



# Best Practice Guide

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## Best Practice Guide: Open Build Service

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# About this Guide

This guide is part of the Open Build Service documentation. These books are considered to contain only reviewed content, establishing the reference documentation of OBS.

This guide does not focus on a specific OBS version. It is also not a replacement of the documentation inside of the [openSUSE Wiki \(https://en.opensuse.org/Portal:Build\\_Service\)](https://en.opensuse.org/Portal:Build_Service) . However, content from the wiki may be included in these books in a consolidated form.

## 1 Available Documentation

The following documentation is available for OBS:

### ***Book “Administrator Guide”***

This guide offers information about the initial setup and maintenance for running Open Build Service instances.

### ***Article “Beginner’s Guide”***

This guide describes basic workflows for working with packages on Open Build Service. This includes checking out a package from an upstream project, creating patches, branching a repository, and more.

### ***Best Practice Guide***

This guide offers step-by-step instructions for the most common features of the Open Build Service and the openSUSE Build Service.

### ***Book “Reference Guide”***

This guide covers ideas and motivations, concepts and processes of the Open Build Service and also covers administration topics.

### ***Book “User Guide”***

This guide is intended for users and developers who want to dig deeper into Open Build Service. It contains information on backgrounds, setting up your computer for working with OBS, and usage scenarios.

## 2 Feedback

Several feedback channels are available:

### Bugs and Enhancement Requests

Help for openSUSE is provided by the community. Refer to <https://en.opensuse.org/Portal:Support> for more information.

### Bug Reports

To report bugs for Open Build Service, go to <https://bugzilla.opensuse.org/>, log in, and click *New*.

### Mail

For feedback on the documentation of this product, you can also send a mail to [doc-team@suse.com](mailto:doc-team@suse.com). Make sure to include the document title, the product version and the publication date of the documentation. To report errors or suggest enhancements, provide a concise description of the problem and refer to the respective section number and page (or URL).

## 3 Documentation Conventions

The following notices and typographical conventions are used in this documentation:

- /etc/passwd: directory names and file names
- PLACEHOLDER: replace PLACEHOLDER with the actual value
- PATH: the environment variable PATH
- ls, --help: commands, options, and parameters
- user: users or groups
- package name: name of a package
- Alt, Alt-F1: a key to press or a key combination; keys are shown in uppercase as on a keyboard
- *File*, *File > Save As*: menu items, buttons
- *Dancing Penguins* (Chapter *Penguins*, ↑Another Manual): This is a reference to a chapter in another manual.

- Commands that must be run with `root` privileges. Often you can also prefix these commands with the `sudo` command to run them as non-privileged user.

```
root # command  
geeko > sudo command
```

- Commands that can be run by non-privileged users.

```
geeko > command
```

- Notices



## Warning: Warning Notice

Vital information you must be aware of before proceeding. Warns you about security issues, potential loss of data, damage to hardware, or physical hazards.



## Important: Important Notice

Important information you should be aware of before proceeding.



## Note: Note Notice

Additional information, for example about differences in software versions.



## Tip: Tip Notice

Helpful information, like a guideline or a piece of practical advice.

## 4 Contributing to the Documentation

The OBS documentation is written by the community. And you can help too!

Especially as an advanced user or an administrator of OBS, there will be many topics where you can pitch in even if your English is not the most polished. Conversely, if you are not very experienced with OBS but your English is good: We rely on community editors to improve the language.




This guide is written in DocBook XML which can be converted to HTML or PDF documentation. To clone the source of this guide, use Git:

```
git clone https://github.com/openSUSE/obs-docu.git
```


To learn how to validate and generate the OBS documentation, see the file [README](#).

To submit changes, use GitHub pull requests:


1. Fork your own copy of the repository.
2. Commit your changes into the forked repository.
3. Create a pull request. This can be done at <https://github.com/openSUSE/obs-docu> .

It is even possible to host instance-specific content in the official Git repository, but it needs to be tagged correctly. For example, parts of this documentation are tagged as `<para os="open-suse">`. In this case, the paragraph will only become visible when creating the openSUSE version of a guide.

# 1 Using the OBS Web UI

This chapter explains and shows how you could use OBS Web UI. We will show and use OBS Web UI based on <http://build.opensuse.org> . You need to make an account first to follow this chapter contents.

## 1.1 Homepage and Login

Open a browser and navigate to <https://build.opensuse.org> 



## Welcome to openSUSE Build Service

The openSUSE Build Service is the public instance of the [Open Build Service \(OBS\)](#) used for development of the openSUSE distribution and to offer packages from same source for Fedora, Debian, Ubuntu, SUSE Linux Enterprise and other distributions..

Please find further details of this service on our [wiki pages](#)

This instance offers a special [package search interface](#). Users of any distribution can search their for built packages for their distribution. For developers it is an efficient place to build up groups and work together through its project model.

[All Projects](#)[Search](#)[Status Monitor](#)

### System Status



The above graphs show the number of active build jobs last week, currently 454 of 782 build hosts are busy building packages. At the moment 3298 packages are waiting on the different architectures.

