

A principal preoccupation of law firms is the invoicing of hours worked, and the profitability by case and by employee.

Mechanisms used for encoding the hours worked will be covered in detail in the following chapter, *Key Features HR*. Like most system processes, hours worked are integrated into the analytic accounting. Every time an employee enters a timesheet for a number of hours, that automatically generates analytic accounts corresponding to the cost of those hours in the case concerned. The hourly charge is a function of the employee's salary.

So a law firm will opt for an analytic representation which reflects the management of the time that employees work on the different client cases.

Note:

Example Representation of an Analytic Chart of Accounts for a Law Firm

1. *Absences*
 - *Paid Absences*
 - *Unpaid Absences*
2. *Internal Projects*
 - *Administrative*
 - *Others*
3. *Client Cases*
 - *Client 1*
 - *Case 1.1*
 - *Case 1.2*
 - *Client 2*
 - *Case 2.1*

All expenses and sales are then attached to a case. This gives the profitability of each case and, at a consolidated level, of each client.

Billing for the different cases is a bit unusual. The cases do not match any entry on the general account and nor do they come from purchase or sale invoices. They are represented by the various analytic operations and do not have exact counterparts in the general accounts. They are calculated on the basis of the hourly cost per employee. These entries are automatically created on billing worksheets.

At the end of the month when you pay salaries and benefits, you integrate them into the general accounts but not in the analytic accounts, because they have already been accounted for in billing each account. A report that relates data from the analytic and general accounts then lets you compare the totals, so you can readjust your estimates of hourly cost per employee depending on the time actually worked.

The following table gives an example of different analytic entries that you can find for your analytic account:

Table 23.4: Analytic entries for the account chart (Case 2)

Title	Account	Amount	General Account	Debit	Credit
Study the file (1 h)	Case 1.1	-15			
Search for information (3 h)	Case 1.1	-45			
Consultation (4 h)	Case 2.1	-60			
Service charges	Case 1.1	280	705 – Billing services		280
Stationery purchase	Administrative	-42	601 – Furniture purchase	42	
Fuel Cost -Client trip	Case 1.1	-35	613 – Transports	35	
Staff salaries			6201 – Salaries		3 000

You will see that it allows you to make a detailed study of the profitability of different transactions. In this example, the cost of Case 1.1 is 95.00 (the sum of the analytic costs of studying the files, searching for information and service charges), but has been invoiced for 280.00, which gives you a gross profit of 185.00.

But an interest in analytical accounts is not limited to a simple analysis of the profitability of different cases.

This same data can be used for automatic recharging of the services to the client at the end of the month. To invoice clients, just take the analytic costs in that month and apply a selling price factor to generate the invoice. Invoicing mechanisms for this are explained in greater detail in *Deliver Quality Services*. If the client requires details of the services used on the case, you can then print the service entries in the analytic account for this case.

Tip:

Invoicing Analytic Costs

Most software that manages billing enables you to recharge for hours worked. In OpenERP, these services are automatically represented by analytic costs. But many other OpenERP documents can also generate analytic costs, such as credit notes and purchases of goods.

So when you invoice the client at the end of the month, it is possible for you to include all the analytic costs, not just the hours worked. So, for example, you can easily recharge the whole cost of your journeys to the client.

Case 3: IT Services Company

Most IT service companies face the following problems:

- project planning,
- invoicing, profitability and financial follow-up of projects,
- managing support contracts.

To deal with these problems, you would use an analytic chart of accounts structured by project and by contract. A representation of that is given in the following example:

Note:

Example Analytic Representation of a Chart of Accounts for an IT Services Company

1. *Internal Projects*
 - *Administrative and Commercial*
 - *Research and Development*
2. *Client Projects*
 - *Client 1*
 - *Project 1.1*
 - *Project 1.2*
 - *Client 2*
 - *Project 2.1*
 - *Project 2.2*
3. *Support Contracts – 20h*
 - *Customer X*
 - *Customer Y*

The management of services, expenditures and sales is similar to that presented above for lawyers. Invoicing and the study of profitability are also similar.

But now look at support contracts. These contracts are usually limited to a prepaid number of hours. Each service posted in the analytic accounts shows the remaining available hours of support. For the management of support contracts, you would use the quantities and not the amounts in the analytic entries.

In OpenERP, each analytic line lists the number of units sold or used, as well as what you would usually find there – the amount in currency units (USD or GBP, or whatever other choice you make). So you can sum the quantities sold and used on each analytic account to determine whether any hours of the support contract remain.

To differentiate services from other costs in the analytic account, you use the concept of the analytic journal. Analytic entries are then allocated into the different journals:

- service journal,
- expense journal,
- sales journal,

- purchase journal.

So to obtain the detailed breakdown of a support contract, you only have to look at the service journal for the analytic account corresponding to the contract in question.

Finally, the analytic account can be used to forecast future needs. For example, monthly planning of staff on different projects can be seen as an analytic budget limited to the service journal. Accounting entries are expressed in quantities (such as number of hours, and numbers of products), and in amounts in units of currency (USD or GBP perhaps).

So you can set up planning on just the basis of quantities. Analyzing the analytic budget enables you to compare the budget (that is, your plan) to the services actually carried out by month end.

Tip:

Cash Budgets

Problems of cash management are amongst the main difficulties encountered by small growing businesses. It is really difficult to predict the amount of cash that will be available when a company is young and rapidly growing. If the company adopts management by case, then staff planning can be represented on the analytic accounts report, as you have seen.

But since you know your selling price for each of the different projects, you can see that it is easy to use the plan in the analytic accounts to more precisely forecast the amounts that you will invoice in the coming months.

Part IX

Process and Document Management

PROCESS

If you have reached this far in the book, your mind may well be reeling with the number of new documents (based on business objects) and processes that you need to encounter to model and manage your business.

OpenERP's process module, which is installed automatically when a process-aware module is installed, shows you cross-functional processes and technical workflows for those nodes in the process that have them. This visualization is invaluable for documentation - but it also goes a step further. You can modify processes and workflows and even generate entirely new processes and workflows for your various document types.

If your starting point is a specific document, such as an invoice or order, then you will also be shown the exact position of that document on its process and workflow diagrams.

For this chapter you should start with a fresh database that includes demonstration data, with `sale` and its dependencies installed and no particular chart of accounts configured. `process` is one of those dependencies. Also install some of the `hr` modules for the second example in this chapter, such as `hr_attendance`, `hr_contract`, and `hr_holidays`.

24.1 Process Integration in the Management System

Processes are at the heart of a company, they form a structure for all activities that enable the company to function effectively. A company's human dimension is often disconnected from its processes at the moment, preventing individual employees aspirations from being directed towards a collective objective.

From a mapping process, integrating management and the changing needs of each employee becomes very useful for the fulfilment of each. Based on that, each employee becomes aware of his own personal contribution to the company's value chain. This representation also helps an employee's own personal management because it shows his place and his role in the overall process, very often over several departments.

The system of 'Corporate Intelligence' will also be highly useful to system implementers who, after studying the requirements, have to formalize a company's processes to put them into operation in OpenERP.

24.1.1 Examples of Process

To understand the aims of the system of Corporate Intelligence (process) better, you will now see an overview of the functions available to you in the study of two processes:

- A customer order quotation,
- The engagement of a new employee.

Following a Customer Sales Order

The example *Example of a process handling a customer order quotation* shows the process for handling a customer sales order. Use the menu *Sales → Sales → Sales Orders* to list all orders, then choose Order.

To view the process for that specific order, first *Active the developer mode*, active from Administrator/About OpenERP. After activate it, click the *Corporate Intelligence* button (displayed as a question mark) at the top left of the title of the list or form. The process for this order is shown in the window, and the current state of this document can be seen by looking for the node whose left edge is colored maroon rather than grey.

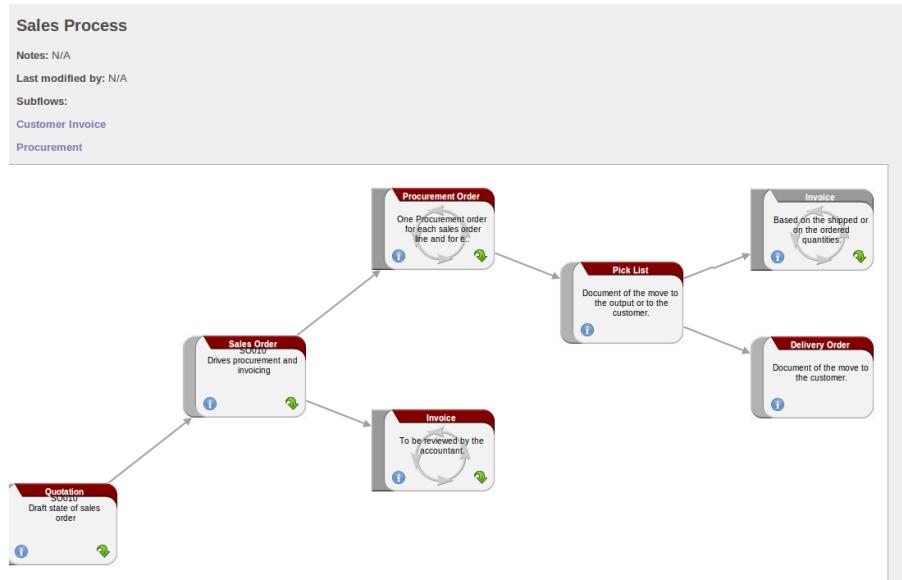


Figure 24.1: *Example of a process handling a customer order quotation*

This order is in the Sale Order state. The whole of some nodes is greyed out because the selected document will never enter into that state, such as invoicing based on deliveries (the order is in an invoicing mode that is based on orders, not deliveries).

The process is completely dynamic and based on that specific sale order document. You can click each of the process nodes (*Quotation*, *Sale Order*, *Procurement*, *Invoice*, *Delivery Order*) using one of the links or icons on it:

- Obtaining the documentation and the corresponding process in the quality manual, using the *Help* icon (in blue colour),
- Obtaining the documents that an employee needs to carry out the process by clicking the green arrow icon,

New Employee Induction

Open the any employee form the menu *Human Resources* → *Human Resources* → *Employees*. Click the *Corporate Intelligence* button to open the detailed process view of engagement.

Employees (hr.employee)

Click to add a new employee.

With just a quick glance on the OpenERP employee screen, you can easily find all the information you need for each person: contact data, job position, availability, etc.

Employee Contract Process

Notes: N/A

Last modified by: N/A

The diagram illustrates a workflow or process involving three document cards:

- Employee**: Administrator, Employee form and structure. This card has two arrows pointing to it from the main interface above.
- Employee Contact**: Administrator, Other information. This card is positioned at the top right.
- OpenERP user**: Administrator, Creation of a OpenERP user. This card is positioned below the Employee Contact card.

Figure 24.2: Example of a process engaging a new employee

You can immediately see things that might interest the HR manager. On a single screen HR manager has all of the documents about the selected employee. HR manager can then zoom into each document to look at associated documents or the user account in the system.

24.2 Workflows and User Processes

Workflows are used to define the behaviour of a given document. They are used by developers and system implementers to determine which object should execute which actions and at which moments. These are principally technical processes defined in a vertical way on the lifecycle of a complete object (represented by a document). Changing a workflow will have a direct impact on the behaviour of the software in response to user

actions. You handle all possible exceptions there, so that the software is robust.

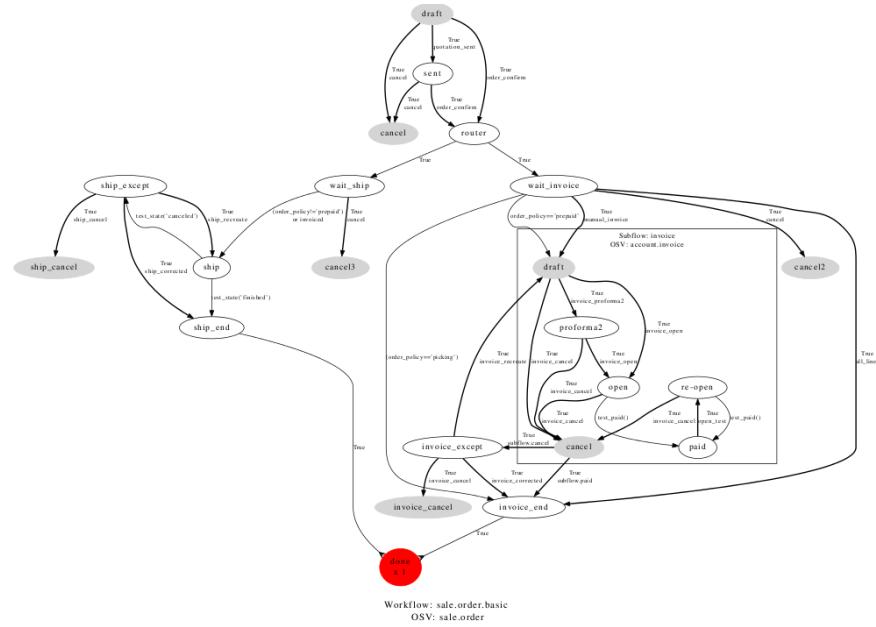


Figure 24.3: Example of a workflow handling a customer order

Unlike workflows, user processes represent workflows across all of a company and its documents. They are used by end-users to locate an action for more complete handling. A change of user process will not have any effect on the software but will show the user another way of working on a given problem.

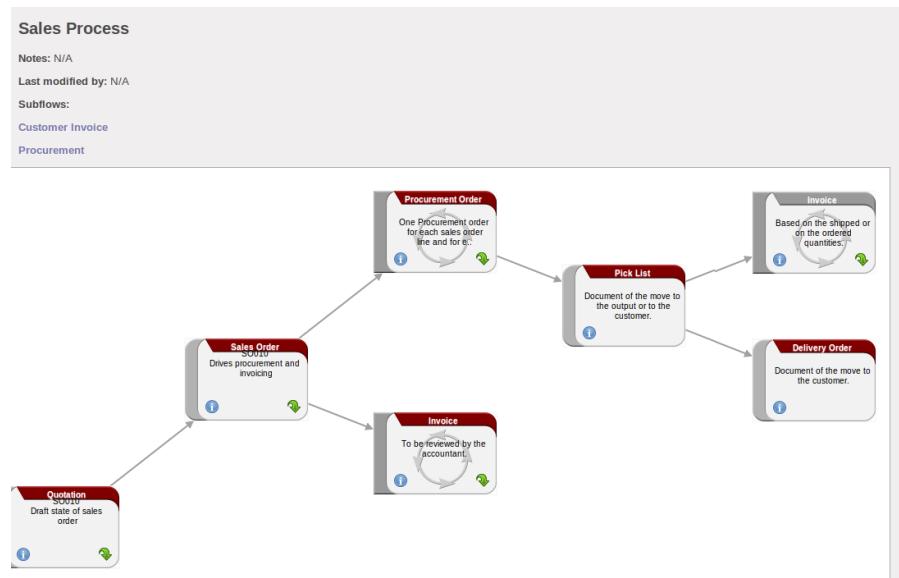


Figure 24.4: Example of a process handling a customer order

Processes are used by end-users to help them understand the problems which have not been handled in OpenERP. As well as providing user help, processes provide functions such as:

- integration with OpenERP Help and the company's quality manual,
- showing the user the menu for finding a specific document.

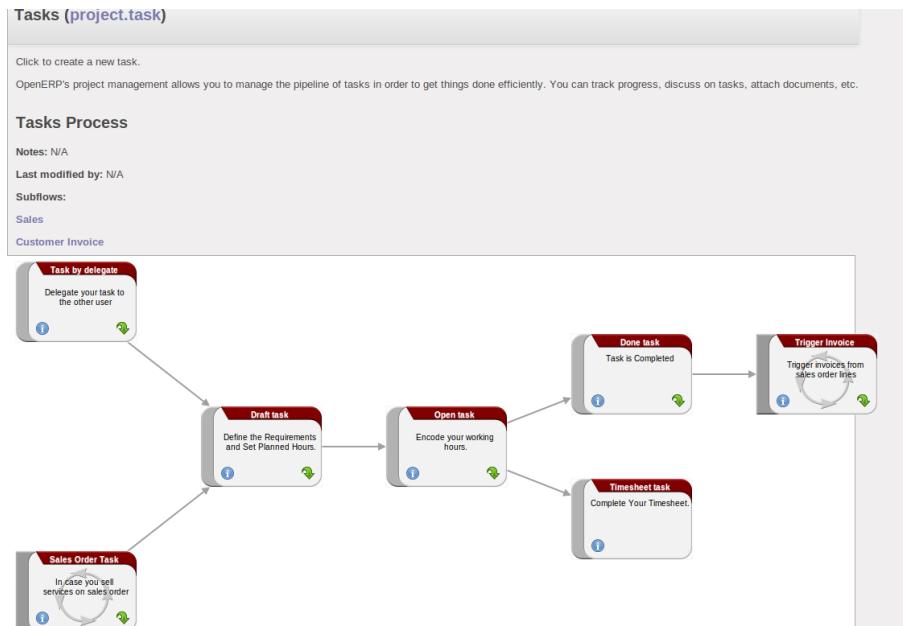


Figure 24.5: Relationship between workflow and user process

User processes are thus connected to technical workflows. If you modify the software's behaviour with a workflow, the changes will be directly visible in the user processes that are based on the modified document. So if you modify certain transitions on a workflow they will automatically be shown in the process corresponding to the modified document.

