



Community Experience Distilled

# Plone 3.3 Site Administration

Manage your site like a Plone professional

*Foreword by Tarek Ziadé, Python core developer and Distribute maintainer*

**Alex Clark**

**[PACKT]** open source\*  
PUBLISHING community experience distilled

# Plone 3.3 Site Administration

Manage your site like a Plone professional

**Alex Clark**



BIRMINGHAM - MUMBAI

## Plone 3.3 Site Administration

Copyright © 2010 Packt Publishing

All rights reserved. No part of this book may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, without the prior written permission of the publisher, except in the case of brief quotations embedded in critical articles or reviews.

Every effort has been made in the preparation of this book to ensure the accuracy of the information presented. However, the information contained in this book is sold without warranty, either express or implied. Neither the author, nor Packt Publishing, and its dealers and distributors will be held liable for any damages caused or alleged to be caused directly or indirectly by this book.

Packt Publishing has endeavored to provide trademark information about all of the companies and products mentioned in this book by the appropriate use of capitals. However, Packt Publishing cannot guarantee the accuracy of this information.

First published: July 2010

Production Reference: 1170710

Published by Packt Publishing Ltd.  
32 Lincoln Road  
Olton  
Birmingham, B27 6PA, UK.

ISBN 978-1-847197-04-7

[www.packtpub.com](http://www.packtpub.com)

Cover Image by Ed Maclean ([edmaclean@gmail.com](mailto:edmaclean@gmail.com))

# Credits

**Author**

Alex Clark

**Editorial Team Leader**

Mithun Sehgal

**Reviewer**

Steve McMahon

**Project Team Leader**

Priya Mukherji

**Acquisition Editor**

Rashmi Phadnis

**Project Coordinator**

Zainab Bagasrawala

**Development Editor**

Darshana Shinde

**Proofreader**

Lynda Sliwoski

**Technical Editor**

Krutika V. Katelia

**Graphics**

Geetanjali Sawant

**Indexer**

Monica Ajmera Mehta

**Production Coordinator**

Melwyn D'sa

**Cover Work**

Melwyn D'sa

# Foreword

Back in the old days, Zope was a big monolithic Python package that contained the entire web framework. Creating and customizing a **Plone site** was accomplished by adding "Products" (special Python packages that only Zope 2 understands) to a special directory. When Zope 2 launched, it would scan this directory and look for special initialization functions to activate each Product. This plugin-based approach was nice in some ways, but not nice in others.

For example, how can you efficiently manage your web applications when installing means you need to manually unzip hundreds of Products on to your filesystem, and make sure all the Product dependencies were satisfied? This was a nightmare!

I remember some Zope sprints back in 2002 where we had to set up specific Zope environments to work. We had to go through every Product's README to list all its dependencies, and make sure we had all of them, whether they were other Products or Python packages. That usually took us half a day before we could start coding.

Nowadays, setting up any kind of Plone-based application can be performed automatically in a few minutes, thanks to **zc.buildout**! This tool reads a configuration file, sets up your environment by downloading Python packages from the Python Package Index, and performs any additional steps as needed.

But **zc.buildout**, and all its underlying technology, like **Distribute** or **Distutils**, takes a long time to understand and master. It's not the silver bullet either – there are traps all along the road. Plus, it may compete with your server's own packaging system, which sometimes can be an issue.

But the pain is worthwhile! Learning all these tools that became a standard in the Plone community will give you all the power you need to set up and manage industrial-level Plone sites.

And what's great is that the Zope and Plone communities have now adopted the Python **Distutils** standard as a basis for their building blocks, making it easier to share code between the two worlds.

That is what this book is all about!

Alex, who is a brilliant Plone site administrator and developer, will guide you through the whole process, from setting up your Python environment, to installing, upgrading, and managing your Plone applications with ease, and avoiding pitfalls along the way.

Enjoy! (And keep it under your pillow.)