FIGURE 1.1: [START PAGE](#)

openSUSE Build Service hosts **43,522** projects, with **359,621** packages, in **66,352** repositories and is used by **44,166** confirmed developers.

To proceed, you'll need to log in and authenticate with your username and your password. Click on Login and enter the data in the upper right corner.



## Welcome to openSUSE Build Service

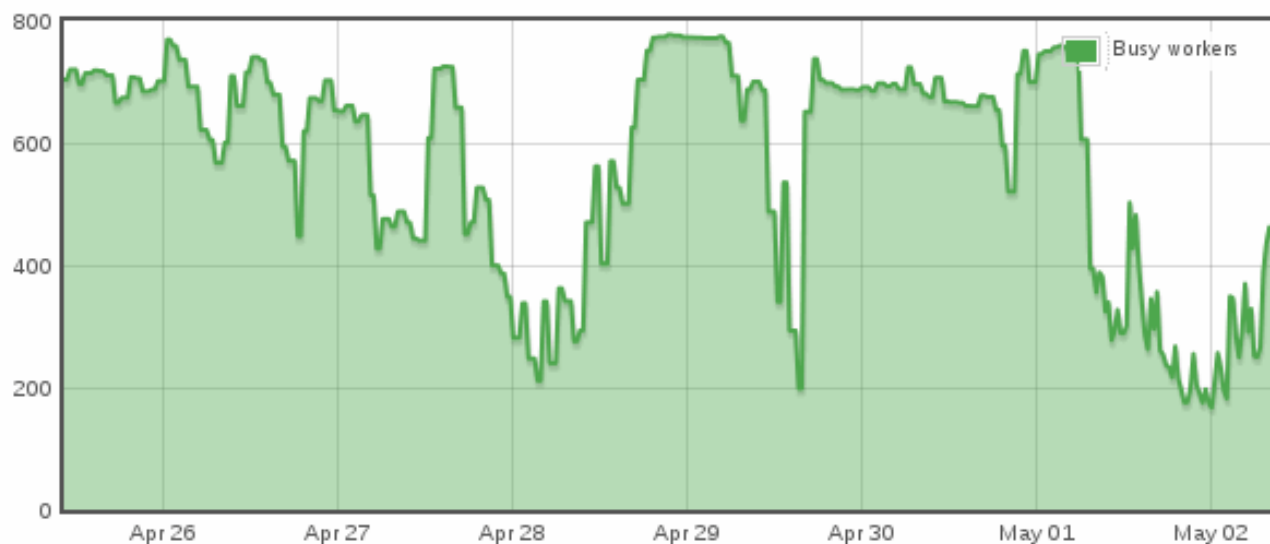
The openSUSE Build Service is the public instance of the [Open Build Service \(OBS\)](#) used for development of the openSUSE distribution and to offer packages from same source for Fedora, Debian, Ubuntu, SUSE Linux Enterprise and other distributions..

Please find further details of this service on our [wiki pages](#)

This instance offers a special [package search interface](#). Users of any distribution can search their for built packages for their distribution. For developers it is an efficient place to build up groups and work together through its project model.

[All Projects](#)[Search](#)[Status Monitor](#)

### System Status



The above graphs show the number of active build jobs last week, currently 454 of 782 build hosts are busy building packages. At the moment 3298 packages are waiting on the different architectures.

FIGURE 1.2: LOGIN

openSUSE Build Service hosts **43,522** projects, with **359,621** packages, in **66,352** repositories and is used by **44,166** confirmed developers.

After successful authentication, you'll end up on the start page again - with new options visible. We'll go through most of them in detail, but first lets create your home: in the next step.



## Welcome to openSUSE Build Service

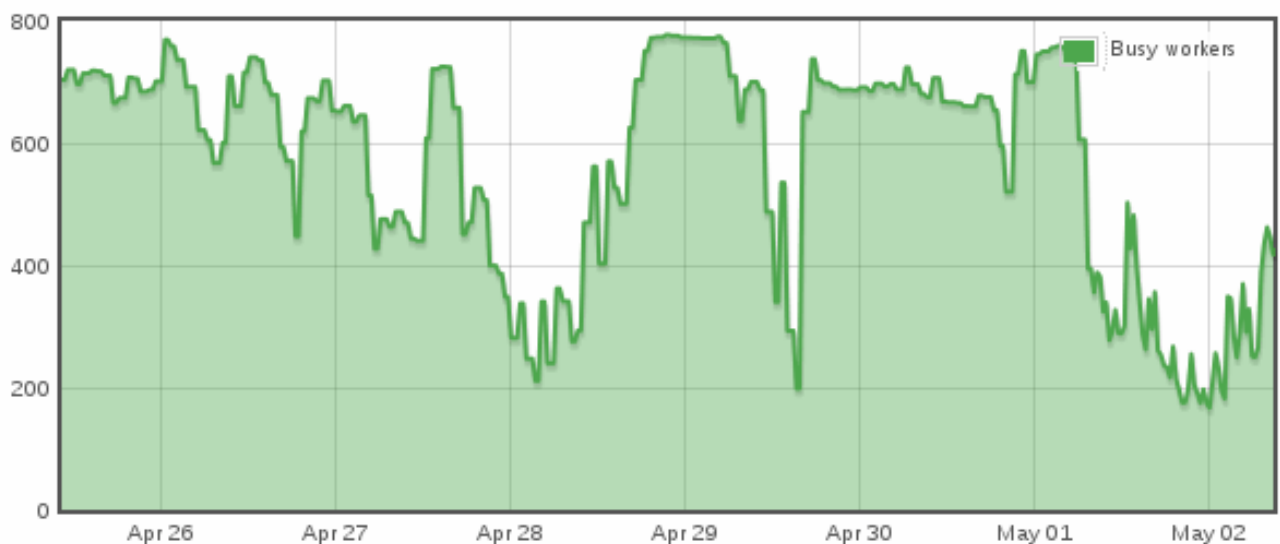
The openSUSE Build Service is the public instance of the [Open Build Service \(OBS\)](#) used for development of the openSUSE distribution and to offer packages from same source for Fedora, Debian, Ubuntu, SUSE Linux Enterprise and other distributions..