To get maximum benefit from the power of user processes and the workflow engine, OpenERP provides an integrated workflow editor and user process editor. These enable you to modify them through the client interface.

You will only work with the process editor in this chapter. If you want to view and edit the workflow of a document, click on the *Edit Workflow* in the *Debug View* to the left of the document. OpenERP opens a list view of the workflow for the selected document type.

You can also edit a workflows from menu *Settings* → *Technical* → *Workflows* → *Workflows* and select workflow that you want to change. To see this technical menu , you have to give Technical Features access right to user.

24.2.1 Using Processes Effectively

Regardless of which OpenERP screen you are in you can call up a process on the current document by clicking the *Corporate Intelligence* (question mark) icon. Depending on the document, you can have several processes defined using it. OpenERP then asks you to choose which one of them you want.

For example, if you are in a meeting form, OpenERP will ask you to choose from the processes it knows about that involve such forms:

- processes for selecting and inducting new employees,
- tracing customer orders in pre-sales,
- processes for visiting customers and handling expenses.

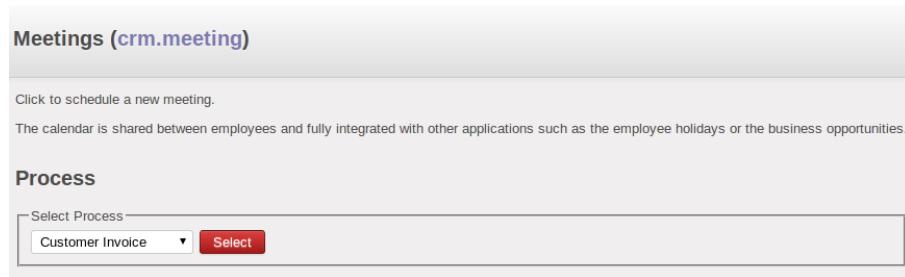


Figure 24.6: Button for entering a user process from a form

The element colored red shows the active process for the selected document. Elements in grey are the states that the selected document will not go through because of its configuration. You can use the different icons to open the document, print it, or get its documentation.

Some states have an image inside of arrows formed into a circle. These show that the state refers to another process. To go to this other process, you can click on the title of the state. For example, you can click on the invoice in the customer order management workflow to see in detail how that invoice is handled.

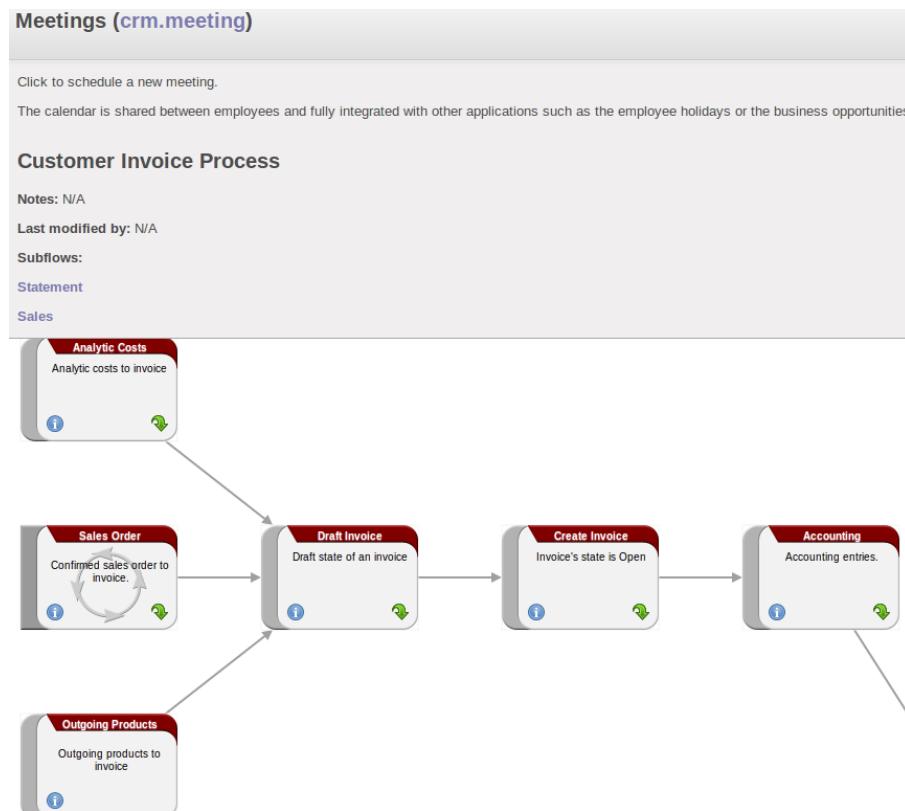


Figure 24.7: A state that refers to another workflow

24.2.2 Defining your Own User Processes

Use the menus under *Settings* → *Technical* → *Enterprise Process* → *Processes* to define new processes or modify existing processes. When entering a process, OpenERP shows you the list of states available for that process.

Name	Object	Kind of Node	Starting Flow
Analytic Costs	Analytic Account	Status	
Draft Invoice	Invoice	Status	
Create Invoice	Invoice	Status	
Accounting	Account Entry	Status	
Bank Statement	Bank Statement	Subflow	
Payment	Journal Items	Status	
Reconciliation	Account Reconciliation	Status	
Paid invoice	Invoice	Status	
Sales Order	Sales Order	Subflow	
Outgoing Products	Picking List	Status	

Figure 24.8: Defining a process

You can add a new state or modify an existing state. A state can be associated with an object (whose instances are represented by documents). If that is the case, choose it in the case object. You can set an expression that shows if the object can be found in that state or not. Expressions are in Python format.

You can also link to a menu so that users can learn which menu to use to access objects in a state. You can set the conditions in the section *Conditions*. These expressions, too, are encoded in Python format.

Once the node has been defined, you should set the process transitions this object from menu *Settings* → *Technical* → *Enterprise Process* → *Process Transitions*. For each transition you can:

- Give the source and target states,
- Set up a list of buttons that start various transitions in the process,
- Map between workflow transitions and the document that is selected,
- Put an explanatory notice in different languages.

Name	Type	Action ID
Create entry	Object Method	action_move_create

Figure 24.9: Defining a process transition

The organization and quality of a company is typically related to its maturity. A mature company is one where processes are well established, and where staff do not waste much time searching for documents or trying to find out how to do their different tasks.

From this need for effective organization and explicit quality improvement, have appeared numerous tools:

- The ISO9001 quality standard,

- Business Process Management (BPM) tools,
- Use Case workflows, and formalized standards such as UML,
- The company Quality Manual.

The problem is that these tools are usually quite separate from your management system and often reserved for the use of just a few specific people in your company. They are treated separately rather than put at the heart of your management system. When you ask company staff about ISO9001 they usually see it as a constraint rather than a helpful daily management tool.

To help the company meet its quality requirements and to form these processes into assistance integrated with everyday work, OpenERP supplies a Corporate Intelligence® tool that enables you to put company processes at the heart of your management system.

The system enables:

- new employees to learn how to use the software by graphically and dynamically, discovering how each document and action works,
- easy access to all the links to a document and everything that is attached to it,
- people to see both a high-level map and the detail of all the company's processes,
- access to a graphical model and integrated quality manual for rapid access that depends on the work context,
- use of a knowledge base and capitalization of that knowledge for all of the company's actions in the form of interactive processes,
- an employee to become more aware of his role in the whole environment.

INTEGRATED DOCUMENT MANAGEMENT

Information management has become a major strategic factor in company's development. It is important to get the right information circulated to the right people, as efficiently as possible, yet still keep it secure. Document management provides a way for companies to organize their information, in all its forms, in one place.

The objectives of document management include easier archiving, access and reference, intelligent classification and distribution of documents and the information they contain. It concerns sets of all sorts of company documents such as work procedures, meeting reports, documents received from customers and suppliers, documents sent to customers, faxes, sales presentations and product datasheets.

For this chapter you should start with a fresh database that includes demo data, with sale, document and their dependencies installed and no particular chart of accounts configured.

25.1 The Importance of Good Document Management

Globalization means that workplaces are ever more geographically dispersed. This means that documents are also used more than ever by people in several countries and continents for communicating and collaborating.

You will see communication problems even between employees in the same office because they do not have easy access to the documents that they need. You find some documents kept by someone in the accounts office, shared directories that serve everybody, some documents in paper form, others in electronic form – quite a free-for-all.

An explosion in the number of documents that a company needs does not help. If their storage and indexation are badly organized, these documents become useless because they are almost impossible to find.

The results of poor document management can lead to a significant loss of time. Ask yourself how often you find yourself looking for:

- A supplier catalogue that has been sent to a purchasing manager,
- A customer contract signed several months ago,
- The final set of Terms and Conditions offered to a specific customer,
- The documents required for employing a new member of staff,
- An order confirmation sent by a customer to one of your salespeople or, perhaps even more common, when the relevant salesperson has gone on vacation, if you ever received such an order confirmation,
- A procedure from your quality manual if there has been a process fault,
- An email which was sent to one of your colleagues,
- A document that you need to be a template for a specific type of contract,
- A complete history of communications between yourselves and a supplier about a given contract.

Even worse than the loss of time, perhaps, the lack of good document management is bad for the quality of your organization and the service provided by your company. In such a company it is likely that:

- sets of documents do not follow a standard layout,
- all the salespeople prepare quotations in their own way and gradually change the way they do it for themselves but not for the group,
- a correction to a type of contract stays with a small group of people and does not percolate back into the rest of the company to benefit other users,
- version management is chaotic or even non-existent.

So a good integrated document management system can be a powerful tool to help in day-to-day company management. With it you could also easily:

- Continue the work started by a colleague if she has gone on vacation, and respond to her customers if needed,
- Get hold of examples of all document types with just a few clicks, so that you can follow company standards in such areas as order confirmation, price requests, meeting minutes, customer deliverables, contract examples, and models for faxes and letters,
- Retrieve procedures and other associated documents if you do not know how to do a certain task – such as things you should do when hiring a new employee, organizing a conference, or structuring meeting minutes,
- Reuse work done by a colleague to meet similar needs and build on all the individual work done in your own company,
- Find all the orders for a customer or from a supplier in just a few seconds to answer questions or to continue a discussion when the initial contact point in your company is not available,
- Build on your working methods and enable your colleagues to benefit from each improvement in a document type or a procedure.

From these examples you can see the importance of a good document management system, and what it might contribute to the improvement of productivity and the quality of the output from each employee.

25.2 Classic Document Management Solutions

Faced with the need to organize documents, companies have looked at a number of document management solutions that are promoted today, from simple email archiving to complete electronic management systems dedicated to arbitrary documents.

Unfortunately, these solutions have not always been very useful because they are too little integrated in company's management systems. Most solutions that we have come across, are underused by the employees – often used by some of them but not by all.

The primary reason for this is that a document management system that is not integrated imposes extra work on an employee. For example, a salesperson should ideally save each customer confirmation in the document management system. Only that means quite a heavy additional workload just for an order confirmation:

1. Receive and read the email from the customer,
2. Save the email and its attachments on the desktop,
3. Connect to the ERP system and confirm the order,
4. Connect to the document management system,
5. Look for the best place to store the document,
6. Create a directory for the customer and the order if it does not yet exist,
7. Copy the files from the desktop to the right place in the document management system.

This is obviously a lot of operations just to handle a simple order confirmation. You can understand why many companies hardly use their document management system even if they have gone to the cost and effort of purchasing and installing one.

It is very difficult to keep information in the company's management system synchronized with that in the document management system. For example, when a customer changes his address, users will modify the details in the management software, but usually, not in the document management system.

Furthermore, since users should create the same storage structure in both systems, you quickly find after only a few months that the information in the document management system is quite disconnected from that in the company's management system, if the two are separate. For example, how do you know where to store your least-frequently used documents such as (perhaps) employee car-leasing documents?

Also, document management systems are typically very complex because they must manage user access rights in just the same way as those that are available in the company management system. This means that you have to enter the same sort of data about access rights twice for the system administrators.

You will see that the total integration of OpenERP's document management system with the main company management system, and plugins to Outlook and Thunderbird email clients, offers an elegant solution that addresses these problems.

25.3 The OpenERP Solution

OpenERP's management of documents is unique and totally innovative in its integrated approach. Its complete integration with the company's management system solves most of the problems that are encountered when you use independent document management systems:

- Login and the management of access rights is integrated with that of OpenERP for controlling access to different document types,
- Ultra-rapid access to documents, which are directly accessible through your email client or through the company management software,
- Automatic assignment of meta-information comes directly from information contained in your OpenERP login registration,
- Document workflow, which automatically follows OpenERP's documentation process, provides complete synchronization between the systems,
- Document classification is determined by OpenERP itself so that the structure that is created is always synchronized between the systems,
- Automatic indexation and classification of all documents produced by OpenERP for maximum efficiency.

25.3.1 Getting Started

This section is about how to get started with the document management system from its installation to advanced use with FTP access.

Installation

To install OpenERP's document management system, you just need to install the `document` and `document_ftp` modules through the menu *Settings* → *Modules* by selecting *Knowledge Management*, and *Shared Repositories (FTP)* for installation. As the module installation proceeds, the system automatically

proposes that you configure the FTP server.

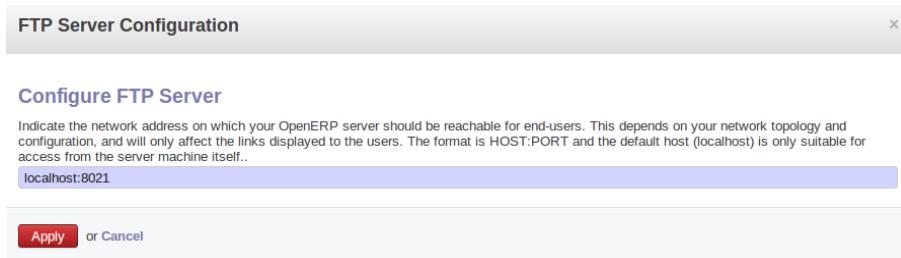


Figure 25.1: Screen for configuring document management

Once the module has been installed, you will see a new entry in the main menu called *Knowledge*.

25.4 Internal and External Access using FTP

The first configuration step is to create a directory structure that will be used to classify your document set. You can use the structure automatically proposed by OpenERP from the menu *Knowledge* → *Configuration* → *Document Management* → *Directories' Structure*.

Directories' Structure				
Documents				
Name	Type	Owner	Date Created	Date Modified
Admin Folder	Static Directory	Administrator	04/16/2013 14:30:51	04/16/2013 14:30:51
Partners	Folders per resource		04/16/2013 14:30:51	04/16/2013 14:30:51
Personal Folders	Folders per resource		04/16/2013 14:30:51	04/16/2013 14:30:51
Products	Folders per resource		04/16/2013 14:30:51	04/16/2013 14:30:56
Projects	Folders per resource		04/16/2013 14:30:51	04/16/2013 14:30:56
Sales Order	Static Directory		04/16/2013 14:30:51	04/16/2013 14:30:51
All Sales Order	Folders per resource		04/16/2013 14:30:51	04/16/2013 14:30:56
Quotations	Folders per resource		04/16/2013 14:30:51	04/16/2013 14:30:56

Figure 25.2: Structure of directories when the document module has been installed

In addition to the usual access to documents through OpenERP, you will be able to connect to them directly through the file system using the FTP protocol.

To connect to the FTP server, go to your home directory (root) of your machine, and enter the path , for example : `ftp://admin@localhost:8021`, after entering this path , it will ask for the password, enter the password of your database. Figure seems like following :

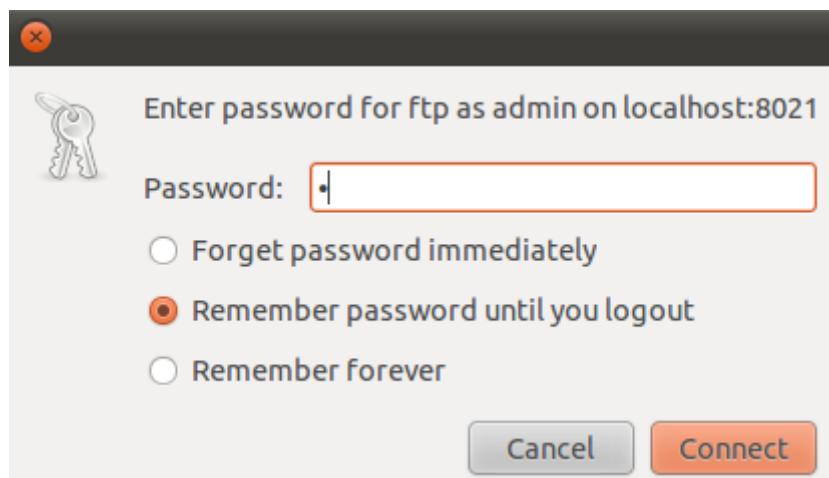


Figure 25.3: Connecting to ftp server

Note:**FTP Server**

These comments about an FTP server may appear a bit technical, but it is just a general standard for getting hold of files without worrying too much about the platform (Windows, Mac, Linux, or other Unix-like system). So FTP is just a way of getting access to files without needing to use an OpenERP client. There could have been other ways, but FTP proved itself to be the one that performed best at lowest cost.