**Tarek Ziadé, Turcey, France, May 2010**  
**Python core developer and Distribute maintainer**  
**<http://ziade.org>**

# About the Author

**Alex Clark** is a Plone consultant from Bethesda, MD, USA. He currently operates a busy open source consulting firm, along with his wife and business partner, Amy Clark. He also operates a non-profit organization that supports the local Python developer community by organizing monthly meetings, trainings, sprints, conferences, and more. For more information, please see <http://aclark.net> and <http://zpugdc.org> respectively.

Alex is a co-author of "*Practical Plone 3*", *Packt Publishing* (<https://www.packtpub.com/practical-plone-3-beginners-guide-to-building-powerful-websites/book>) and this book marks his first sole authorship. He hopes it will empower individuals, organizations and the world to use and contribute to Plone!

---

I would like to thank the following people for their assistance in writing this book: Amy Clark, Chris McDonough, Chris Shenton, Darshana Shinde, David Glick, Erik Rose, Fernando Correa Neto, Gilles Lenfant, Hanno Schichting, Krutika Katelia, Martin Aspeli, Matt Bowen, Matthew Wilkes, Michael Dunlap, Rashmi Phadnis, Reed O'Brien, Ricardo Newbery, Steve McMahon, Tarek Ziadé, Veda Williams, Wichert Akkerman, Zainab Bagasrawala, and you, if I forgot to thank you!

Also, I would be remiss if I did not thank the giants whose shoulders I am fortunate enough to stand on every day: Guido Van Rossum for Python, Jim Fulton for Zope, and Alexander Limi and Alan Runyan for Plone. Thank you!

---

# About the Reviewer

**Steve McMahon** is a partner in Reid-McMahon, LLC, a Davis, California, web development company specializing in deploying Plone for non-profit and governmental organizations. He is chief maintainer for Plone's "Unified" and OS X installers and release manager for the popular PloneFormGen add-on. Steve is serving his third term on the Plone Foundation Board of Directors and his second as board secretary. He also does extensive volunteer work for the Davis Community Network, where he helps build local community with Internet resources.

Steve was one of the many authors of "*Practical Plone 3*", *Packt Publishing* (<https://www.packtpub.com/practical-plone-3-beginners-guide-to-building-powerful-websites/book>) and has been a technical reviewer for several Plone books.





*For my other half, Amy Elyse.*



# Table of Contents

<b>Preface</b>	<b>1</b>
<b>Chapter 1: Background</b>	<b>7</b>
<b>Site administration essentials</b>	<b>8</b>
Development	9
Deployment	9
Maintenance	10
<b>What you need to get started</b>	<b>11</b>
Modern computer	11
Supported operating system	11
Internet connection	12
Terminal window	12
Text editor	12
<b>About Plone installers</b>	<b>13</b>
<b>About Python software distributions</b>	<b>13</b>
Using Python on Mac OS X	14
Verify that Python works	14
Installing Python on Windows	14
Download the Python installer	15
Run the Python installer	15
Configure the Environment Variable—Path	16
Verify that Python works	17
Install PyWin	17
Using Python on Ubuntu Linux	18
Verify that Python works	18
<b>How to install Distribute—a framework for managing Python packages</b>	<b>19</b>
Installing Distribute on Mac OS X	20
Download distribute_setup.py	21
Execute distribute_setup.py	21
Verify that Distribute works	21
Installing Distribute on Windows 7	22