Please find further details of this service on our [wiki pages](#)

This instance offers a special [package search interface](#). Users of any distribution can search their for built packages for their distribution. For developers it is an efficient place to build up groups and work together through its project model.

[Your Home](#)[All Projects](#)[Search](#)[New Project](#)[Status Monitor](#)

### System Status



The above graphs show the number of active build jobs last week, currently 454 of 782 build hosts are busy building packages. At the moment 3298 packages are waiting on the different architectures.

FIGURE 1.3: **LOGGED IN**

openSUSE Build Service hosts **43,523** projects, with **359,627** packages, in **66,363** repositories and is used by **44,166** confirmed developers.

## 1.2 Home Project

Every user has a home project (home:[userid]) where they have write access by default. This is a personal workspace where you can experiment and play. Click on the link "Home Project" at the upper right to get to your home project.

### 1.2.1 The Project Page

Your home project will be empty for now, but you can add packages containing sources/build recipes and projects which are containers for the build targets. As you can see, you're the default maintainer which grants you full write access to this project. You're also the bug owner of your project.



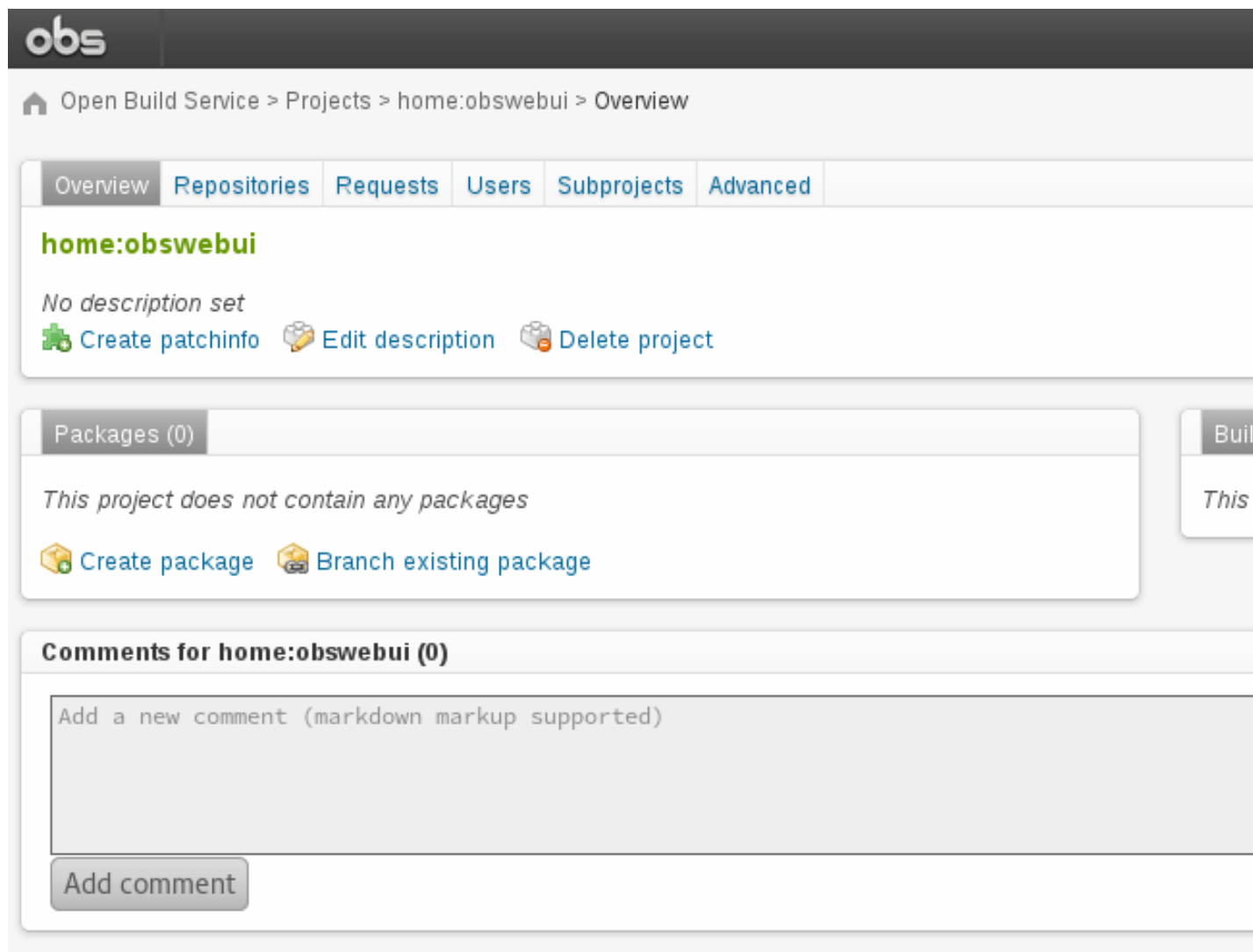


FIGURE 1.4: PROJECT PAGE

### 1.2.2 Changing a project's title and description

On every project page you will find a "Edit description" link. This link will lead you to a place where you can review and change your project's title and description. Click on the "Update project" button to save.

obs

Open Build Service > Projects > home:obswebui > Edit Project

Overview

Repositories

Requests

Users

Subprojects

Advanced

Edit Project Information of home:obswebui

Title:

Playground

Description:

Update Project

FIGURE 1.5: UPDATING PROJECT DESCRIPTION

### 1.2.3 Creating Subprojects to a Project

Subprojects are projects that are part of another projects namespace. Subprojects are an easy way to organize multiple projects. On the "Subprojects" tab you can find a list subprojects that belong to a project. To create a new subproject click on the "New subproject" link, fill in the form and press the "Create project" button.



#### Note

Maintainers of upper projects can always modify the subprojects. Apart from that all projects are separated and have no influence on each other.

obs

Open Build Service > Projects > home:obswebui > Subprojects

Overview

Repositories

Requests

Users

Subprojects

Advanced

Subprojects of home:obswebui

This project has no subprojects

Subproject Name:

home:obswebui: test

Title:

test project

Description:

☐ Hide the entire project.

☐ Deny access to sources of project.

☐ Disable build results publishing.

☐ Create as maintenance project.

Create Project

FIGURE 1.6: CREATING SUBPROJECTS

## 1.3 My Projects, Server Status

For now, let's leave your home for a bit and explore the build service. Click on "My Projects" on the left at the bottom. This opens a page listing your watched projects and your involvements in projects or packages.