After entering password ,once you are connected using FTP, you get to the root of a directory for the document management system. Once you enter that directory you find a structure that matches the structure defined in OpenERP.

It will seems like following figure:

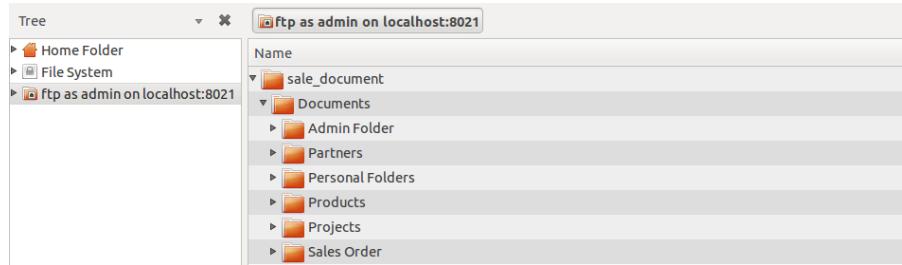


Figure 25.4: Tree structure of document after connecting ftp server

25.5 Mapping between OpenERP Resources and Directories

Each directory can either have the type Static or Folders per resource. A static directory, as with operating systems, is the classic directory that can contain a set of files. On the other hand, the directories linked to systems resources automatically possess sub-directories for each of the resource types defined in the parent directory.

Tip:**Directories in English**

To keep them synchronized to the working language, directory names are not translatable. But OpenERP's demonstration data automatically creates directories in English. You can rename them through the menu Knowledge → Configuration → Document Management → Directories.

For example, you can look at the directory shown in *Documents → Sales Order → All Sales Order*. You will see the directory for all the orders present in OpenERP that was created automatically by the system.

Sales Orders					
Create 1-8 of 8					
Order Number	Date	Customer	Salesperson	Total	Status
SO009	04/16/2013	Millennium Industries	Demo User	7315.00	Sales Order
SO007	04/16/2013	Luminous Technologies	Administrator	14981.00	Sale to Invoice
SO006	04/16/2013	Think Big Systems	Administrator	750.00	Sale to Invoice
SO005	04/16/2013	Agrofair	Demo User	4887.00	Sales Order
SO004	04/16/2013	Millennium Industries	Administrator	2240.00	Done
SO003	04/16/2013	Chamber Works	Administrator	377.50	Sale to Invoice
SO002	04/16/2013	Bank Wealthy and sons	Administrator	2947.50	Sale to Invoice
SO001	04/16/2013	Agrofair	Demo User	9705.00	Sales Order
					43203.00

Figure 25.5: Orders in OpenERP

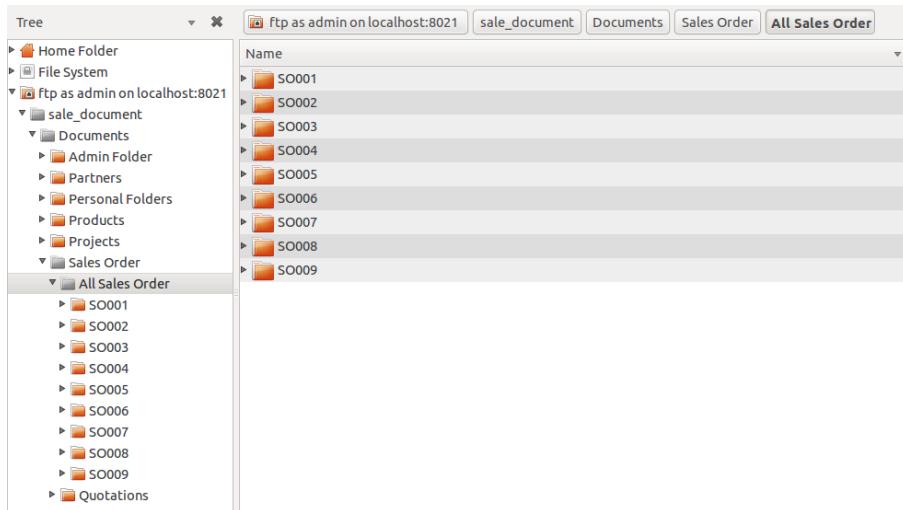


Figure 25.6: Directories representing all the orders in the document management system

Directories can follow a tree structure, like the tree of resources in OpenERP. For example, if you go to the directory *Documents* → *Projects* you will see the structure of the analytic accounts.

To define a directory containing a specific type of resource, you have to define parameters when you define the directory itself from menu *Knowledge* → *Configuration* → *Document Management* → *Dictionaries* :

- *Type* : Folders per resource
- *Resource model* : Choose one of the system objects
- *Domain* : an event filtered so that it sees only a subset of the resources
- *Tree Structure* : to show the resources hierarchically

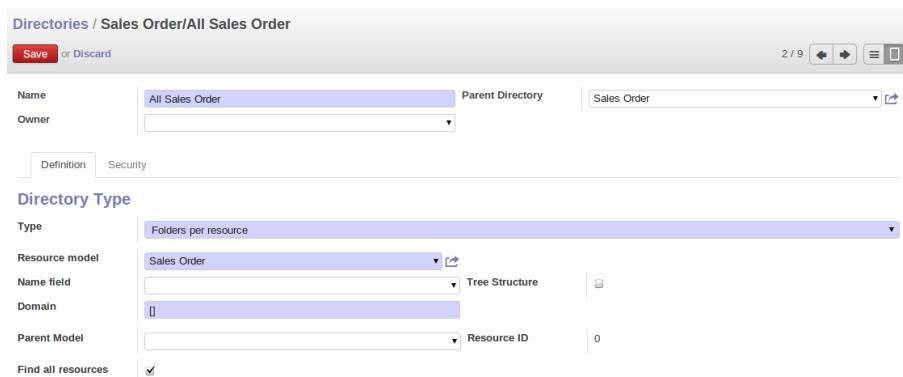


Figure 25.7: Configuration of the directory containing All Sales Orders

This is a very flexible approach because any modification of the resource in OpenERP is automatically reflected in the document management system. So when the quotation gets confirmed in OpenERP the directory no longer appears as a quotation through FTP access.

Here are some examples of directories linked to OpenERP resources that could be helpful when configured in the document management system:

- Quotations and Order: storing documents that relate to orders,
- Products: for storing products technical datasheets,
- Users: to automatically define a directory owned by each user of the system,
- Employees: to store documents about employees, such as their CVs, your interview notes, contract details, and their annual assessments,

- Support Requests: storing items about requests or about technical support responses,
- Analytic Accounts or Project: to store project management and tracking documents.

25.6 Managing Attachments

As you see, you can connect any directory in the document management system to an OpenERP resource. The system then manages its creation and keeps the directory synchronized with the reports generated by OpenERP from its own data. You do not have to create or rename these directories because OpenERP does all this automatically as it resynchronizes with its own database.

You can then copy the files in the directories that correspond to any of the resources. The files are automatically attached to OpenERP's documents through attachment management. Conversely, if you attach a document to one of OpenERP's resources then that document will automatically become visible over FTP in the document management system.

Note:

File Storage

If you do not install the document management system then the files that are attached to an OpenERP resource are stored directly in the database. Once the document management system has been installed, the contents of the files are no longer stored in the database but are stored instead on the OpenERP server filesystem in a directory named 'filestore'.

You can then read and add attachments to OpenERP resources quite independent of the OpenERP interface or the FTP server using simple drag and drop.

25.7 Virtual Files

The most well-organized companies keep track of all the documents they have sent to customers in their document management system. It is very useful to be able to retrieve every document about a customer or a project. But the work of storing these documents can itself often take up quite a bit of time for staff. Each report must be saved in the document management system as well as be sent by email to the customer.

That is not the case in OpenERP. To automatically make OpenERP reports available in the FTP server, OpenERP automatically uses *virtual files*. You can put virtual files into directories that have the special type of *linked resource* and link the virtual files to OpenERP's reports.

Note:

Virtual Files

Virtual files do not actually exist in OpenERP but are made visible with a size of 0 in the FTP server. Once these files have been read by the client software, OpenERP prints the document related to this file and returns a PDF document linked to the resource.

When you copy or open a virtual file you print the selected resource. You do not then have to go and print a document through OpenERP – you just open the file containing that document in the document management system. The PDF file is then created in real time by OpenERP by reading the relevant data.

The screen *Virtual files for Sales Orders in OpenERP* shows the parameters of the virtual files in All Sales Order.

You define the virtual files using the name ORDERNUM_print.pdf, where ORDERNUM represents the reference to the order. To do this, first you have to give access rights of Technical Features to user, from *Settings → Users → Users*. So you can see the tab *Generated Files* in Dictionaries (*Knowledge → Configuration → Document management → Dictionaries*) form view. Go to this tab, click an *Add an item*, after in that form you must select the option *Include Record Name* of the file for a directory. You can then find a virtual file for each

report associated with an order.

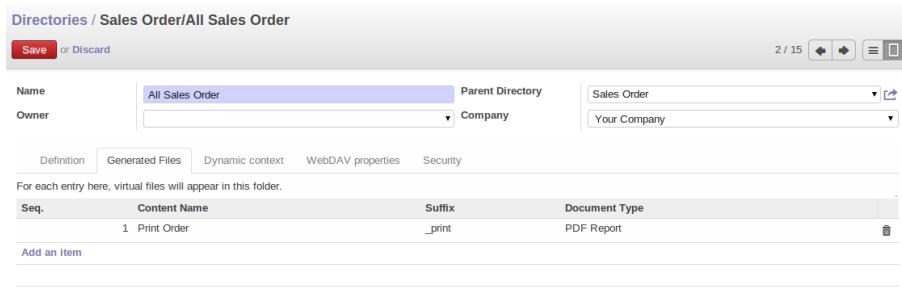


Figure 25.8: Virtual files for Sales Orders in OpenERP

To see the effect of this configuration, connect to the FTP server and go into a directory for an order such as *Documents* → *Sales Order* → *All Sales Order* → *SO003*. You can then just click the file *SO003_print.pdf* to get a printout of Order SO003. You can attach it to an email or put it on your desktop.

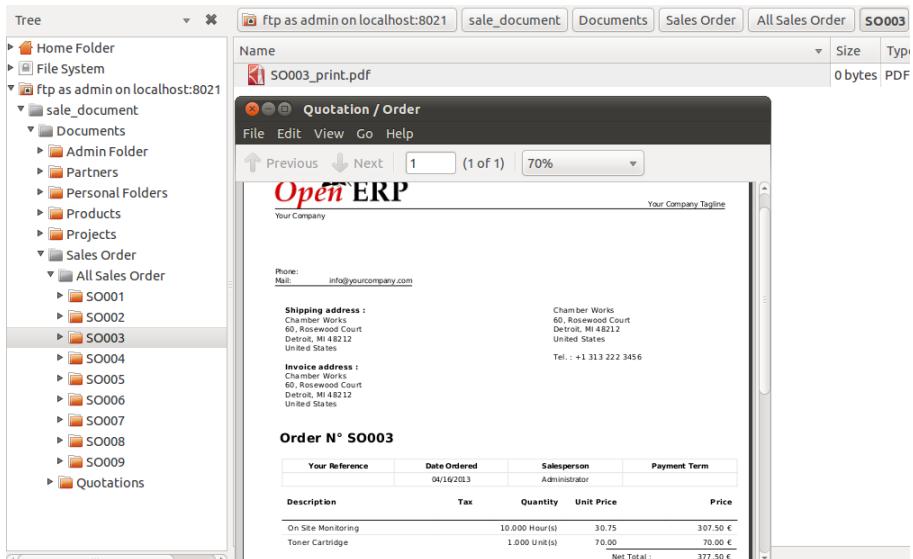


Figure 25.9: Virtual files for Sales Orders through FTP

This system of virtual files is very useful in a lot of situations. For example, if you must quickly re-send a quotation to a customer, you do not have to open OpenERP, you can just attach the relevant virtual file to your email.

Importantly, once files have been read or copied, they become real files, taking up real space, rather than just virtual. This means that you can keep a legal record of all documents that have been created and sent to customers and suppliers.

25.8 Standardizing Structures

You now have a configuration that enables you to automatically get a directory structure linked to OpenERP for each resource, such as for projects and orders. The ideal situation would now be to automatically structure the documents about projects, say for example, you could classify them depending on their type:

- Quotations,
- Meeting Minutes,
- Delivery Documents,
- Documentation.

OpenERP provides you with a system that lets you create a structure type for each type of a given document. It then provides that classification for all documents in the directories structured in that type.

So create the structure above for your project management system. To do that, create the four directories above and give them the following data:

- **Type** : Static Directory,
- **Parent Model** : Analytic Account.

Then in each project (represented by analytic accounts) you will get this substructure for organizing your documents efficiently.

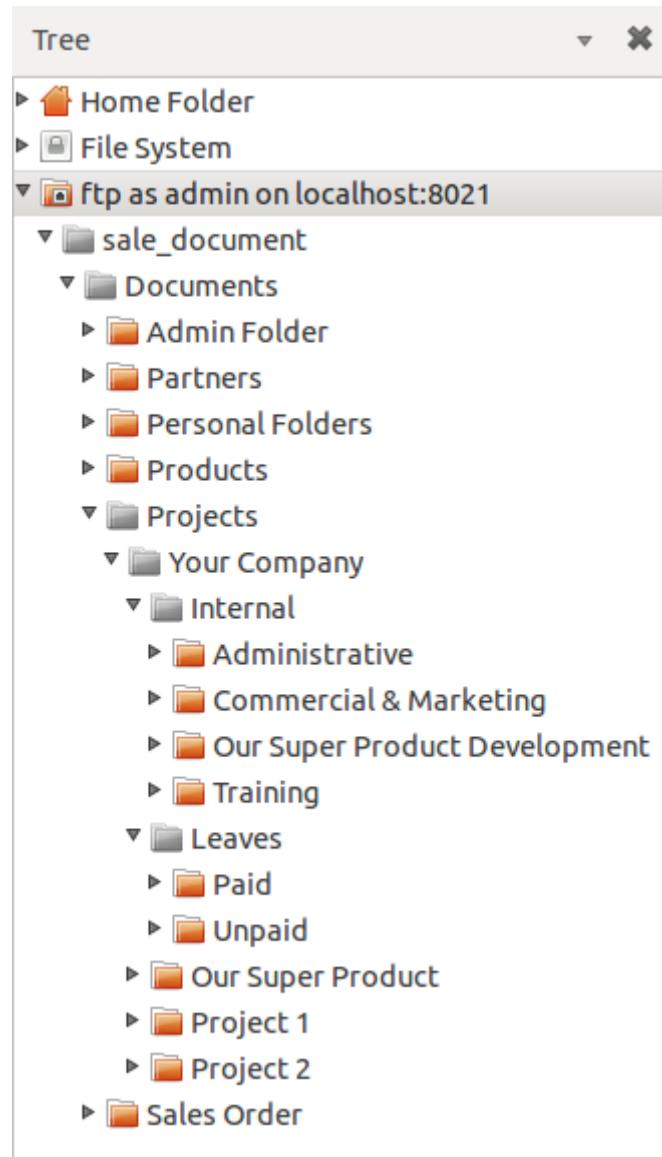


Figure 25.10: Substructure common to all projects

Tip:*Mapping*

In practice, OpenERP does not create directories or files for every resource. It actually manages this by mapping between OpenERP resources and the FTP interface.

This approach gives a lot of flexibility because there is no synchronizing to do, nor any redundancy. Changes in either the document management system or in OpenERP will automatically be reflected over in the other side. And system resources are obviously not used up by storing things twice.

Once a new project has been defined in OpenERP, the system automatically creates a directory corresponding to the project in the right place in the document management system, and creates a structure type there for classifying documents.

25.9 Optimizing Document Management

All documents produced by OpenERP are automatically indexed and classified for maximum efficiency. There is an ultra-rapid access to documents, which are directly available from your email client or the company management software. The user access rights are managed just the same way as those that are available in the company management system. All these features help you to get the best out of OpenERP's document management system.

25.9.1 Searching for Documents

You have seen several methods of accessing documents quickly:

- From attachments to an OpenERP resource,
- Through FTP access to OpenERP,
- Using the menu *Knowledge → Document Management → Directories' Structure*.

But if you do not know where a specific document can be found, OpenERP also has a search tool integrated into its document management to simplify your search. To search for a file, use the menu *Knowledge → Documents → Documents*. You get to a document search view that lets you search amongst all the attachments and all the documents in the FTP server.

You can search for a file using various different criteria:

- The attachment name,
- The attachment type,
- The filename,
- The owner of a file,
- The directory that it is found in,
- The indexed content.

Notice here an important advantage for an integrated document management system. Information such as which partner is associated with a document is automatically detected by OpenERP when the document has been stored in a directory. This information is never input by the user – it is detected automatically using the information about the resource when it is being saved as a file.

But your search is not limited to these few fields. You can also search on the content in the files. Each file is automatically indexed by the system to give you a search engine rather like Google's on the whole set of company documents.

Note:

Supported File Formats

The OpenERP document management system can index the following file formats:

- **TXT** : text files,
- **PDF** : PDF files,
- **SXW** : OpenOffice V1 files,
- **ODT** : OpenOffice V2 files,
- **DOC** : Microsoft Word files.