Download distribute_setup.py	22
Execute distribute_setup.py	22
Verify that Distribute works	22
<b>Installing Distribute on Ubuntu Linux</b>	<b>23</b>
Download distribute_setup.py	23
Execute distribute_setup.py	23
Verify that Distribute works	24
<b>How to install PIP: a more user friendly Python package installer</b>	<b>24</b>
Installing PIP on Mac OS X	25
Installing PIP on Windows 7	25
Installing PIP on Ubuntu Linux	26
<b>How to install Buildout—a tool for building software</b>	<b>27</b>
Installing Buildout on Mac OS X	27
Installing Buildout on Windows 7	28
Installing Buildout on Ubuntu Linux	29
<b>More about Python software distributions</b>	<b>30</b>
<b>How to install a C compiler</b>	<b>31</b>
Installing a C compiler on Mac OS X	31
Installing XCode	31
Verify that GCC works	31
Installing a C compiler on Windows	32
Downloading MinGW	32
Installing MinGW	32
Adding MinGW to the Environment Variable—Path	33
Verify that GCC works	34
Configuring Distutils	34
Installing a C compiler on Ubuntu Linux	34
Verify that GCC works	35
Installing additional development libraries	35
<b>How to install Subversion—a version control system</b>	<b>36</b>
Using Subversion on Mac OS X	36
Verify that Subversion works	36
Installing Subversion on Windows	37
Downloading Subversion	37
Installing Subversion	37
Verify that Subversion works	38
Installing Subversion on Ubuntu Linux	38
Verify that Subversion works	38
<b>How to install Python with Buildout</b>	<b>39</b>
Running the first buildout	39
Running the second buildout	40
Verify that Python works	41
<b>Summary</b>	<b>42</b>

---

<b>Chapter 2: Site Basics</b>	<b>43</b>
<b>More about Buildout</b>	<b>43</b>
Configuration file format	44
About the Python buildout	44
The buildout section	44
Adding parts	44
Global versus local Buildout command	45
Introducing the Plone buildout	46
Using the extends parameter to specify versions	46
Using plone.recipe.zope2install to install Zope 2	48
Using plone.recipe.zope2instance to create a Zope 2 instance	48
The PIL problem	49
Bootstrapping and running the buildout	51
Adding a Plone site	53
Starting Plone and adding a Plone site manually	53
Changing the top-level Zope user's password	55
Adding a Plone site with Buildout	56
<b>Customizing site navigation</b>	<b>59</b>
Plone 3 navigation portlet extended	59
Installing collective.portlet.explore	64
Installing webcouturier.dropdownmenu	66
<b>Adding new content types</b>	<b>68</b>
Adding a blog entry type	68
Configure the blog_view	71
Configure the RSS feed	73
<b>Summary</b>	<b>75</b>
<b>Chapter 3: Appearance</b>	<b>77</b>
<b>Installing themes with Buildout</b>	<b>77</b>
Searching for themes on plone.org	78
Adding themes with Buildout	78
Installing themes in Plone	79
<b>Examining themes with Omelette and Python</b>	<b>81</b>
Installing and using Omelette	82
Exploring modules with zopepy	84
<b>Overview of theme package files</b>	<b>87</b>
<b>Creating a theme package with ZopeSkel</b>	<b>90</b>
Adding ZopeSkel to a buildout	90
Running ZopeSkel	92
Running Paster	94
<b>Examining themes in the Zope Management Interface</b>	<b>100</b>
<b>Making changes through the Web</b>	<b>102</b>

portal_skins	102
portal_view_customizations	104
<b>Summary</b>	<b>107</b>
<b>Chapter 4: Administration</b>	<b>109</b>
<b>Configuring mail settings in a development environment</b>	<b>110</b>
Setting up the mail host	110
Avoiding the mail host	111
Faking the mail host	112
<b>User and group management: Out of the box</b>	<b>114</b>
The Zope 2 administrator account	114
The Plone administrator account	116
Resetting the password	117
<b>Users and groups management with LDAP</b>	<b>117</b>
Adding plone.app ldap to the Buildout	118
Adding plone.app ldap to Plone	120
Configuring plone.app ldap	121
LDAP Terminology	121
Entering the form data	122
Restarting Plone	125
Using LDAP in Plone	125
Creating and using LDAP groups	126
<b>Summary</b>	<b>128</b>
<b>Chapter 5: Deployment and Maintenance</b>	<b>129</b>
<b>Creating a production buildout</b>	<b>130</b>
<b>Backing up your database</b>	<b>133</b>
The repozo utility	133
Making repozo easier with collective.recipe.backup	134
A simple backup strategy	136
<b>Automating database backups</b>	<b>136</b>
Using z3c.recipe.usercrontab on Mac OS X and Ubuntu Linux	136
Using Task Scheduler on Windows	138
<b>Restoring your database from a backup</b>	<b>140</b>
<b>Packing your database</b>	<b>141</b>
<b>Automate database packing</b>	<b>142</b>
<b>Rotating logs</b>	<b>142</b>
Using iw.rotatezlogs on Mac OS X, Ubuntu Linux, and Windows	142
<b>Summary</b>	<b>145</b>