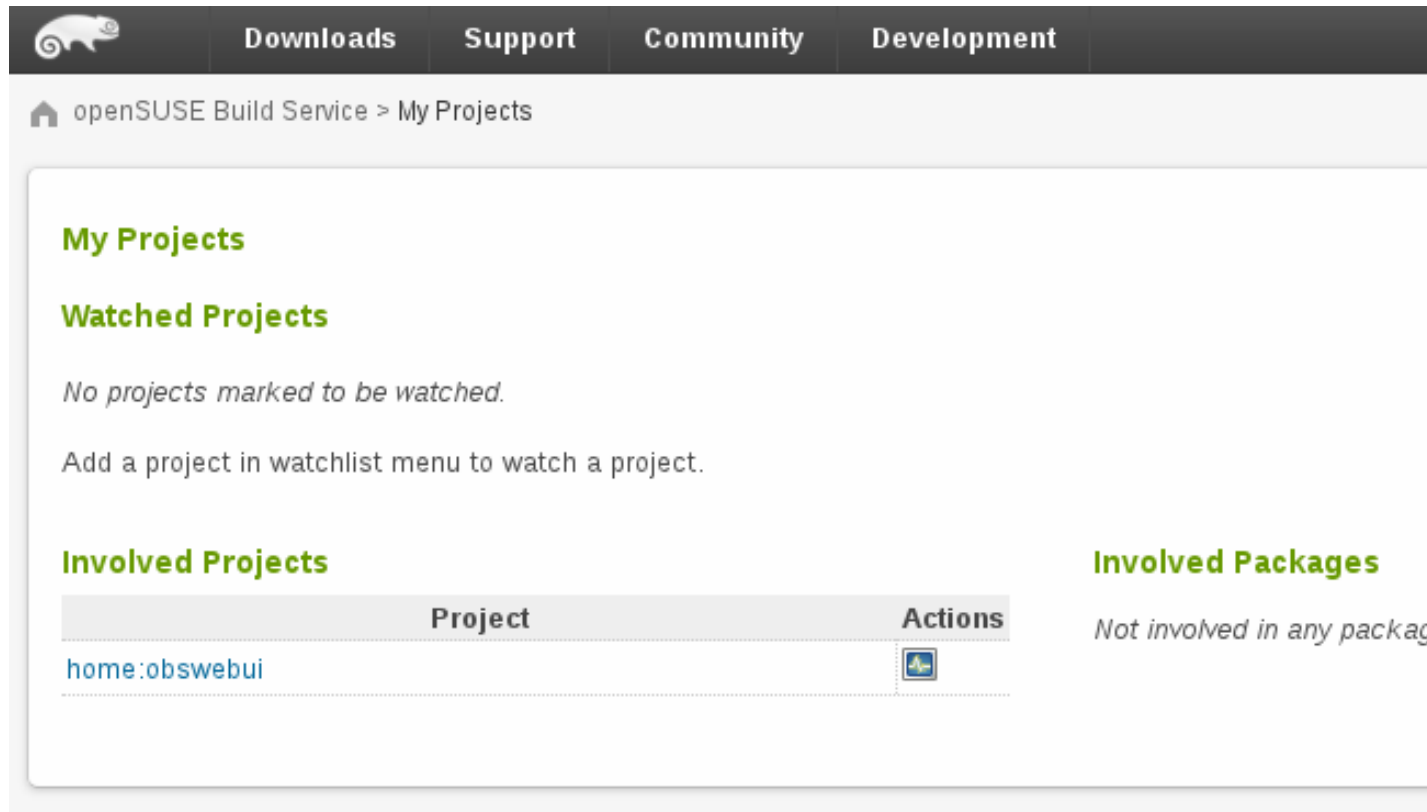


FIGURE 1.7: MY PROJECTS

Now, let's visit the main monitor page by clicking on "Status Monitor". You see here the status of the services, some graphs and graphics are showing the currently running and completed jobs and the overall load.