The other file formats are properly handled in the document management system, but their content is not indexed automatically.

This functionality is very significant. All you need to do is search for a partner name or an order number to automatically get all the documents that are referenced there. And you can use a fragment of text to find the document you need from within that subset.

25.9.2 Integration with E-mails using Outlook and Thunderbird

OpenERP's document management system is well-integrated with popular email clients like Microsoft Outlook and Mozilla Thunderbird. For this, you can install the required plugins available in OpenERP, usually made available when you install and configure `crm`. Or you may install `outlook` or `thunderbird` module according to your requirement, and take advantage of its compatibility with OpenERP's documents. For more on this, refer `ch-commtools`.

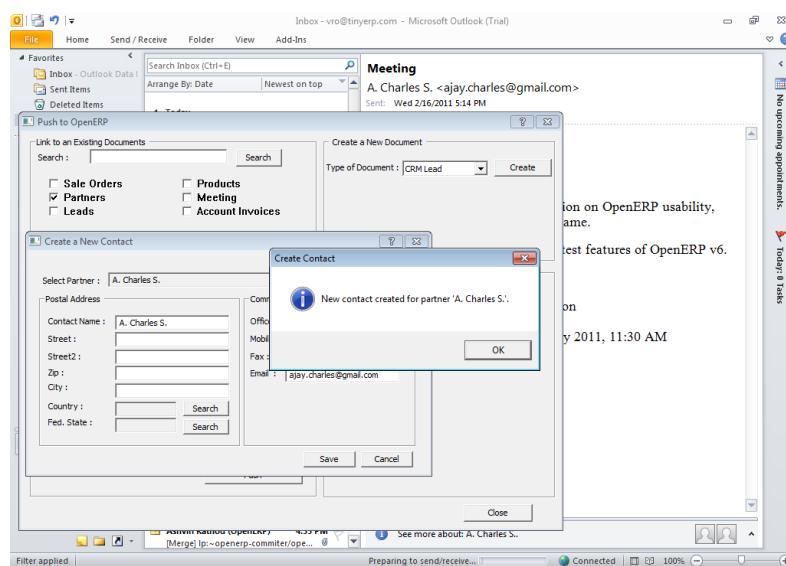


Figure 25.11: Creating a new contact through the Document Management System from Outlook

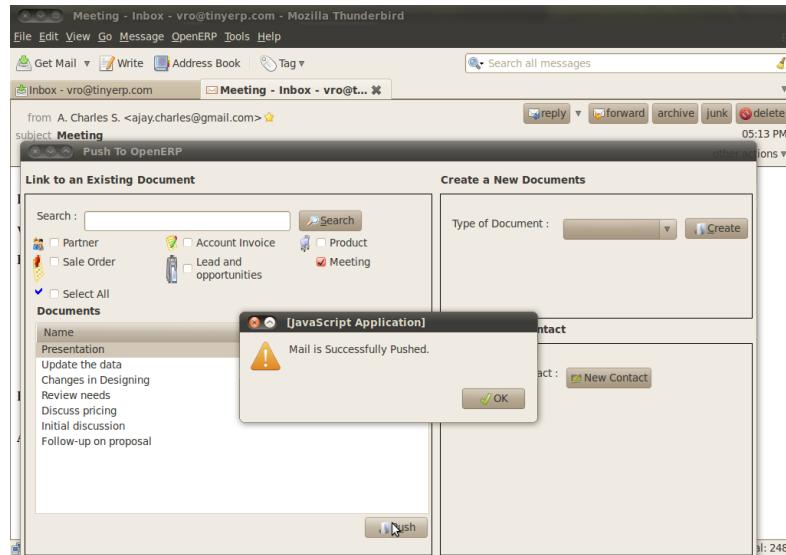


Figure 25.12: Pushing an attachment in the Document Management System from Thunderbird

25.9.3 Version Management

There is usually a need to keep track of all the important documents that you have printed. For example, when you send an invoice to a customer it is a good idea to store a copy of that invoice internally in paper or electronic form. Then you can reprint it exactly in the same format as when you sent it, even if the company's details have changed in the meantime.

To do this, OpenERP can automatically store as attachments the different reports printed by users. By default, only invoices are saved as attachments, and they are saved when they are printed. That is because they are commonly legally required.

But you can configure the system so that it does not matter which type of report is printed - they can all be stored automatically. To activate that functionality on another type of report, modify this in the menu *Settings* → *Technical* → *Actions* → *Reports*.

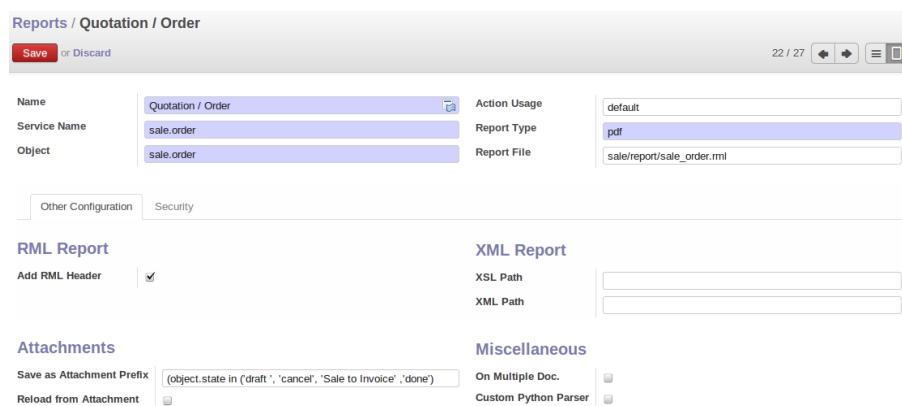


Figure 25.13: Modifying the definition of a report

Select the report that you want to change and complete the field *Save As Attachment Prefix*. Once you have done that, each document print action will automatically be saved as an attachment to the document.

Part X

System Administration and Implementation

After you have tested and evaluated OpenERP, you will need to configure it to match the software to your company's needs. Its flexibility enables you to configure different modules, adapting them to your industry or sector of activity.

Designed for ERP project managers, this section deals with the administration and configuration of the system, giving you powerful tools for integrating the software in a company and driving and tracking the project, taking account of different problems, a range of supplier types, implementation risks, and the options available to you.

CONFIGURATION & ADMINISTRATION

This chapter is for the administrators of an OpenERP system. You will learn to configure OpenERP to match it to your company's needs and those of each individual user of the system.

OpenERP gives you great flexibility in configuring and using it, letting you modify its appearance, the general way it functions and the different analysis tools chosen to match your company's needs most closely. These configuration changes are carried out through the user interface.

Users can each arrange their own welcome page and their own menu, and you can also personalize OpenERP by assigning each user their own dashboard on their welcome page to provide them with the most up to date information. Then, they can immediately see the information most relevant to them each time they sign in.

And OpenERP's main menu can be entirely reorganized. The management of access rights lets you assign certain functions to specific system users. You can also assign groups to the user, which lets him move system documents from state to state (such as the ability to approve employee expense requests).

Note:

Configuration, Parametrization, Personalization, Customization

The word personalization is sometimes used in this book where you might expect to find configuration or customization.

Customization generally refers to something that requires a bit of technical effort (such as creating specialized code modules) and creates a non-standard system.

Configuration is less radical – it is the general process of setting all the parameters of the software to fit the needs of your system (often called parametrization or setup). Configuration is also, by convention, the name of the sub-menu below each of OpenERP's top-level menus that is accessible only to the administrative user for that section.

Personalization is just that subset of configuration options that shapes the system to the particular operational and/or stylistic wishes of a person or company.

Using the *OpenOffice Report Designer* module (`base_report_designer`), you can change any part of any of the reports produced by the system. The system administrator can configure each report to modify its layout and style, or even the data that is provided there.

Note:

The OpenOffice Report Designer

The OpenOffice Report Designer plug-in enables you not only to configure the reports of the basic products in OpenERP, but also to create entirely new report templates. When the user uses OpenERP's client interface, OpenOffice can create a report template that has access to all the data available to any OpenERP document type. You can easily create fax documents, quotations, or any other commercial document. This functionality enables you to considerably extend the productivity of your salespeople who have to send many proposals to customers.

Finally, you will see how to import your data into OpenERP automatically, to migrate all of your data in one single go.

For this chapter, you should start with a fresh database that includes demo data, with `sale` and its dependencies installed and no particular chart of accounts configured.

26.1 Creating a Configuration Module

It is very helpful to be able to backup your specific configuration settings in an OpenERP module dedicated just to that. This enables you to:

- automatically duplicate the configuration settings by installing the module in another database,
- reinstall a clean database with your own configuration, in case you have problems with the initial configuration,
- simplify migrations. If you have modified some elements of the basic configuration, there is a risk in returning them to their original state after the migration, unless you have saved the modifications in a module.

`base_module_record`: this was a developer tool we removed as almost no developer was using it. It was not clean enough to respect new OpenERP quality standards;

To install a new module saved in ZIP file form, use the menu *Settings → Modules → Import Module*.

26.2 Configuring the Menu

OpenERP's menu organization is not subject to any restriction, so you can modify the whole structure, the terminology and all access rights to it to meet your specific needs in the best possible way. However, before you do all that and just as you would for any other customizable software, you should balance both the benefits you see in such changes and the costs, such as the need to train users, to maintain new documentation and to continue the alterations through subsequent versions of the software.

This section describes how to proceed to change the structure of the menu and the welcome page, to configure the terminology of the menus and forms in the user interface, and for managing users' access rights to the menus and the various underlying business objects.

26.2.1 Changing the Menu

You can change the way menu items appear and the actions they trigger by using the menu *Settings → Technical → User Interface → Menu Items*. This opens a search view where you may locate the menu item to be edited by entering its entire name (specified as menu hierarchy) in the *Menu* field or specifying its immediate parent menu name in *Parent Menu*.

As an example, locate the menu item `Settings/Translations/Import / Export/Export Translation` and click on this entry to open its corresponding form. You could now edit this form (**but do not do that, read the next paragraph first!**) – change its *Parent Menu*, which moves the entry to a different part of the menu system; edit its *Menu* name to change how it appears in the menu tree, or give it a new *Icon*. Or you could give it a new *Action* entirely (but this would lose the point of this particular exercise).

Instead of editing this form, which is the original menu entry, duplicate it. With the help of *Duplicate* button that appears in More button. The form should be non editable for finding the More button.

To move this duplicate entry, change the *Parent Menu* field by deleting what is there and replacing it with another menu that everyone can see, such as `Tools` or `Human Resources`, and make sure that the entry moves to the end of the menu list by replacing the *Sequence* with 99 . You can experiment with icons if you like. Save the form and then reload the page to see the results.

Tip:**Duplicating the Menu**

If you are planning to modify a menu, you should duplicate it first. In this way you will always keep a link to the original menu that works if you need it to.

26.2.2 Assigning Default Values to Fields

You can quite easily configure the system to put default values in various fields as you open new forms. This enables you to pre-complete the fields with default data to simplify your users' work in entering new documents. Let us use the Customer form to demonstrate this feature. Create a new customer with *Country* set as *New Zealand*

- First you have to active the developer mode, In that select Set Defaults . An administrator has the choice of making the default work just for that user, or for all users of the database.



Figure 26.1: Inserting a new default value

To check this new configuration, open a new partner form: the field *Country* should now contain the entry *New Zealand*.

This is a very powerful feature! An administrator can use this functionality to redefine the behavior of your whole system.

26.2.3 Changing the Terminology

You can use OpenERP's language translation functionality to substitute its standard terminology with terminology that fits your company better. It is quite straightforward to adapt the software with different terms specific to your industry. Moreover, this can strengthen acceptance of your new OpenERP system, because everybody will be able to retain their usual vocabulary.

You can do this one of two ways:

- translate them in a CSV file, which gives you a global overview of all of the system terms so that you can search and replace specific occurrences everywhere,
- translate the phrases directly in the client, which means that you can change them in their context, and that can be helpful to you while you are translating.

The same approach is used to translate terms that have not been created yet. This can be useful, for example, with modules that have not yet been translated into English or any other language that you want.

Translation through a CSV File

To translate or modify all of the system's phrases, you first have to export a translation file in CSV form. And to do that, you have to install a language into OpenERP. To load a translation that already exists in OpenERP, use *Settings* → *Translations* → *Load an Official Translation*, choose a language and then click *Load*.

Then export it using *Settings* → *Translations* → *Import/Export* → *Export Translation*. Select the language, then the *CSV File* format, then one or more (or all) modules. Click *Export* to start the export process, then click the small *Save As* icon to save the file somewhere.

Note:**UTF-8 Format**

The CSV file is encoded in the UTF-8 format. Make sure that you retain this format when you open the file in a spreadsheet program, because if you **do not** retain it, you risk seeing strange character strings in place of accented characters.

	A	B	C	D	E	F
1	module	type	name	res_id	src	value
98	product	field	product.packaging.ean		0 EAN	EAN13/EAN14
99	product	field	product.product.ean13		0 EAN13	EAN13
100	product	model	product.template.name	product.product_product	Employee	Employé
101	product	field	product.packaging.weight_ul		0 Empty Package Weight	Poids d'un colis à vide
102	product	field	product.pricelist.version.date_end		0 End Date	Date de fin
103	product	selection	product.template.state		0 End of Lifecycle	Fin de cycle de vie

Figure 26.2: *CSV translation file with a translation in view*

The file contains six columns: *module*, *type*, *name*, *res_id*, *src*, and *value*. You have to ensure that the first line, which specifies these column names, remains untouched.

The *src* field contains the base text in English, and the *value* field contains a translation into another conventional language or into a specialist technical phrase. If there is nothing at all in the *value* field then the English translation will automatically be used on the form you see.

Tip:**Where Should you Modify the Text?**

Most of the time, you will find the text that you want to modify in several lines of the CSV file. Which line should you modify? Refer to the two columns type (in column B) and name (in column C). Some lines have the name ir.ui.menu in the name column, which shows that this is a menu entry. Others have selection in the type column, which indicates that you would see this entry in a drop-down menu.

You should then load the new file into your OpenERP system using the menu *Settings → Translations → Import/Export → Import Translation*. You have then got two ways forward:

- You can overwrite the previous translation by using the same name as before (so you could have a special ‘standard French’ translation by reusing the *Name Français* and *Code fr_FR*),
- You could create a new translation file which users can select in their *Preferences*.

If you are not connected to the translated language, click *Preferences*, select the language in *Language* from the *Preferences* tab, and finally click *Save* to load the new language with its new terminology.

Tip:**Partial Translations**

You can load a selection of the lines in a translation file by deleting most of the lines in the file and then loading back only the changed ones. OpenERP then changes only the uploaded lines and leaves the original ones alone.

26.3 User Login

Tip:**Managing Passwords**

If you let users change their passwords for themselves, you will have no direct control over the password they choose. You should have a written policy about password strength to try to maintain a level of security in your system.

Tip:**Managing Users through LDAP**

With the `auth_ldap` module, user accounts can be managed through an LDAP directory that can be made common to various different company resources.

Connection parameters for the LDAP directory are then registered with the company definition. You can provide a user profile template there from which new users are automatically created during their first connection to OpenERP.

Note:**LDAP**

The LDAP protocol (Lightweight Directory Access Protocol) enables you to manage common directories for various different resources through your standard TCP/IP network.

This enables users in the company to have the same username and password to access all their applications (such as email and intranet).

26.4 Managing Access Rights

One of the most important areas in configuring OpenERP is how to manage access rights to the information in it.

You are planning to put everything significant to your business into the system, but most of your staff need see only part of it, and may need to change even less of it. Who should have rights to what, and how do you manage that?

OpenERP's approach to rights management is highly flexible. Each user can belong to one or more groups, and the group(s) you belong to determine(s):

- the visibility of each menu item and
- the accessibility of each table in the database.

For example, the group `Warehouse / User` may only be given access to some of the menus in `Warehouse`, and may have no access to any of the accounting information. Each system user who works in stores is given membership of the `Warehouse / User` group. If some users also work elsewhere, they would also be given membership of other groups.

26.5 Groups and Users

To configure access rights, you would start by defining the groups. It is important for the groups to be representative of your company's job functions rather than of its individual employees.

So if your finance director is also your sales director, you should create both a Finance Director group and a Sales Director group, even though they are both the same person, and would both be assigned to this user in practice. This gives you flexibility for the future.

You should also create groups within departmental areas that have different levels of access rights. For example, if you create a `Sales Director` group and a `Sales` group avoid assigning exactly the same rights to each group. The first could see all the reports, while the second could be restricted to seeing quotations. You could either make the `Sales Director` a member of both groups, and give the `Sales Director` group a limited set of extra rights, or give the `Sales Director` group all the rights it needs for a `Sales Director` to belong only to this one group. You should choose the scheme that gives you most flexibility and then stick with it to maintain consistency.

Tip:**Flexibility in Managing Access**

To give yourself flexibility, you can ensure that a trusted staff member (perhaps a director or someone in accounts, or even the system administrator) is given wide rights to use the system, and is authorized by the management to carry out specific tasks for people.

26.5.1 Access Rights for Menus

To get a feel for rights management in OpenERP, you will create a new Stock1 group, with access to the *Warehouse* menu items. You will then create a stores person user who is a member of the Stock1 group.

To create a new group, use the menu *Settings* → *Users* → *Groups*. Enter the group name Stock1.