<b>Chapter 6: Optimization</b>	<b>147</b>
Caching background in the context of Plone	149
Installing CacheFu—a caching add-on for Plone	149
Installing Varnish—a caching agent	153
Installing Squid—a caching agent	156
Creating multiple instances with Buildout macros	158
Load balancing in the context of Plone	160
Installing HAProxy—a load balancer	160
The HAProxy binary	160
The HAProxy configuration file	161
Installing Pound—a load balancer	163
The Pound binary	163
The Pound configuration file	164
Installing Supervisor—a process manager	164
Understanding the software stack	167
Frontend Apache configuration	168
Frontend Nginx configuration	168
Installing Munin plugins to analyze performance	168
Installing the munin.zope package	169
Testing the munin.zope plugins through the Web	170
Installing the munin.zope plugins on the command line	171
Testing the munin.zope plugins on the command line	172
Munin graphs	173
ZODB activity	173
Zope cache parameters	173
Zope memory usage	174
Zope 2 server threads	174
Summary	175
<b>Chapter 7: Security</b>	<b>177</b>
Restricting TCP/IP access to localhost or LAN host	178
Managing IP addresses and ports effectively	179
Configuring the Zope 2 effective user dynamically	180
Installing Cassandra to audit through the web (TTW) security	181
Permissions and roles in the ZMI	182
Roles and groups	183
Cassandra	183
Applying security and bug fixes to Plone	186
Using a newer Zope 2 with an older release of Plone	187
Hold on to your buildouts	187
A "modern" Plone 2.1 buildout	188
Summary	189



*Table of Contents*

---

<b>Chapter 8: The Future</b>	<b>191</b>
<b>Specifying package versions</b>	<b>191</b>
<b>Executing Buildout in offline mode</b>	<b>195</b>
<b>Analyzing the contents of our buildout</b>	<b>197</b>
<b>Staying calm when trouble arises</b>	<b>207</b>
<b>Upgrading to Plone 4</b>	<b>207</b>
<b>Summary</b>	<b>212</b>
<b>Index</b>	<b>213</b>

---

# Preface

Plone is a powerful web application used mainly for website content management and comprised of many different, but related Python packages. But it wasn't always this way.

Over the years, Plone has grown from just a few packages built on top of the powerful Zope 2 application server, while Zope 2 itself has grown from a single, monolithic package to a collection of smaller, and often reusable Python packages.

All of this hardly matters to Plone's end users, but unfortunately it has been difficult to hide such details from them. Some day that goal may be achieved, but in the meantime there is this book, which aims to clear up some of the confusion.

That confusion mostly surrounds the use of a tool called Buildout, which is used to assemble the various Python packages. Buildout is a fantastic tool for developers, but not such a good choice for end users.

That said, if you are interested in learning about Buildout and how to use it to build Plone sites, then this book is for you.

## What this book covers

Chapter 1, *Background* introduces you to Python, the version that may already be on your computer, or the version you may choose to install if it is not. After Python installation, installation of various tools such as Distribute, PIP, and Buildout is covered. Finally, an installation of Python using Buildout is covered.

Chapter 2, *Site Basics* covers a variety of Plone site basics including the creation of the Plone site object itself (inside the Zope database), followed by some simple customizations of some of Plone's navigational elements and content types.