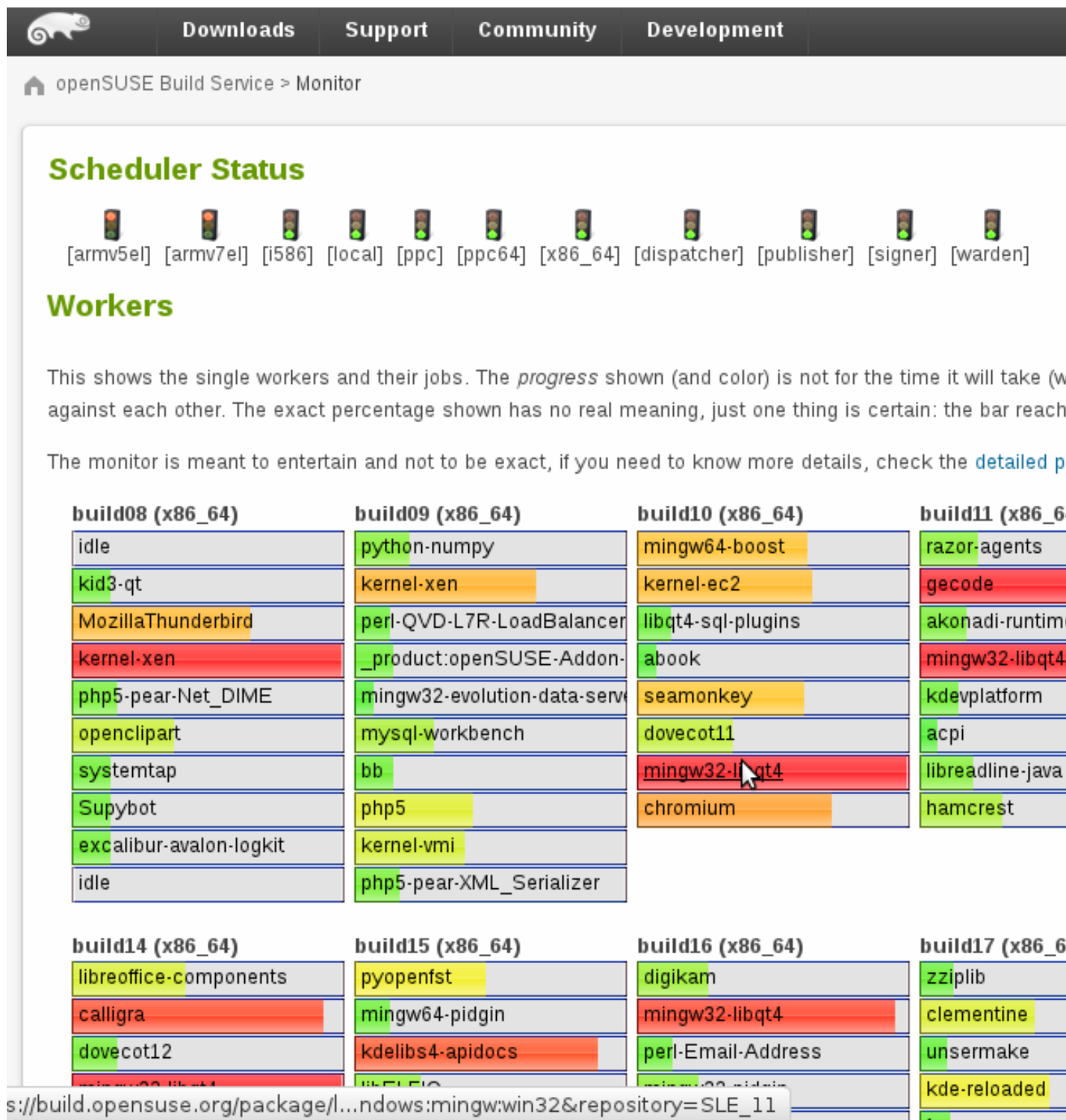


FIGURE 1.8: STATUS MONITOR

## 1.4 Create a link to a package in your home:

We'll show you how you can log in and use the web interface hosted at [build.opensuse.org](http://build.opensuse.org). This includes login, adding a link to a package in your personal workspace (home:~) and how to build that package by adding a repository. First, let's enter "My Projects" by clicking on the link at the bottom left.