Then to create a new user linked to this, use *Settings* → *Users* → *Users* to enter the following:

- *User Name* : Stores Person ,
- *Login* : stores ,
- *Password* : stores ,
- *Menu Action* : Menu .

In the *Groups* section of the user form, add the Stock1 group that you just created.

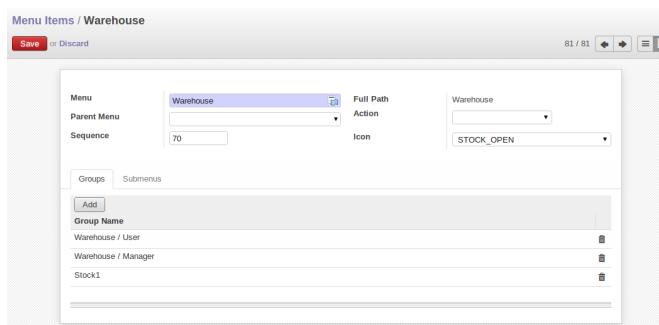


Figure 26.3: Groups that have access to the Warehouse menu

Save the user, then go into the menu *Settings* → *Technical* → *User Interface* → *Menu Items* to get a list of menus. Filter this list using the search field *Menu* to get the *Warehouse* menu item. In the form describing the menu, add Stock1 into the *Groups* field. From now on, only members of the *Warehouse / Manager*, *Warehouse / User* and Stock1 group will be able to see this menu item in their main menu list.

Tip:**Menu Hierarchy**

Since menus are hierarchical, there is no need to hide access to lower menus: once you have configured Warehouse this way, all lower-level menus become invisible to members of other groups.

Tip:**Security**

This method of managing access to menus does not guarantee that users are prevented from reaching hidden business objects in the system in other ways. For example, hiding the Invoices menu will not prevent people reaching invoices through purchase and sales orders, or by guessing the URL.

For effective security management, you must use the methods for managing access rights to objects presented in the following section.

Note:*Initial Access Configuration*

In the initial configuration, OpenERP's *admin* user, a member of the *Administration / Settings* group, is given access to the Configuration menu in each section of the main menu. This is a general convention. For example, Sales → Configuration is visible in the administrator's menu amongst the other Sales menu items. But only the menu items other than Sales → Configuration are visible to other users. Similarly, the main menu item Administration is, by convention, visible only to users who are members of the *Administration / Settings* group.

26.5.2 Access Rights to Objects

The menu access rights determine who can access which menu, but does not define what you can do once you are in the menu.

Access controls on the objects give you the possibility of defining what your users have the right to do with your data when they get access to it. Access control of objects is structured the same way as access to menus.

Note:*Object*

An object represents a document in the system. Objects are linked to database tables, and also have additional concepts, such as the functions of fields, inheritance from other objects, and class methods that give them behavior.

If no group is assigned to an object, all users can access it without any restriction of any sort. Conversely, when an access control is defined for an object, a user must be a member of a group owning appropriate access rights to have any sort of access to that object.

You must always ensure that you do not lock the *Administration / Access Rights* group out of any object that controls administration and configuration options, such as the `ir.model.access` model.

You can manage four access modes on objects independently:

- *Read access* : members of the group can read the data in the object,
- *Create access* : members of the group can create a new record in the object,
- *Write access* : members of the group can modify the contents of records in the object,
- *Delete access* : members of the group can delete records from the object.

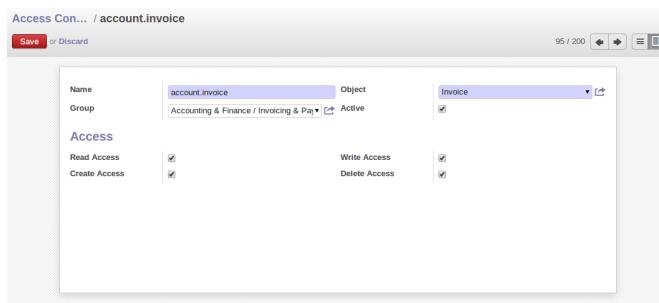


Figure 26.4: Access control to invoices for the Accounting & Finance / Invoicing & Payments

To configure access rights on an OpenERP object, use the menu *Settings → Security → Access Controls List* and click *Create* or choose an existing one and click *Edit*. You give a *Name* to the access control, select a *Group*, and the *Object*, then check the checkbox corresponding to each of the four *Access* modes.

If you do not specify any group in the access rules, the rule is applied to all groups. So to remove access to an object for all users you could create a rule:

- which is defined for a specific object,
- which is linked to no group,
- for which none of the four access options is checked.

You can then create additional rules on the same object to give specific rights to certain groups.

26.5.3 Record Rules For Objects

Record rules determine who can access the objects, depending on the rules set for the particular object. A record rule has some tests to be performed on objects.

You can manage four access modes on objects independently, depending on the test:

- *Read access* : can read the data in the object,
- *Create access* : can create a new record in the object,
- *Write access* : can modify the contents of records in the object,
- *Delete access* : can delete records from the object.

To configure a rule on an object, use the menu *Settings → Security → Record Rules*. The fields in the `ir.rule` object describe:

- *Object* : Object on which to have the rule
- *Name* : Name of the rule
- *Global* : If global is checked, then that rule would be applied for all the groups; and if it is unchecked, then that rule would be applied only for the groups selected for it.
- *Domain* : A list of all the tests for the object. It is specified through a Python expression as a list of tuples.
 - If there are multiple tests on same object, then all of them are joined using AND operator, and depending on the result the rule would be satisfied
 - If there are multiple rules on same object, then all of them are joined using OR operator
- *Access Modes* : Read, Write, Create, Delete as described earlier
 - If only one access mode is checked, then only that mode would be applied
 - If all of them are checked, then all the access modes would be applied

But at least one access mode has to be checked, all of them cannot be unchecked. If all of them are unchecked, it would raise an exception.

For example : We can have a rule defined on `res.partner` object, which tests if the user is the dedicated salesman of the partner [('`user_id`', '=', `user.id`)]. We check only the create and write access modes and keep other access modes unchecked.

This would mean that a user in the group for which the rule is applied can only create/write records where he himself serves as the dedicated salesman, and cannot create/write records where he is not the dedicated salesman. As other access modes are unchecked, the user can read/delete the records of partners where he is not the dedicated salesman.

26.5.4 Modification History

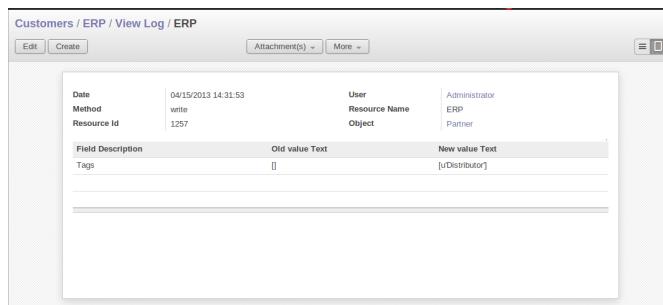


Figure 26.5: Partner Record History

Each record in an OpenERP database carries a note of its history. You can find out who it was created by and when that occurred, and who last modified it and when that occurred. Click the *View Log* link from More button to display a logs related to that record, as shown in the figure *Partner Record History*. It can help you identify who to contact if there are any problems with the data in the records. Before that you have to define log rule using *Reporting → Audit → Audit Rules*.

Tip:

Audit Trail

OpenERP has an Audit Trail module `audittrail`, which can be used to track any or all of the changes to one or more objects. It should be used with care, because it can generate huge amounts of data in the live database, but can be an invaluable tool.

26.6 Configuring Workflows and Processes

Workflows represent the company's different document flows. They are completely configurable and define the path that any individual OpenERP object (such as an order) must follow, depending on the conditions (for example, an order above a certain value must be approved by a sales director, otherwise by any sales person, before the delivery can be triggered).

The figure [Workflow for order S0005](#) shows the standard workflow for an order. You can show it from the Debug Mode by clicking *Print Workflow*. Select an order, then Print Workflow to show the workflow below.

The chapter *Process* provides all of the information needed to create and modify technical workflows and cross-company processes.

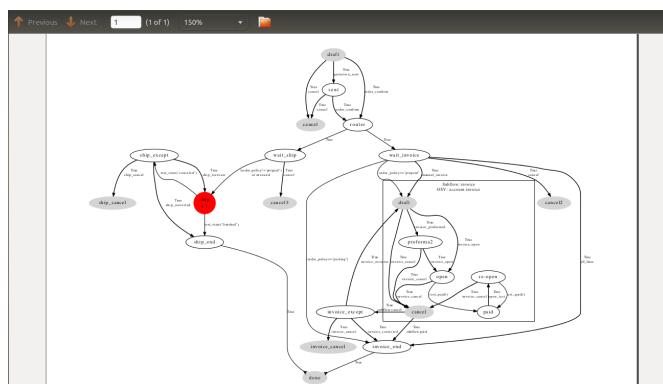


Figure 26.6: Workflow for order SO005

26.7 Configuring Reports

OpenERP has two distinct report types:

- Statistical reports: these are calculated data, often represented in the form of lists or graphs. These reports are dynamic, and you can navigate through the data that comprise the figures through the client interface.
- Report documents: they are used to print system documents. The result is usually a PDF generated by a selection made on the screen. Furthermore, OpenERP enables you to open these reports in OpenOffice.org to edit in any changes you want before sending them to your customer.

Because of the power of the OpenERP engine, these two types of report can be created or modified without needing any development, and this can be done directly in the client interface of OpenERP or from OpenOffice.org.

26.7.1 Managing Statistical Reports

Many reports are configured in advance in OpenERP. You can find them in the *Reporting* sub-menus under each main menu entry.

26.7.2 Managing Document Templates with OpenOffice.org

To configure your printable documents in OpenERP, use the module `base_report_designer`.

Tip:

The OpenOffice.org Writer Plug-in

You can create your own reports in just a few minutes using the OpenOffice.org Writer plug-in. This tool can give your team a big productivity improvement. Using it, you can create templates for all of your company's documents, reducing the work of creating and laying out data and customer documents.

The system is both simple and powerful, because it gives you the benefits of all of the layout facilities offered by OpenOffice.org Writer, as well as all of the data and calculation provided by OpenERP. You could create or modify reports directly from OpenOffice.org and then use them in OpenERP.

Note:

Independence from OpenOffice.org

OpenOffice.org is only used to generate new document templates. The system administrator is the only person who has to install it.

Once the document templates have been defined, the users do not need it to carry out their normal work. They can use either Microsoft Office or OpenOffice.org as they choose.

The OpenOffice.org plug-in enables you to search for fields in OpenERP and integrate them into your document templates. You can use data loops in tables or sections, enabling you to attach several lines to an order, for example.

Once the new report has been defined, it appears directly in the OpenERP client for the system users.

There are two modes of using reports:

- make the report produce a PDF document with data in it reflecting the selected record (for example, an invoice).
- make the report open a document for modification in OpenOffice.org, with data in it reflecting the selected record. This enables you to modify the document in OpenOffice.org before sending it to the customer (such as with a Quotation).

The personalized reports are stored in the OpenERP database and are accessible to everyone who has rights to use your database without any need for the installation of OpenOffice.org on their own computers. The document modifications are applied to a single database.

Installing the OpenOffice.org Module

You should install two components before using the report editor:

- the module `base_report_designer` – first in your OpenERP installation if it is not already there, and then in the OpenERP database, you want to use it in.
- the OpenOffice.org Report Designer in the OpenOffice.org installation on your system administrator's computer.

You start by installing the module `base_report_designer` just like all the other OpenERP modules.

To install the OpenOffice.org extension, save the file `openerp_report_designer.zip` supplied during the OpenERP Report Designer Configuration. Check that OpenOffice.org is properly installed on your computer and that you have administration rights for installation.

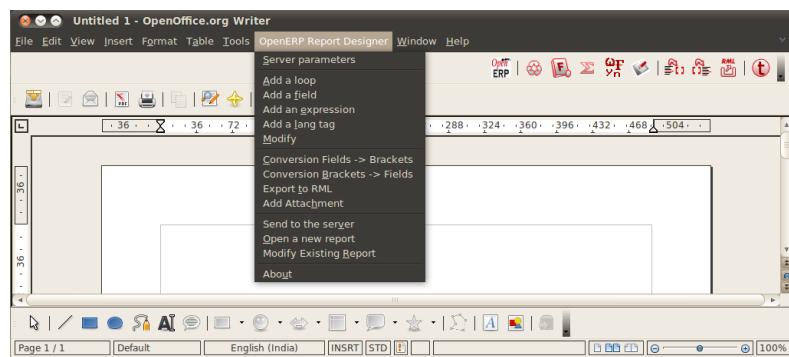


Figure 26.7: Menu OpenERP Report in OpenOffice.org Writer

Start OpenOffice.org Writer, select *Tools → Extension Manager...* to open the Extension Manager dialog box, and then search for the `openerp_report_designer.zip` file to install it. Then close the application and restart Writer: a new menu appears in the top menu bar – *OpenERP Report Designer*.

Connecting OpenOffice.org to OpenERP

Select *OpenERP Report Designer → Server parameters* in the top menu of OpenOffice.org Writer. You can then enter your connection parameters to the OpenERP server. You must select a database in which you have already installed the module `purchase`. A message appears if you have made a successful connection.

Modifying a Report

The report editor lets you:

- modify existing reports which will then replace the originals in your OpenERP database,
- create new reports for the selected object.

To modify an existing report, select *OpenERP Report Designer → Modify Existing Report*. Choose the report *Purchase Order - Request for Quotation* in the *Modify Existing Report* dialog box, and then click *Open Report*.

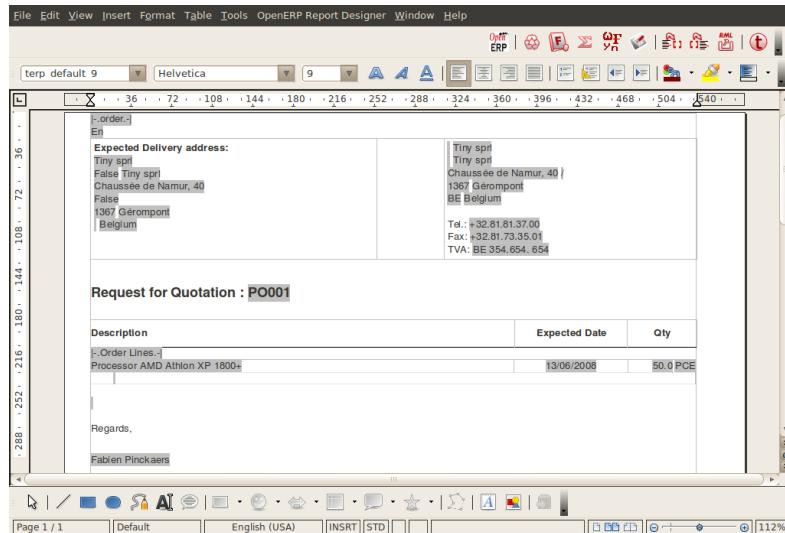


Figure 26.8: Modifying a document template

OpenOffice.org then opens the report in edit mode for you. You can modify it using the standard word processing functions of OpenOffice.org Writer.

The document is modified in its English version. It will be translated as usual by OpenERP's translation system when you use it through the client interface, if you have configured your own setup to translate to another language for you. So you only need to modify the template once, even if your system uses other languages – but you will need to add translations as described earlier in this chapter if you add fields or change the content of the existing ones.

Tip:

Older Reports

The older reports may not all have been converted into the new form supported by OpenERP. Data expressions in the old format are shown within double brackets and not in OpenOffice.org fields.

You can transform an old report format to the new format from the OpenOffice.org menu OpenERP Report Designer → Convert Brackets -> Fields.

From the OpenERP toolbar in OpenOffice.org it is possible to:

- connect to the OpenERP server: by supplying the connection parameters.
- add a loop: select a related field amongst the available fields from the proposed object, for example Order Lines . When it is printed, this loop will execute for each line of the order. The loop can be put into a table (the lines will then repeat) or into an OpenOffice.org section.
- add a field: you can then go through the whole OpenERP database from the selected object and then a particular field.
- add an expression: enter an expression in the Python language to calculate values from any fields in the selected object.

Tip:**Python Expressions**

Using the Add an expression button, you can enter expressions in the Python language. These expressions can use all of the object's fields for their calculations.

For example if you make a report on an order you can use the following expression:

'%.2f' % (amount_total * 0.9,)

In this example, `amount_total` is a field from the `purchase.order` object. The result will be 90% of the total of the order, formatted to two decimal places.

You can check the result in OpenERP using the menu *Purchases → Purchase Management → Requests for Quotation*.

Creating a New Report

The general template is made up of loops (such as the list of selected orders) and fields from the object, which can also be looped. Format them to your requirements, then save the template.

The existing report templates make up a rich source of examples. You can start by adding the loops and several fields to create a minimal template.

When the report has been created, send it to the server by clicking *OpenERP Report Designer → Send to the server*, which brings up the *Send To Server* dialog box. A *Technical Name* for the report is assigned by default, to make it appear beside the other purchase order reports. Rename the template as *New Request for Quotation* in *Report Name*, check the checkbox *Corporate Header* and finally click *Send Report to Server*.