Chapter 3, *Appearance* covers the first thing everyone wants to do after installing Plone—change the appearance. In addition, various aspects of through the web versus filesystem theming are covered.

Chapter 4, *Administration* describes various mail settings used in development, plus users and groups management with out of the box features versus LDAP add-ons.

Chapter 5, *Deployment and Maintenance* starts off with the creation of a production buildout, in which various database and log-related tasks are incorporated and automated throughout.

Chapter 6, *Optimization* optimizes site deployments with various techniques to add caching agents, load balancers, process monitors, and performance analyzers.

Chapter 7, *Security* secures site deployments with various techniques to manage hosts, ports, users, permissions, and security fixes.

Chapter 8, *The Future* looks to the future with various techniques to ensure we can manage our buildouts successfully now, as well as one year from now.

## What you need for this book

This book aims to take you through Plone site administration shortly after operating system installation. Some operating systems ship with Python, some don't. In either case, you will be escorted through Python installation and its basic use. This is followed by the rest of the story, which simply builds on top of Python. In other words, you will just need a modern computer and an operating system.

## Who this book is for

This book is for folks who want to become more familiar with how to professionally manage their Plone sites, with techniques used by Python, Zope, and Plone professionals. That means everyone from content editors, to system administrators, to end users of Plone may be interested in the subject matter.

Ideally the reader will have some experience with Python and Plone already, but it is not strictly required.

Some basic computer skills are required, such as the ability to use a terminal window, text editor, and web browser.

## Conventions

In this book, you will find a number of styles of text that distinguish between different kinds of information. Here are some examples of these styles, and an explanation of their meaning.

Code words in text are shown as follows: "If so, just create the directory and then re-run the `buildout` command."

A block of code is set as follows:

```
[buildout]
extends = buildout.cfg
parts += plonesite
[plonesite]
recipe = collective.recipe.plonesite
```

Next, we specify that we want the checkout to occur in the `src` directory (instead of the `parts` directory, which is the default) by setting the `location` parameter:

```
location = src
```

When we wish to draw your attention to a particular part of a code block, the relevant lines or items are set in bold:

```
[buildout]
extends = http://dist.plone.org/release/3.3.5/versions.cfg
versions = versions
parts =
    zope2
    instance
find-links =
    http://dist.plone.org/thirdparty/PILwoTk-1.1.6.4.tar.gz
```


Any command-line input or output is written as follows:


```
$ buildout -c 01-background-python.cfg
```

Some of the code lines were too long to fit on one line. In that case, you may see a back slash (`\`) like this to indicate that the next line is really a part of the current line of the code, for example:

```
urls=http://dist.plone.org/thirdparty/\
PILwoTk-1.1.6.4.tar.gz
```

**New terms** and **important words** are shown in bold. Words that you see on the screen, in menus or dialog boxes for example, appear in the text like this: "Select the checkbox next to the **Plone site** object, and click on **Delete**."

[  Warnings or important notes appear in a box like this. ]

[  Tips and tricks appear like this. ]

## Reader feedback

Feedback from our readers is always welcome. Let us know what you think about this book – what you liked or may have disliked. Reader feedback is important for us to develop titles that you really get the most out of.


To send us general feedback, simply send an e-mail to [feedback@packtpub.com](mailto:feedback@packtpub.com), and mention the book title via the subject of your message.

If there is a book that you need and would like to see us publish, please send us a note in the **SUGGEST A TITLE** form on [www.packtpub.com](http://www.packtpub.com) or e-mail [suggest@packtpub.com](mailto:suggest@packtpub.com).

If there is a topic that you have expertise in and you are interested in either writing or contributing to a book on, see our author guide on [www.packtpub.com/authors](http://www.packtpub.com/authors).

## Customer support

Now that you are the proud owner of a Packt book, we have a number of things to help you to get the most from your purchase.