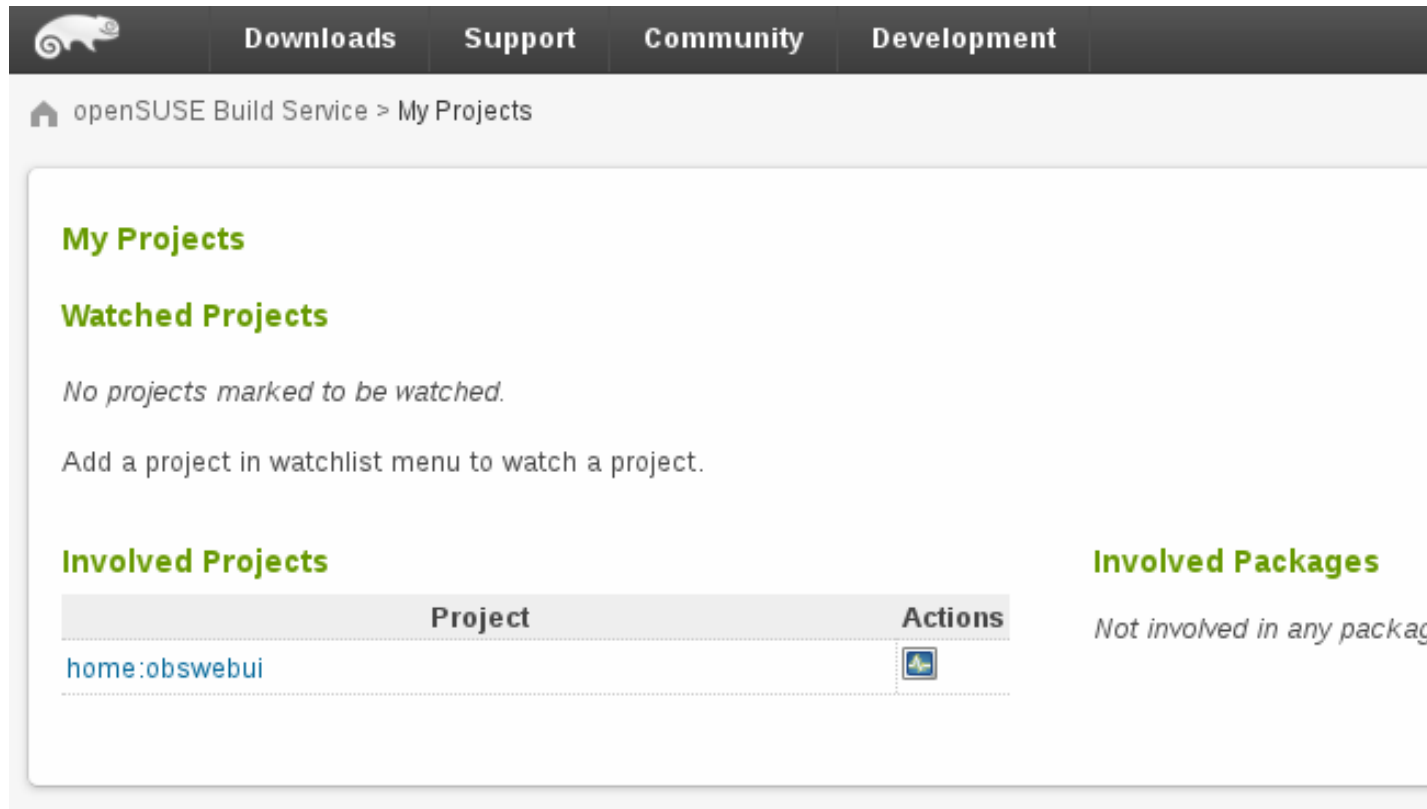


FIGURE 1.9: MY PROJECTS

Now let's create a link to a package and add a repository to build against. A link is basically a pointer to sources of an already existing package. By "repository" we mean container of built binary packages like Debian\_8 or openSUSE\_13.2. Let's follow these steps:

1. Add link to the existing package.
2. Add repository.
3. Observe the build on the monitor page.
4. Look at package's page.