To send it to the server, you can specify if you prefer OpenERP to produce a PDF when the user prints the document, or if OpenERP should open the document for editing in OpenOffice.org Writer before printing. To do that choose *PDF*, *OpenOffice (SXW)* or *HTML* in the field *Select Rpt. Type*.

26.7.3 Creating Common Headers for Reports

When saving new reports and reports that you have modified, you are given the option to select a header. This header is a template that creates a standard page header and footer containing data that is defined in each database.

This template can be customized by changing the company information through the menu *Settings → Companies → Companies*. You may select your parent company from the list and edit the fields Report Header, Report Footer 1, Report Footer 2 in the *General Information* tab. If your company has a logo that you would want to appear in all reports, you may add it using the *Logo* field. You can also change the appearance of the header/footer by editing the XML code in the tabs *Header/Footer* and *Internal Header/Footer*.

For any kind of troubleshooting problems kindly mail us at cde@tinyerp.com.

26.8 Importing and Exporting Data

Every form in OpenERP has a standard mechanism for importing data from a CSV file through the client user interface. That is the same format as used in the language translations.

Note:**Forms and Lists**

You have access to the Import and Export functions in the client on a list view in read-only mode – From More Button. You cannot reach Import or Export in any other view.

The CSV file format is a text format compatible with most spreadsheet programs (such as OpenOffice Calc and Microsoft Excel), and is easily editable as a worksheet. The first line contains the name of the field in the form. All the subsequent lines are data, aligned in their respective columns.

26.8.1 Exporting OpenERP Data to CSV

Start exploring OpenERP's use of the CSV format by exporting a modestly complex set of data, the partners and partner addresses in the demonstration data.

Go to *Sales* → *Sales* → *Customers* for a list of partners, and select the records to export by clicking the checkbox on the left of each record. Then look for the *More Button* section on the Top of the list and click the *Export* link. This pops up the *Export Data* dialog box. Select the following fields:

- *Name*,
- *Contact Name* under the *Contacts* menu,
- *City* under the *Contacts* menu.

You can either select and add them one at a time, or *Ctrl-click* them and add the multiple selection - the order in which you select them, is the order in which they will be displayed.

If you do not wish to export your data just yet, or would like to use the same fields for future exports, you have the option to save these settings. To do that, click *Save fields List* and give your export a name.

Then click *Export* and save the resulting *data.csv* file somewhere accessible - perhaps your desktop. You can open that file in a spreadsheet program or a text editor.

You will see that you have a list of partners, with the name and city of each partner's contacts alongside. In the couple of cases where there is more than one address, the partner name is left out. So it is important to note that the order of entries is critical - do not sort that list!

Tip:

List Limits

There is a limit to the number of items you can export in the clients - it is the number you can actually see, and that is 20 items by default in the web client, but is arbitrary in the GTK client.

You can change the number of items viewed by clicking on the link which shows the count of the items. You can then make a selection of limiting it to a fixed number of items at a time, for example, 50 or 100, or you can choose to view unlimited number of items at a time.

26.8.2 Importing CSV Data to OpenERP

Use this export file as a template for an import file by deleting all of the data, and using new data (here you will just import new data alongside the demonstration data, but the principle is the same for a blank database).

For example, to import partners with several contacts for which you specify a name and a city, you would create the following CSV file from the export file:

Table 26.1: Example of importing partner address fields

Name	Contacts/Contact Name	Contacts/City
Whole Globe Technologies	Graham Global	Athens
	Wanda World	Rome
	Emerson Earth	New York
Miles A Minute		

From the list of partners, click the *Import* link, and then in the *Import Data* window click *Browse* to search for and import the new *data.csv* file then click *Validate*.

You will get a dialog box showing that you have imported 2 objects, and you can see the new partners and partner addresses when you refresh the list on-screen.

26.8.3 Lowering the barrier to import data

The importation of data into OpenERP has been completely redesigned as to enable much easier and transparent data import operations.

When setting the “Allow users to import data from CSV files” option in the Settings/Configuration/General Settings menu entry, the import/export tool will be made available throughout the App Suite. Once installed, the import option is available next to every Create button from a list view.



Figure 26.9: New Import feature

After selecting your data, you can preview them right away, thus resulting in a significant gain in time. In previous versions of OpenERP, you had to reiterate the import when the initial one did not meet your criteria. Now, the system analyses the file content and provides indications in case of errors or issues for every line at once.

In case of errors in the original file formatting, OpenERP proposes you alternatives and solutions on how to structure your document.

Furthermore, the mapping with the OpenERP data fields has been improved. The system even proposes available data alternatives, in case it does not find the data the user specified. Previously, the system would halt the import upon meeting an error. Now, it lists all the errors, allowing the user to correct on the spot prior to finalizing the import process.

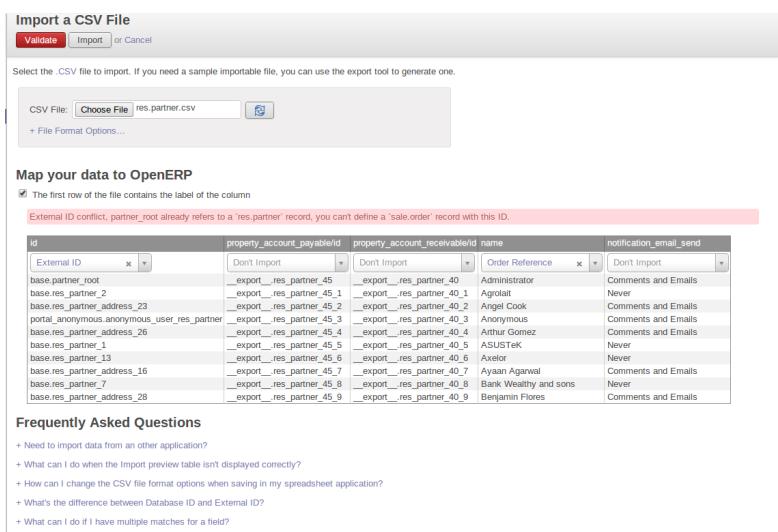


Figure 26.10: Solution Import feature

As you can see in the above screenshot, a frequently asked questions section has been added in the import dialog to help solving complex document transformation issues.

26.8.4 Exporting Data in Other Forms

OpenERP's generic export mechanism lets you easily export any of your data to any location on your system. You are not restricted to what you can export, although you can restrict who can export that data using the rights management facilities discussed above.

You can use this to export your data into spreadsheets or into other systems, such as specialist accounts packages. The export format is usually in the CSV format, but you can also connect directly to Microsoft Excel using Microsoft's COM mechanism.

Tip:*Access to the Database*

Developers can also use other techniques to automatically access the OpenERP database. The two most useful are:

- using the XML-RPC web service,
- accessing the PostgreSQL database directly.

Tip:*Module Recorder*

If you want to enter data into OpenERP manually, you should use the Module Recorder, described in the first section of this chapter.

By doing that, you will generate a module that can easily be reused in different databases. Then if there are problems with a database, you will be able to reinstall the data module you generated with all of the entries and modifications you made for this system.

IMPLEMENTATION METHODOLOGY

You may have mastered the technical aspects of administering and using your enterprise management system, but you still have a great deal of work to do integrating OpenERP into your company. This work is more business-related and social in nature than technical.

The OpenERP implementation process encompasses several different phases: evaluation, planning, configuration, data migration, deployment, and user training, and affects both support and maintenance.

The management of ERP projects, and IT project management in general, are the subject of very many other books that you might want to investigate for yourself. The elements of the methodology presented here are not intended to be an exhaustive review, just a brief overview of the different phases necessary to implement OpenERP in your company.

Tip:

Implementation

Implementation encompasses the whole process of integrating and deploying OpenERP, including evaluating it, establishing specifications, planning the deployment, the configuration of the software, loading data, installation and training the users. It does not generally extend to software customization, nor support and maintenance.

27.1 Requirements Analysis and Planning

Requirements analysis and planning are the keys to the success of an implementation. At this stage, you should set up a management team to define the costs and benefits of the project, select a project team, and set out the detailed stages that will have to be carried out.

OpenERP is so easy to start using that it is not always obvious, particularly to IT staff, that a clear requirements plan is necessary for implementing the system successfully. The difficulty is not particularly in installing the software nor in configuring it, but rather more about:

- knowing what to configure,
- deciding if you should adapt the software, or perhaps change your method of working, for some of your specialized processes,
- forming teams that can specify and work on some of the changes,
- ensuring that your users are committed to the change.

ERP system implementation is a project carried out using information technology, but it is a business project rather than an IT project in itself. The challenge of this type of project is in changing the behaviour of those involved at all levels of the enterprise.

People in the IT department will certainly be an integral part of the project, but they should be managed by someone in a senior position, who both understands the business impact across the organization and has experience

of technical projects. Ideally, the project manager should know the company well, both its specific quirks and its different standard cross-company processes.

If the enterprise does not have its own IT group, you are probably better off opting for a SaaS offer. This means that you subcontract all the difficult technology, from the installation of the server to its maintenance, all the while being assured of the installation of a robust architecture with its redundancy, backed-up servers, and separation of authentication and data.

27.1.1 Planning Methods

Planning methods vary in their degree of complexity, formality and level of automation. It is not the intention of this chapter to steer you towards one method or the other.

OpenERP's menus are organized to lead you through an implementation in a sensible order, so that information that has to be entered first is encountered first in the menu system. Forms are also organized so that if you enter data in the natural order, you will get later fields completed automatically by the earlier ones where possible. And demonstration data illustrates how OpenERP's functional areas are linked from one to the other

The menus themselves hint at several helpful implementation suggestions, for example, the sub-menus of *Settings* → *Technical* are useful for the configuration of the software. New functions such as the *Module Recorder* enable you to significantly accelerate the configuration of data.

27.2 Deployment

As you have seen, the complete architecture of OpenERP includes the following elements:

- a database server,
- an OpenERP application server,
- an OpenERP client-web server,

Note:

Deployment

Deployment is the process of putting an OpenERP database into a production-ready state, where it can be used by everyone in your business for their daily work. You would usually configure OpenERP and load data into it on one development system, train staff on that or another training system and deploy it onto a production system that has better protection against failure, better security and more performance.

27.2.1 Deployment Options

To deploy OpenERP in your company, several options are available to you:

- a SaaS (Software as a Service) or On-Demand offer, which includes the equipment, the hosting, the maintenance and the support on a system configured to your needs in advance,
- an internal installation, that you manage yourselves or have managed by an IT services company such as an OpenERP partner,
- hosting by a server supplier on which OpenERP is installed, which enables you to proceed to add adaptations on your server.

The first two approaches are the most commonly used.

The SaaS (Software as a Service) Offer

SaaS is a complete package hosted at a supplier, that includes the following services: server hardware, hosting of the generic solution, installation and initial configuration, redundancy of the architecture, backups, system maintenance and support. It is also known as *On-Demand*.

It is provided in the form of a monthly subscription with a fixed price per user. You can find the detail of Tiny's SaaS packages at <http://ondemand.openerp.com/>.

SaaS packages do not permit you to develop specific modules to your needs. On the contrary, they offer a service at a set price based on standard software modules that contain few migration risks. SaaS suppliers are limited generally to the modules certified and validated by the original author and project manager, Tiny.

Here are the main advantages of an OpenERP SaaS solution:

- an unbeatable return on investment (cost of implementation: 0, cost of licenses: 0),
- costs that are controlled and without surprises (the offer includes maintenance, frequent migrations and support),
- a turnkey solution, installed in less than twenty-four hours,
- packages adapted and preconfigured for different sectors of activity,
- a very robust architecture guaranteed to have constant and permanent access, reachable from anywhere.

So this server is recommended for small companies with fewer than about fifteen employees.

Hosting by a Supplier

At first sight, a hosted OpenERP system appears similar to SaaS: it provides OpenERP from a remote installation through a web browser. But in general, the similarities stop there.

To compare it with an SaaS package, you should check if the hosting offer properly includes the following elements:

- server hardware,
- hosting,
- maintenance,
- future migrations,
- backups,
- server redundancy,
- telephone and email support,
- frequent updates to the modules.

Also get yourself up to speed on the following points:

- the version of OpenERP proposed,
- the costs of implementation (configuration, data loading, training),
- the cost of configuration (if it is proposed),
- the technology and the procedure used for securing your database,
- the technology and the procedure for preventing system faults,
- the technology and the procedure for restoring a faulty system,
- limitations on the number of users, the number of simultaneous users, and the size of the database,
- the level of support and its costs,
- the procedure used to update OpenERP (to fault-fixed versions)

- the procedure adopted for OpenERP upgrades (to versions that have both fault fixes and new functionality).

Calling such suppliers can be a good solution if you are willing to entrust all the technical specifications for the functioning of OpenERP to them, especially if you need to use customized or extension modules that are not in the stable version released by Tiny.

Internal Installation

Large and medium-large companies typically install OpenERP using their own internal company resources. They usually prefer to have their own IT service in charge of maintenance.

Such companies can do the implementation work themselves internally, or turn to an OpenERP partner who will do the ERP implementation work or assist them with it. Generally, companies prefer to adopt an intermediate solution which consists of:

1. Turning the initial implementation over to a partner to limit the risks and delays of integration. That enables them to be managed by experts and obtain a high quality configuration.
2. Taking charge of the simple needs for themselves once the software has been implemented. It is quite a lot more convenient for them to be able to modify the database tables, forms, templates and workflows internally than routinely depend on a supplier.

An internal installation will probably prove more costly than a SaaS package or hosted service. Even if you put yourself in charge of it all, you will take quite a bit of time learning how to manage the implementation unless the team already has an experience of OpenERP. This represents a significant risk.

However, an internal implementation can be particularly interesting when:

- you want to keep your data within your company,
- you think you want to modify your software,
- you want a specific package of modules,
- you would like a very fast response time,
- you want the software to be available even if your Internet connection goes down.

These factors, and access to the resources needed to handle an implementation and the subsequent maintenance, are the reasons that large and medium-large companies usually do it for themselves, at least partly.

27.2.2 Deployment Procedure

The deployment of a version of OpenERP is quite simple when your server has been configured in your production environment. The security of data will then be a key element.

When you have installed the server, you should create at least two databases:

- a test or development database, in which the users can test the system and familiarize themselves with it,
- a production database, which will be the one used by the company in daily use.

Note:

Version Numbering

OpenERP uses a version numbering model that comprises 3 numbers A.B.C (for example 4.2.2 or 5.0.0) where changes in the number A signify a major functional change, changes to number B signify an update that includes a batch of fault fixes and some new functionality, and the number C generally refers to some limited updates or fixes to the existing functionality.

The number B is special: if it is an odd number, (for example 4.3.2 or 5.1.0) it is for a development version which is not designed for a production environment. The even numbers are for stable versions.

If you have prepared a data module for OpenERP (that is a module that consists just of data, not altered functionality), you should test it in your development version and check that it does not require any more manual adjustments. If the import runs correctly, it shows that you are ready to load your data in the production database.

You can use the OpenERP database backup procedure at different stages of configuration (see *Installation and Initial Setup*). Then, if you have made a false step that you cannot recover from, you can always return to a prior state.

Since your data describes much of your company's value, take particular care both when you need to transfer it (in backups and across your network) and when you are managing the super-administrator password. Make sure that the connection between a PC client and the two servers is correctly secured. You can configure OpenERP to use the HTTPS protocol, which provides security for data transfer

Note:

HTTPS

The HTTPS protocol (Secured Hyper Text Transfer Protocol) is the standard HTTP protocol secured by using the SSL (Secure Socket Layer) or TLS (Transport Layer Security) security protocols. It allows a user to verify her identify to the site to which she wants access, using a certificate of authentication. It also guarantees the integrity and confidentiality of the data sent between the user and the server. It can, optionally, provide highly secure client authentication by using a numbered certificate.

The default HTTPS port is 443.

You could also use the PostgreSQL database directly to backup and restore data on the server, depending on access rights and the availability of passwords for the server.

27.3 User Training

Two types of training are provided by the Tiny company and its partners:

- Technical training in OpenERP: the objective of this intensive training is to enable you to develop your own modules by modifying and adapting the existing ones. It covers the creation of new objects, menus, reports and workflows, and also of interfaces with external software. It lasts for five days and is designed for IT people.
- User training: this enables you to be productive as rapidly as possible in the use of OpenERP. All of the modules there are detailed with concrete examples and different exercises. For the sake of realism, the training uses data for a fictitious company. This training also lasts for five days. It is designed for those responsible for an ERP project, who will then be capable of training employees internally.

Tiny's training calendar is available on the official OpenERP site at <http://www.openerp.com/services/training-schedule>. The training is delivered in either French or English, depending on the course.

Both Tiny, the creators of OpenERP, and the OpenERP partners can also provide customized training. This, although more expensive, is focused on your own needs.

Your training needs depend on the type of deployment you have chosen. If you have opted for a SaaS development, technical training is not very useful.

In summary, you should arrange both user training and self-paced training (perhaps based on this book series) if you can. Technical training is strongly advised if you see yourselves developing your own modules. Although it is not obligatory, it gives you quite a time advantage in any serious OpenERP engagement.

27.4 Support and Maintenance

It is when you actually use your ERP that you will obtain value from your investment. For that reason, maintenance and support are critical for your long term success.