[  **Downloading the example code for this book**  
You can download the example code files for all Packt books you have purchased from your account at <http://www.PacktPub.com>. If you purchased this book elsewhere, you can visit <http://www.PacktPub.com/support> and register to have the files e-mailed directly to you. ]

## Errata

Although we have taken every care to ensure the accuracy of our content, mistakes do happen. If you find a mistake in one of our books – maybe a mistake in the text or the code – we would be grateful if you would report this to us. By doing so, you can save other readers from frustration and help us improve subsequent versions of this book. If you find any errata, please report them by visiting <http://www.packtpub.com/support>, selecting your book, clicking on the **let us know** link, and entering the details of your errata. Once your errata are verified, your submission will be accepted and the errata will be uploaded on our website, or added to any list of existing errata, under the Errata section of that title. Any existing errata can be viewed by selecting your title from <http://www.packtpub.com/support>.

## Piracy

Piracy of copyrighted material on the Internet is an ongoing problem across all media. At Packt, we take the protection of our copyright and licenses very seriously. If you come across any illegal copies of our works, in any form, on the Internet, please provide us with the location address or website name immediately so that we can pursue a remedy.

Please contact us at [copyright@packtpub.com](mailto:copyright@packtpub.com) with a link to the suspected pirated material.

We appreciate your help in protecting our authors, and our ability to bring you valuable content.

## Questions

You can contact us at [questions@packtpub.com](mailto:questions@packtpub.com) if you are having a problem with any aspect of the book, and we will do our best to address it.



# 1

## Background

In the past few years, the Plone community has experienced some dramatic changes in the way Plone sites are being developed, deployed, and maintained:

- Once upon a time, add-ons to Zope 2 were distributed as specialized Python packages (called **Products**); nowadays they are distributed as generic Python packages (called **Eggs**)
- Originally, the Zope 2 application server was distributed as a single monolithic package; nowadays many parts of Zope 2 have been factored out into smaller packages, which comprise a portion of a larger set of reusable Zope packages (called the **Zope Toolkit**)

To make things more challenging, the Zope community has recently renamed various projects and has redefined the Zope ecosystem in the process:

- The web framework formerly known as Zope 3 is now called **Bluebream** (<http://bluebream.zope.org/>)
- The set of libraries formerly known as Zope 3 is now called the **Zope Toolkit** (<http://docs.zope.org/zopetoolkit/>)

While this influx of new technology alongside the old has presented a challenge for many, it represents a fundamental step in the forward direction for Plone:

- With the adoption of Eggs, Plone joins the rest of the Python community in sharing a common packaging framework with a rich set of features, including the ability to specify version dependencies
- With the adoption of the Zope Toolkit, Plone joins the rest of the Zope community in using the Zope Component Architecture to manage application complexity



Unfortunately, there is a price to pay for all of this progress – confusion. Many people are confused about the best way to develop, deploy, and maintain their Plone site. This is very much expected with a complex system like Plone, but is not ideal.



Although not quite there yet, Plone is moving rapidly towards a better development, deployment, and maintenance story. Every day the situation improves, and there has never been a better time to start using Plone! The author truly believes in the Plone software and community, and hopes this book will inspire others to feel the same.

By presenting clear instructions and using best practices and techniques from the Python and Zope communities, this book aims to eliminate any remaining confusion.

In this chapter, you will learn:

- Site administration essentials
- What you need to get started
- About the Plone installers
- About Python software distributions
- How to install **Distribute** – a framework for managing Python packages
- How to install **PIP** – a more user friendly Python package installer
- How to install **Buildout** – a tool for building software
- More about Python software distributions
- How to install a C compiler
- How to install **Subversion** – a version control system
- How to install Python with Buildout

## Site administration essentials

Before we begin, let's put into perspective the effort we are about to undertake. Everything you learn in this book is intended to make you a better Plone site administrator.

In order to disseminate the subject matter, we will divide the site administrator's tasks into three categories:

- Development
- Deployment
- Maintenance