### 1.4.1 Add Link to Existing Package

Right below packages, there's "Branch Package from other Project" .

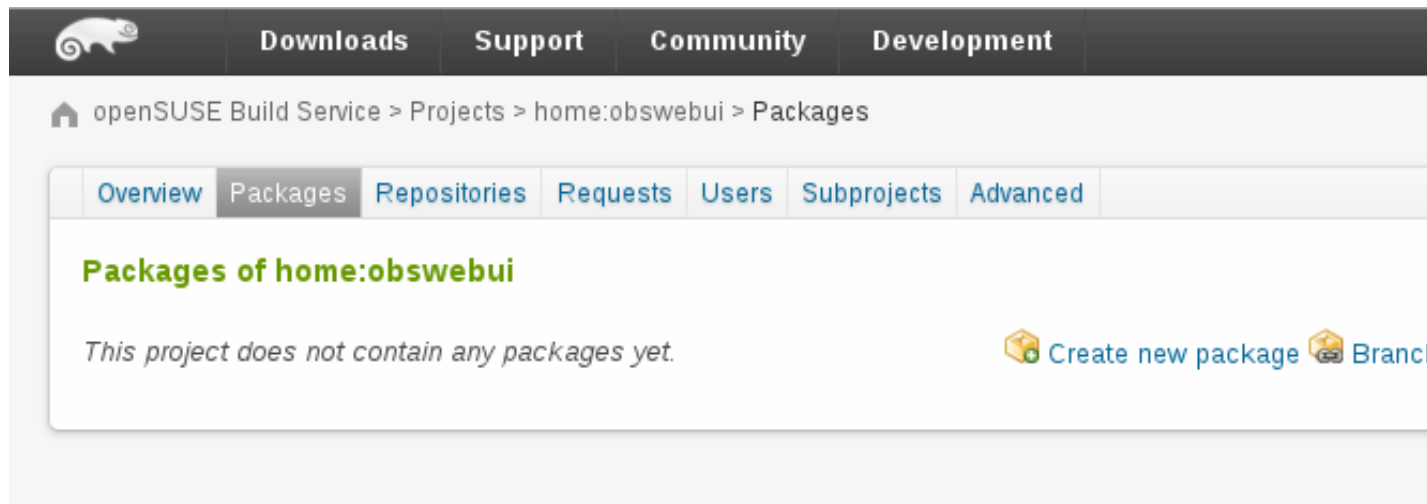


FIGURE 1.10: BRANCH PACKAGE

Open that page and enter for

Name of original project:  
Apache

and for

Name of package in original project:  
flood



- we'll leave "Name of linked package in target project" empty. This is shown on the next picture:

The screenshot shows the 'Add New Package Branch' page in the openSUSE Build Service. The breadcrumb trail is 'openSUSE Build Service > Projects > home:obswebui > Add New Package Branch'. The page has tabs for Overview, Packages, Repositories, Requests, Users, Subprojects, and Advanced. The main heading is 'Add New Package Branch to home:obswebui'. Below this, there is explanatory text about branching and a checkbox for staying on the current revision. The form fields are: 'Name of original project' (Apache), 'Name of package in original project' (flood), and 'Name of branched package in target project' (empty). A 'Create Branch' button is at the bottom of the form. At the bottom of the page, there are three columns of links: 'User: obswebui' (My Projects, My Work, Home Project, Logout), 'Locations' (Projects, Search, Status Monitor), and 'Help' (Open Build Service Portal, Building Packages, Writing spec Files, Reporting a Bug).

openSUSE Build Service > Projects > home:obswebui > Add New Package Branch

Overview Packages Repositories Requests Users Subprojects Advanced

## Add New Package Branch to home:obswebui

By branching a package from another project you add the package and its files to your project in a transparent way. This operation will also change the files in the branched package in your project.

You can add patches to the branched package without affecting the original package.

**Name of original project:**  
Apache

**Name of package in original project:**  
flood

**Name of branched package in target project:** (Leave blank to use the same name as in the original project)

☐ Stay on current revision, don't merge future upstream changes automatically

Create Branch

**User: obswebui**

- My Projects
- My Work
- Home Project
- Logout

**Locations**


- Projects
- Search
- Status Monitor

**Help**

- Open Build Service Portal
- Building Packages
- Writing spec Files
- Reporting a Bug

FIGURE 1.11: APACHE FLOOD BRANCH

Proceed with "Create Branch" and you'll be redirected to your home again. You'll see a new package "flood" and a notice about the branch being added.


[Downloads](#)
[Support](#)
[Community](#)
[Development](#)

[home](#)
[openSUSE Build Service](#)
[> Projects](#)
[> home:obswebui](#)
[> flood](#)

Branched package home:obswebui / flood

[Overview](#)
[Sources](#)
[Repositories](#)
[Revisions](#)
[Requests](#)
[Users](#)
[Advanced](#)

### flood


Flood--a Profile-Driven HTTP/HTTPS Load Tester

Flood is a profile-driven HTTP load tester. It can be used to gather important performance metrics for your Web site.