- Support aims to ensure that end users get the maximum productivity from their use of OpenERP, by responding to their questions on the use of the system. Support can be technical or functional.
- Maintenance aims to ensure that the system itself continues to function as required. It includes system upgrades, which give you access to the latest functionality available.

Some partners offer preventative maintenance. This makes sure that all the specific developments for your system are revised and tested for each new version so that they remain compatible with the base OpenERP.

Tiny themselves have changed their support strategy from time to time. At the time of writing, they propose a maintenance contract supplied either direct to the end user or through partners that guarantees a quick fix to any faults discovered in the covered code. Although you can expect these fixes to become available to all users of the code in time, maintenance guarantees quick attention. And you are likely to get quicker migration support to new upgrades.

If you have not anticipated your needs with a preventive maintenance contract, the costs of migration after a few years can become significant. If special modules that you developed have been allowed to become too old, you may eventually need a new development according to your specifications.

27.4.1 Updates and Upgrades

There are four sources of code change for OpenERP:

- patches supplied by Tiny to correct faults: after validation these patches should not cause any secondary effects,
- minor updates, which gather the fault corrections together in one package, and are generally announced with a modification of the version number, such as from 6.0.0 to 6.0.1,
- upgrades, which bundle both the fault corrections and the improvements to the functionality in a major release, such as from 6.0.3 to 6.2.0,
- new functions, generally released in the form of new modules.

You should establish a procedure with your supplier to define how to respond to changes in the OpenERP code.

For simple updates, your maintenance team will evaluate the patches to determine if they are beneficial to the use of your OpenERP. These patches should be tested on an offline instance of OpenERP before being installed in your live production version.

The maintenance team would also take charge of regular updates to the software.

Patches and updates can only be installed if you have the necessary access to the OpenERP server. You must first install the patch or update and then restart the server using the command line: `--update=all`.

Once Tiny has released a new upgraded version, your response should be a cautious one. If you are perfectly satisfied with the existing system, it would be best to not touch the new version. If you want to have access to the new functionality supplied by an upgraded version, you have a delicate operation to carry out. Most upgrades require your data to be migrated, because the databases before and after the upgrade can be a little different.

27.4.2 Version Migration

OpenERP has a system to manage migrations semi-automatically. To update specific modules, or the whole database, you only need to start the server with the argument: `--update=NAME_OF_MODULE` or `--update=all` (that is minor module changes).

New stable versions of OpenERP sometimes require operations that are not provided in the automated migration. Tiny, the creator and maintainer of OpenERP, has a policy of supporting migration from all official stable releases to the latest. Scripts are provided for each new release of a stable version. These carry out the upgrade from the previous major version to the new major version.

Managers responsible for the migration between two versions of OpenERP will find the documentation and the necessary scripts in the directory `doc/migrate` of the OpenERP server.

The changes between version 4 and 5 made the migration process more difficult than in the past, so there was a greater delay in the provision of migration assistance and more manual work than usual.

The procedure for migrating runs like this:

1. Make a backup of the database from the old version of OpenERP.
2. Stop the server running the old version.
3. Start the script called `pre.py` for the versions you are moving between.
4. Start the new version of the server using the option `--update=all`.
5. Stop the server running the new version.
6. Start the script called `post.py` for the versions you are moving between.
7. Start the new version of the server and test it.

A migration is never an easy process. It may be possible that your system does not function as it did before, or that something requires new developments in the functionality of the modules that have already been installed. So you should only move to a new version if you have a real need, and should engage a competent partner to help if the version that you use differs greatly from the basic version of OpenERP.

Similarly, you should take care that this migration does not incorrectly change any setting that has already been made. The main menu structure might have been modified in place without proper recording of the changes. So you could find that you are making the wrong assumptions about that structure when later loading data that was recorded with the *Module Recorder*.

Part XI

Google Module

GOOGLE DOC

In general, many users have a multitude of tools and files to conduct their daily business. Besides using your ERP, many amongst us still use separate text and spreadsheet files to cover specific business needs. We now offer you to integrate text and spreadsheet files with OpenERP 7.0. This offers to the end user the possibility to take these files into account whilst using OpenERP 7.0.

Its purpose is to offer a quick fix solution for those users, where the creation of a custom module to cover that particular user need would take some more time to obtain. Take a job opening in the Recruitment Process App as an example of an OpenERP object, you can attach an interview evaluation form you maintain in Google Docs, and dynamically link it to the said job application.

Then, you can share this Google Docs file with the persons you wish. Taking this example a step further, you can link a document template, say your interview evaluation template, and link them to all your job openings. And every time you have a need to hire, you can mobilize the Google Doc-based evaluation template.

You have to install `google_doc` module from *Settings → Modules*. Don't forget to specify your personal Google Docs credentials in your User configuration menu. (*Settings → Users → Users (Synchronization tab)*)

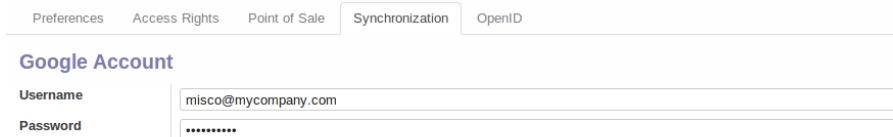


Figure 28.1: *User Configuration*

After installing this module , you will find the *Add Google doc* option in *Attachment(s)* button at the top center of forms.

SIGN IN WITH GOOGLE AND FACEBOOK

As of version 7.0, external authentication is made possible. Open Authentication (the open standard OAuth) is used to this means. Two service provider accounts can be defined in OpenERP: Facebook and Google.

- Facebook Graph is the platform that let us get information in and out of Facebook,
- the Google APIs use the OAuth 2.0 protocol for authentication and authorization.

For that you have to install *auth_oauth_signup* module. After installing you can go *Settings → Users → OAuth Providers* select Allowed field of the Facebook Graph and Google OAuth2 providers.



Provider name	Client ID	Allowed
Facebook Graph		✓
Google OAuth2		✓
OpenERP.com Accounts	fb740e94-9c53-11e2-a868-7071bc28b3f2	✓

Figure 29.1: *OAuth Provider*

We have integrated some Google applications with OpenERP, which allow users to view OpenERP data on Google. It will be available in extra-addons.

Part XII

Fleet Management

Fleet management. To manage all your vehicles, the contracts associated to those vehicle as well as services, fuel log entries, costs and many other features necessary to the management of your fleet of vehicle(s).

You can manage your vehicles, vehicle's contracts using fleet module.

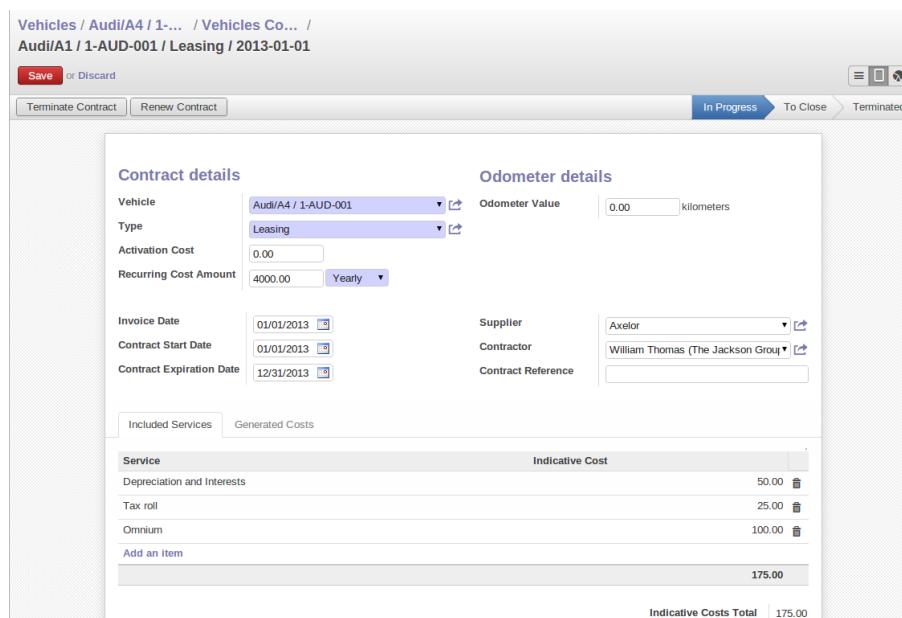
The main Features of fleet Module is you can add vehicles to your fleet, Manage contracts for vehicles, Reminder when a contract reach its expiration date, Add services, fuel log entry, odometer values for all vehicles and show all costs associated to a vehicle or to a type of service with help of Analysis graph for costs.

You can create and modify a vehicle using the menu *Fleet → Vehicle → Vehicle*, You can select the model of vehicle from *Model* and need to define the license number in *License Plate*. Contract button define list of contract related to vehicle same way the *cost* button list out the vehicle related cost. Service Button define the vehicle related service list. Fuel log shows the fuel logs for this vehicle and the odometer logs show the related odometers list. This form provide the all other importatnt details related to vehicle like seat number, door number, Car value, Last Odometer. If you provide vehicle to any employee then you can tag it as employee car in *tag* field.

Figure 29.2: *Vehicle*

CONTRACT DETAILS

You can create or modify vehicle's contract using the menu *Fleet* → *Vehicle* → *Vehicle Contract*, Contract is based on it's type. In openerp there are three type of contrcat Leasing, Omnium, Repairing for vehicle. In *Included Services* you add different type of services related to contrct and it's price.



The screenshot shows the 'Vehicle Contract' creation interface in Odoo. At the top, a breadcrumb navigation bar indicates the path: Vehicles / Audi/A4 / 1-AUD-001 / Vehicles Contracts / Audi/A4 / 1-AUD-001 / Leasing / 2013-01-01. Below the navigation is a toolbar with 'Save' and 'Discard' buttons, and status indicators for 'In Progress', 'To Close', and 'Terminated'. The main form is divided into sections:

- Contract details:** Includes fields for 'Vehicle' (Audi/A4 / 1-AUD-001), 'Type' (Leasing), 'Activation Cost' (0.00), 'Recurring Cost Amount' (4000.00, Yearly), 'Invoice Date' (01/01/2013), 'Contract Start Date' (01/01/2013), 'Contract Expiration Date' (12/31/2013), 'Supplier' (Axelor), 'Contractor' (William Thomas (The Jackson Group)), and 'Contract Reference'.
- Odometer details:** Shows 'Odometer Value' (0.00) and 'kilometers'.
- Included Services:** A table showing service types and their indicative costs:

Service	Indicative Cost
Depreciation and Interests	50.00
Tax roll	25.00
Omnium	100.00
Add an item	175.00
- Generated Costs:** A table showing generated costs:

Indicative Costs Total
175.00

Figure 30.1: *Vehicle contract*

You can terminate current contract by clicking the *Terminate Contract* button. If you want to renew the contract then renew it by clicking *Renew contract* button.

Part XIII

Social Network

The Social Networking module provides unified social network abstraction layers allowing applications to display a complete communication history on documents with a fully-integrated email and message management system. It enables the user to read and send a message as well as e-mails , it also provides a feeds page combine to a subscription mechanism that allows to follow documents and to be constantly updated about recent news.

Recent research shows that we spend 61 % of our professional time either reading and answering email, searching and gathering information or communicating and collaborating internally.

Tools that focalize on these activities and integrate them into the regular business processes enrich and enhance users' productivity. That is exactly why we brought the Business Apps and social networking together.

The Social Network App is based on the OpenChatter engine and has the following main characteristics:

- facilitates conversations with internal users or external ones (customers, suppliers,etc), joining the power of instant messaging with standard emails ,
- organise groups of discussions, an alternative to traditional mailing lists,
- extends the breadth of these conversations to incorporate discussions around and about business documents,
- incorporates a subscription system to any business event, generating notifications,
- displays all the messages and notifications in a threaded manner on the user's unified feeds page.

Start with the fresh demo database and install mail module. You will find the Messaging menu like following figure:

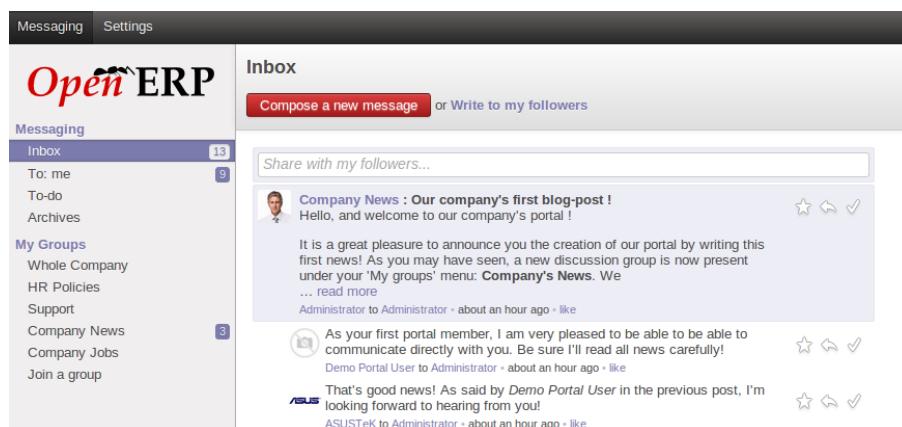


Figure 30.2: Main Messaging menu

THE CONVERSATION FEATURE

OpenChatter provides a simple communication tool to discuss amongst colleagues or external contacts, either with an individual or with a group. Two mechanisms are provided to discuss or exchange documents, a real time chat or an asynchronous messaging that provides an alternative to e-mails.

You can send messages to internal users or external contacts like customers and suppliers. The email gateway converts automatically incoming e-mails to clean messages in your wall and messages you write to an external contact to an outgoing mail.

You can see 2 options on the main page , *Compose a new message* or *Write to my followers*.

Compose a new message

This button helps for sending an e-mail ,to the customer,supplier etc.. For example admin user send an e-mail to demo user , figure of compose a new message in OpenERP seems like following,

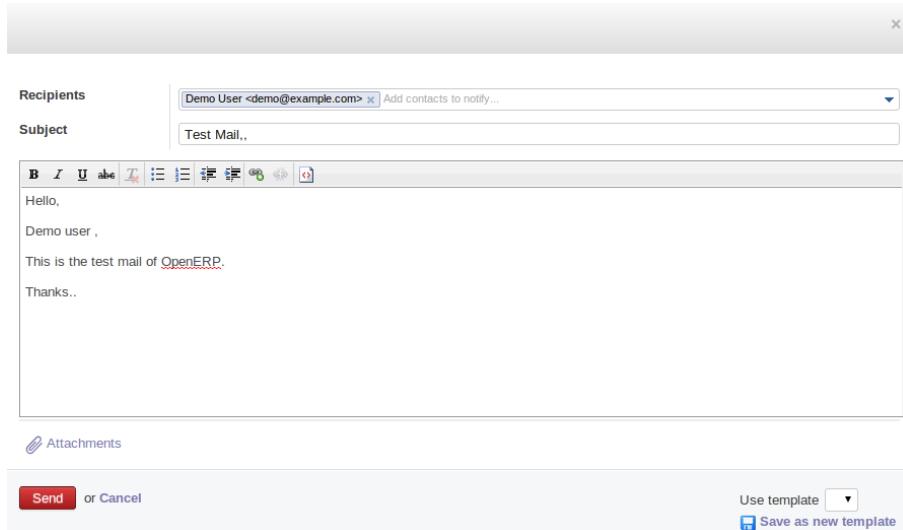


Figure 31.1: *Compose a new e-mail*

You can also attach files that you want to send.

Now after sending an e-mail to demo user , when demo user login, he can see that mail on his wall, it seems like

following figure.



Figure 31.2: Receive mail from Admin user

Write to my followers

From this option, you can send messages to internal users or external contacts like customers and suppliers. This is possible by adding followers.

For that, first you have to install `contacts` module from *Settings → Modules*. This module gives you a quick view of your address book, accessible from your home page. You can track your suppliers, customers and other contacts.

Here are the different mechanisms to become a follower in OpenERP v7:

1. The Follow button on documents. Go to *Messaging → Organiser → Contacts*, open the Demo user from, at the right side below the form, you can see the button *Following*. If you click on it, Administrator will add in to follower list of Demo User. The figure seems like following :



Figure 31.3: Following button

2. you can invite partners to become followers of a document by clicking on the *Add Others* link below the Following button. If you click on that, you will see the invitation message like following figure:

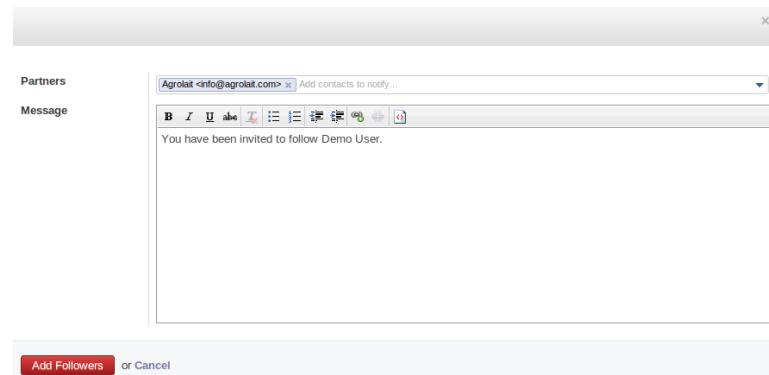


Figure 31.4: Invite to a Partner

3. the creator of a document is automatically added in the followers.

Now go to the Messaging menu , and now click on link *Write to my followers*. you will find the figure like following:



Figure 31.5: *Message sending to followers*

Now when you login as Demo user , you will find the above message in the wall of demo user. It seems like following figure:



Figure 31.6: *Demo user receive message*

You can also attache file with this message.

JOIN A GROUP

Discussions can be organised into groups. You can create groups of discussions for any purpose. You can create a group from menu *Messaging* → *My Groups* → *Join a Group* and click on *Create*.

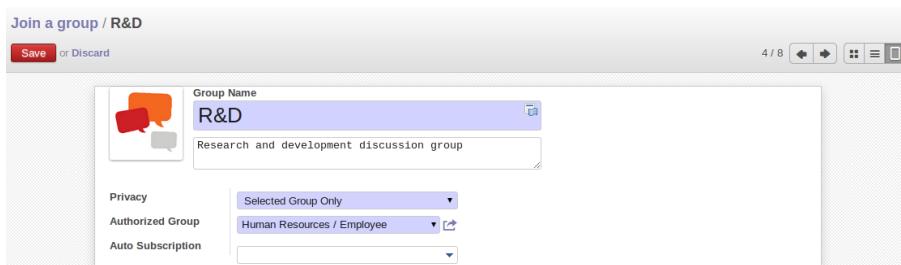


Figure 32.1: *Create a new group*

You can configure the privacy of each group as :

- *Public*: everyone can see messages related to this group, including your customers and/or suppliers through their portal, e.g Company News, Jobs , Next Events , etc.
- *Private*: only followers of this group can see the messages. In order to become a follower, you need to be invited by an existing follower , e.g Board Members, HR , Private Customer Project , etc.
- *Selected Groups Only*: allows to select groups of users (like the groups used in access rights) that can access related messages, e.g All Employees , Sales Only , Customers Only , Car Policy, for employees having a company car only , etc.

You can also create groups on which users are automatically subscribed according to their access rights. As an example, when you install OpenERP, a group called *Whole Company* is automatically created with all your employees. This allows to easily send a message to all employees.

Once group created ,users can write messages to a group, attach documents to their messages, answer previous threads, vote on others messages and search in the history of all conversations. Users can join or be invited on groups. If they do so, they will receive every discussion concerning these groups into their inbox. Depending on the privacy of the group, you can also read the archives of the group, even if you decided to not follow this group.

USE OF MESSAGING

In OpenERP this OpenChatter(*mail* module) used in following areas:

- *CRM* : For scheduling meeting with partners , information needed to partner etc.
- *Sales/Purchase* : For sending a Quotation to customer , discussion , product quantity/quality.
- *Manufacturing* : For Waiting for raw material , production started etc notification, work orders , repair orders , planning of order, Bill of materials.
- *Human Resources* : Schedule interview with an Applicant , Leave Request , Appraisal , Expense etc.
- *Project* : For Sending Documents , discussion on issues etc.
- *Warehouse* : Incoming Shipment Receive or waiting availability , Delivery Order etc.
- *Accounting* : Invoice of customer/supplier , customer/supplier Payment , Payment follow-up.
- *Other* : In Event module ,for sending registration details results etc ,In association module for members discussion.

OpenChatter is available as 2 links, below the form of all above listed module. And those 2 links are , *Send a message* or *Log a note*. Also *Following* button available at right side of the form. Functionality of these things are same as explained above.

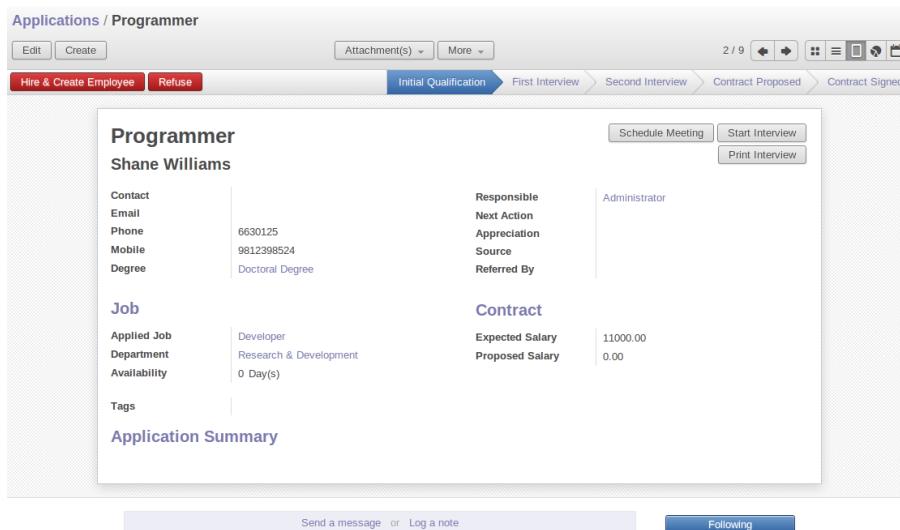


Figure 33.1: *Link and following button in application*

For Example in HR , applicant select for next round , you can inform via this chatter, also you can attach a result of test. (Menu *Human Resources* → *Recruitment* → *Applications*)

The screenshot shows the Oracle HCM Recruitment Application interface. At the top, there's a navigation bar with buttons for 'Edit' and 'Create', and dropdowns for 'Attachment(s)' and 'More'. The page title is 'Applications / Programmer' and the sub-page title is 'Initial Qualification'. Below the navigation, there's a breadcrumb trail: 'Hire & Create Employee' → 'Refuse' → 'Initial Qualification' → 'First Interview' → 'Second Interview' → 'Contract Proposed' → 'Contract Signed'. The main content area displays an applicant profile for 'Programmer' Shane Williams. The profile includes sections for 'Contact' (with fields like Email, Phone, Mobile, Degree), 'Job' (Applied Job: Developer, Department: Research & Development, Availability: 0 Day(s)), and 'Contract' (Expected Salary: 11000.00, Proposed Salary: 0.00). To the right of the profile, there are buttons for 'Schedule Meeting', 'Start Interview', and 'Print Interview'. Below the profile, there's a section titled 'Application Summary'. At the bottom of the page, there's a modal window for sending a message. The message body says: 'To: Followers of this document
Hello,
Congratulation you are selected for first interview.
We will call you shortly.
Thanks.' There are 'Send' and 'Attach a File' buttons at the bottom of the message window.

Figure 33.2: Send a message to applicant

Part XIV

Event Organization

The event module allows you to efficiently organise events and all related tasks: planification, registration tracking, attendances, etc. Preparing and managing internal and external events becomes straight-forward with this new App.

It covers the life cycle of a typical event:

- definition/description of the event,
- the planning,
- sending invitations and subscription confirmations,
- registering event attendance,
- automated verification of required min/max seat registrations.

Start with fresh demo database and install `event` module. Also give access rights of Technical features to user , from menu *Settings* → *Users* → *Users*.

CHAPTER
THIRTYFOUR

EVENT TYPE

There are many types of events in business like Seminar, Exhibition, Conference, Training etc. You can create these type of event from menu *Events → Configuration → Type of Events* and click on *Create*.



The screenshot shows a configuration interface for creating a new event type. At the top, there's a header bar with the title 'Types of Ev... / Conference'. Below it is a toolbar with a 'Save' button and a 'Discard' button. The main area contains several input fields:

- Event Type:** A dropdown menu set to 'Conference'.
- Default Minimum Registration:** An input field containing '0'.
- Default Maximum Registration:** An input field containing '5'.
- Default Reply-To:** An empty input field.
- Event Confirmation Email:** A dropdown menu set to 'Confirmation of the Event'.
- Registration Confirmation Email:** A dropdown menu set to 'Confirmation of the Registration'.

At the bottom right of the form, there are navigation icons for back, forward, and search, along with a status indicator '3 / 5'.

Figure 34.1: *Create an Event Type*

The fields of this form are :

- **Default Reply-To:** The email address of the organizer which is put in the ‘Reply-To’ of all emails sent automatically at event or registrations confirmation. You can also put your email address of your mail gateway if you use one.
- **Default Minimum registration:** It will select this default minimum value when you choose this event.
- **Default Maximum registration:** It will select this default maximum value when you choose this event.
- **Event Confirmation mail:** It will select this default confirmation event mail value when you choose this event.
- **Registration Confirmation Email:** It will select this default confirmation registration mail value when you choose this event.

CHAPTER
THIRTYFIVE

EVENT AND REGISTRATION

You can start your event creation from menu *Events* → *Events Organization* → *Events*, and click on *Create*.

The screenshot shows the 'Events / New' form. At the top, there are 'Save' and 'Discard' buttons. Below them is a toolbar with icons for 'Confirm Event', 'Cancel Event', 'Unconfirmed' (highlighted in blue), 'Confirmed', and 'Done'. The main area has tabs for 'Name', 'Location', 'Type of Event', 'Email Configuration', 'Event Description', 'Registrations', and 'Portal Settings'. Under 'Name', the event is titled 'Conference with Partners'. Under 'Location', it lists 'Agrolait' as the location, '69 rue de Namur' as the address, 'Wavre' as the city, 'State' as the state, and '1300' as the zip code. Under 'Type of Event', it is set to 'Conference' with start and end dates of '04/12/2013 09:00:00' and '04/12/2013 17:00:00'. Under 'Email Configuration', the 'Reply-To Email' field is empty. Below the tabs, there are sections for 'Registration Confirmation Email', 'Event Confirmation Email', and 'Confirmation of the Event'.

Figure 35.1: *Create an Event*

Give the name of an Event , select location when you want to create event , select event type if you want, For example you select conference event , Registration Confirmation Email and Event Confirmation Email automatically filled in *Email Configuration* tab , if it is already defined in its type of event, but you can change it as per your need.

The second tab of Event form is *Event Description*, you can define the Description of the event.

The Last tab *Portal Settings*, you can define this event either Public or Private. If you select public all user can see this event and if you select private only participations user of that event can see this.

After complete the form you can save it. It will in Unconfirmed state. After click on *Confirm Event* button, the state will be in Confirmed.

You can create its Registration by clicking button *Registration* on the right side of the form.

The screenshot shows the 'Events / Conference ... / Registrations / New' form. At the top, there are 'Save' and 'Discard' buttons. Below them is a toolbar with icons for 'Confirm', 'Cancel Registration', 'Unconfirmed' (highlighted in blue), 'Confirmed', and 'Attended'. The main area has tabs for 'Event', 'Partner', 'Name', 'Phone', 'Email', and 'Creation Date / Attended Date'. Under 'Event', the event is titled 'Conference with Partners (2013-04-12)'. Under 'Partner', it lists 'ASUSTeK' as the partner. Under 'Name', it lists 'ASUSTeK' as the name. Under 'Phone', it lists '+886 (02) 4162 2023' as the phone number. Under 'Email', it lists 'info@asustek.com' as the email address. There is a 'Send Email' button. Under 'Creation Date / Attended Date', there are fields for 'Creation Date' and 'Attended Date'.

Figure 35.2: Create a Registration

You have to enter the Partner name, Number of Participants , Phone number and email. Once you complete the form, save it. This Participate automatically comes in the third tab *Registration* of Event form.

Name	Email	Phone	Number of Participants	Status
Angel Cook	angel.cook@chamberworks.com	+1 313 222 3456	1	Unconfirmed
ASUSTeK	info@asustek.com	(+886) (02) 4162 2023	1	Unconfirmed

Figure 35.3: Registration tab

You can see the all Registration list from *Events → Event Organization → Registrations*.

Creation Date	Partner	Name	Email	Event	Number of Participants	Source Document	Status
04/12/2013 15:17:19		Administrator	admin@example.com	test exhibition (2013-04-05 - 2013-04-13)	1	Confirmed	
04/12/2013 14:19:14	Administrator	Administrator	admin@example.com	Test (2013-04-03 - 2013-04-20)	1	Attended	
04/12/2013 11:19:21		Administrator	admin@example.com	Opera of Verdi (2013-04-13 - 2013-04-14)	1	Confirmed	
04/12/2013 11:18:49	Agrolait	Agrolait	s.l@agrolait.be	Opera of Verdi (2013-04-13 - 2013-04-14)	5	Confirmed	
04/12/2013 16:23:40	Angel Cook (Chamber Works)	Angel Cook	angel.cook@chamberworks.com	Conference with Partners (2013-04-12)	1	Unconfirmed	
04/12/2013 11:18:49	ASUSTeK	ASUSTeK	info@asustek.com	Opera of Verdi (2013-04-13 - 2013-04-14)	10	Unconfirmed	
04/12/2013 16:24:25	ASUSTeK	ASUSTeK	info@asustek.com	Conference with Partners (2013-04-12)	1	Unconfirmed	
04/12/2013 11:18:49	Camptocamp	Camptocamp	openerp@camptocamp.com	Conference on ERP Business (2013-04-14)	5	Confirmed	
04/12/2013 15:08:55	Demo User	Demo User	demo@example.com	Test Event111 (2013-04-13 - 2013-04-20)	1	Confirmed	
04/12/2013 15:44:48				Opera of Verdi (2013-04-13 - 2013-04-14)	1	Unconfirmed	

Figure 35.4: Registration list

You can see the different status of Registration , when you create Registration for an event , it is in Unconfirmed state , after clicking on *Confirm* button , it will be in Confirmed state.

Once Event is start, you can click on *Attended the Event* procees button from the third tab *Registrations* of Event form, after attending an event, Registration state will go in Attended state.

Part XV

Conclusion

OpenERP has become established as the main free market-changing alternative for enterprise management systems in amongst software from giants such as SAP, Oracle and Microsoft, and from the small software developers in their own niches.

Until now, only two main alternatives existed for systems that manage a company's information: install a proprietary ERP system, complete but usually overweight, inflexible, and expensive; or develop a solution internally, adapted to current needs but often expensive to develop, not integrated, and incomplete.

With its free business model, OpenERP combines the advantages of a complete ERP system with the flexibility of an in-house solution. The open source code, the project's general flexibility, and its hundreds of modules let you construct a solution from a selection of the modules already available and you can then freely update it as your needs evolve.

The results will be at the top end of what you might expect from any ERP system, let alone an Open Source system. The considerable gains in productivity, efficiency and visibility become apparent only a few months after implementation. And you can gain from increased operational quality even if you reduce your human resourcing intensity. Because there are fewer repetitive tasks for your staff to do, they can concentrate on higher value-added work. We frequently receive the gratitude of senior management who get better results from their business because they have adopted OpenERP.

YOU ARE NOT ALONE

Many resources are at hand to accompany you on your OpenERP adventure.

36.1 Bypass the Technical Difficulties by using the SaaS Offer

For a quick low-cost start, you can make use of a month's comprehensive free trial of Tiny's OpenERP SaaS package found at <http://ondemand.openerp.com/>. Using this, you sidestep any technical difficulties and get a comprehensive set of system administration services, server hosting, configuration to your environment, maintenance, support and initial training.

A SaaS package is suited to the needs of small enterprises that do not have very specific needs, and where the initial cost and the delay of implementation are critical factors.

To meet its objectives of minimal cost, the SaaS package aims for highly automated standardized data migrations, minimal support load by training customers well, and a strict limit to the number of modules offered. So you cannot use your own modules, and are limited to the standard modules that are included in various package levels.

36.2 Consult the Available Resources

Larger companies often prefer a more classic implementation path. Even though OpenERP's simplicity makes this task easier than with other systems, you cannot hide the fact that a project implementation is complex and introduces big changes to a company.

So you can turn towards some of the different actors in this free software ecosystem to help you out:

- the community of users and developers,
- Tiny's OpenERP partner companies,
- the main project developers, Tiny, themselves.

36.2.1 The Community of Users and Developers

The community, supported by Tiny, hosts a set of communication tools which can help you in your OpenERP investigation.

- **The forum** <http://openerp.com/forum>

The forum enables you to discuss issues with other OpenERP users. It is very active and you have a good chance of receiving some form of response to your questions within twenty-four hours or so.

- **Launchpad** <https://code.launchpad.net/~openerp/>

The most recent communication tool is the launchpad system, which now hosts all of OpenERP's source code (using the *bzr* source code control system) and is used for reporting faults. It is become the central location for OpenERP technology.

36.2.2 OpenERP Partners

If you need contract-backed guarantees for implementing and maintaining OpenERP, you can contact an official OpenERP partner. OpenERP partners offer various services such as user training, prototype installations, and change management services. The complete list of partners by country and by type can be found on the official OpenERP site: <http://openerp.com/partners>

36.2.3 The Main Developer, Tiny

Finally you can call the main project developers, Tiny, who can help you in your OpenERP project. Tiny offers various services, such as free demonstration days for the software, user training and technical training, support contracts, maintenance contracts and developments as required. Depending on the demand, they can also put you in contact with partners most aligned to your requirements.

- **The mailing list** To keep up to date with all OpenERP's news you can subscribe to the mailing list using <http://tiny.be/mailman/listinfo/tinypartners-announce>.

To conclude, do not forget that OpenERP has more than two hundred modules available and that many of them have not been covered in this book. So if you have not found a solution to your problems here, look amongst those modules, talk to other OpenERP users on the forum, and do not hesitate to contact a partner.

Wishing you the greatest of success in your ERP project,

— Geoff Gardiner and Fabien Pinckaers.

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