See the FAQ for common questions about flood:  
<http://httpd.apache.org/test/flood/faq.html>


Authors:  
 -----  
 Aaron Bannert <aaron@clove.org>  
 Justin Erenkrantz <jerenkrantz@apache.org>  
 ...and other members of the Apache Software Foundation, please see  
 <<http://www.apache.org/>>

#### Information


5 files

#### Actions


[Report Bug](#)


[Branch package](#)

The project this  
[targets](#) defined

FIGURE 1.12: BRANCHED PACKAGE

Wonderful, we've added a pointer to the sources! Now we need to add a repository, so the builder knows the target-distribution to build packages for. How to add a repository to a project is documented at [Section 1.6.1, "Adding a repository"](#).

## 1.4.2 Package Page, Build Log and Project Monitor Page

Next, it is time to explore the Monitor page, the package detail page and the build log. Just click on the links and explore the web interface. I recommend starting with your home project's top level 'overview' page - click on the Overview tab and you may see something like this:

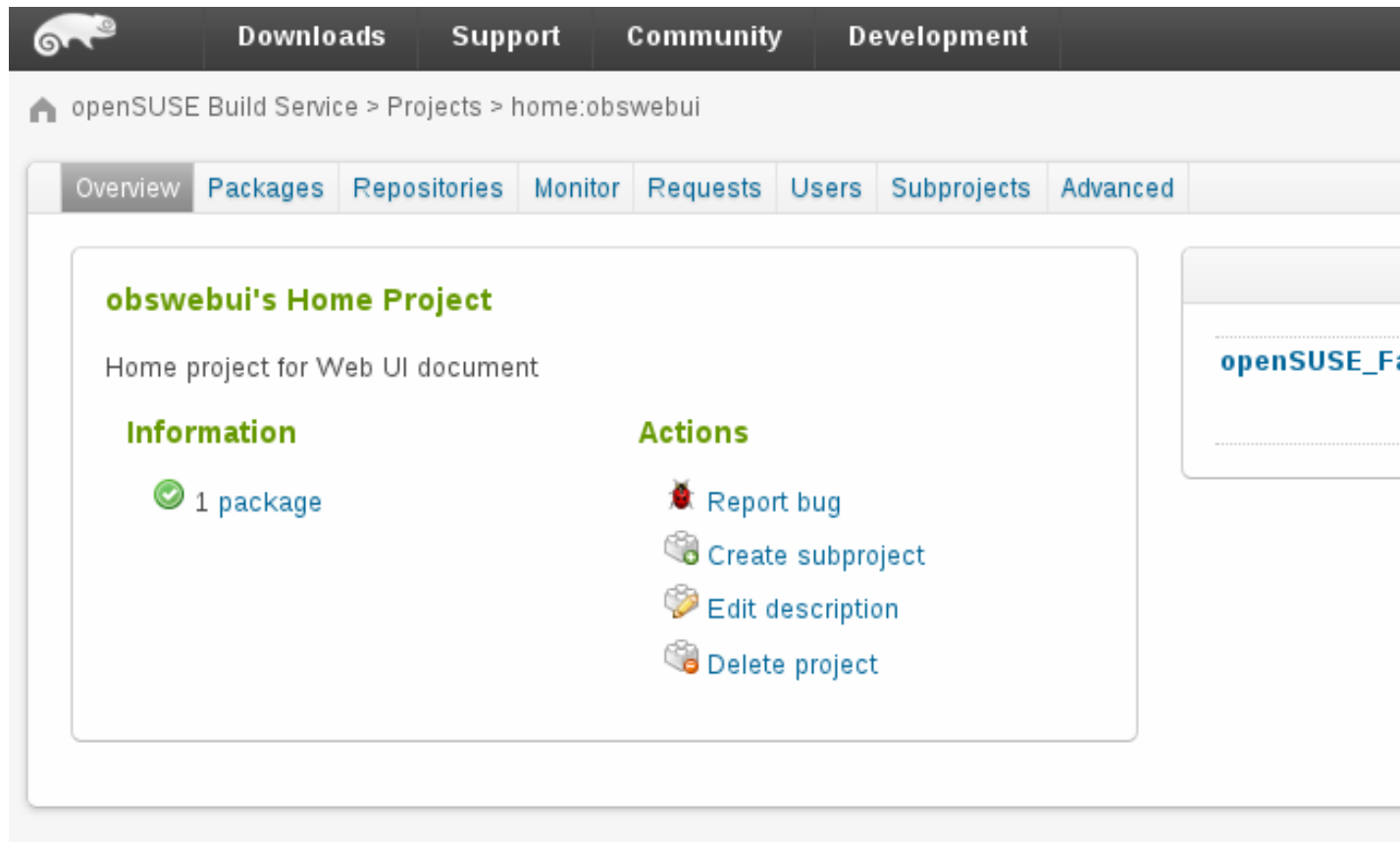


FIGURE 1.13: FLOOD\_SUCCEEDED\_FINISHED

If you wait a bit, you would see the below building success screen

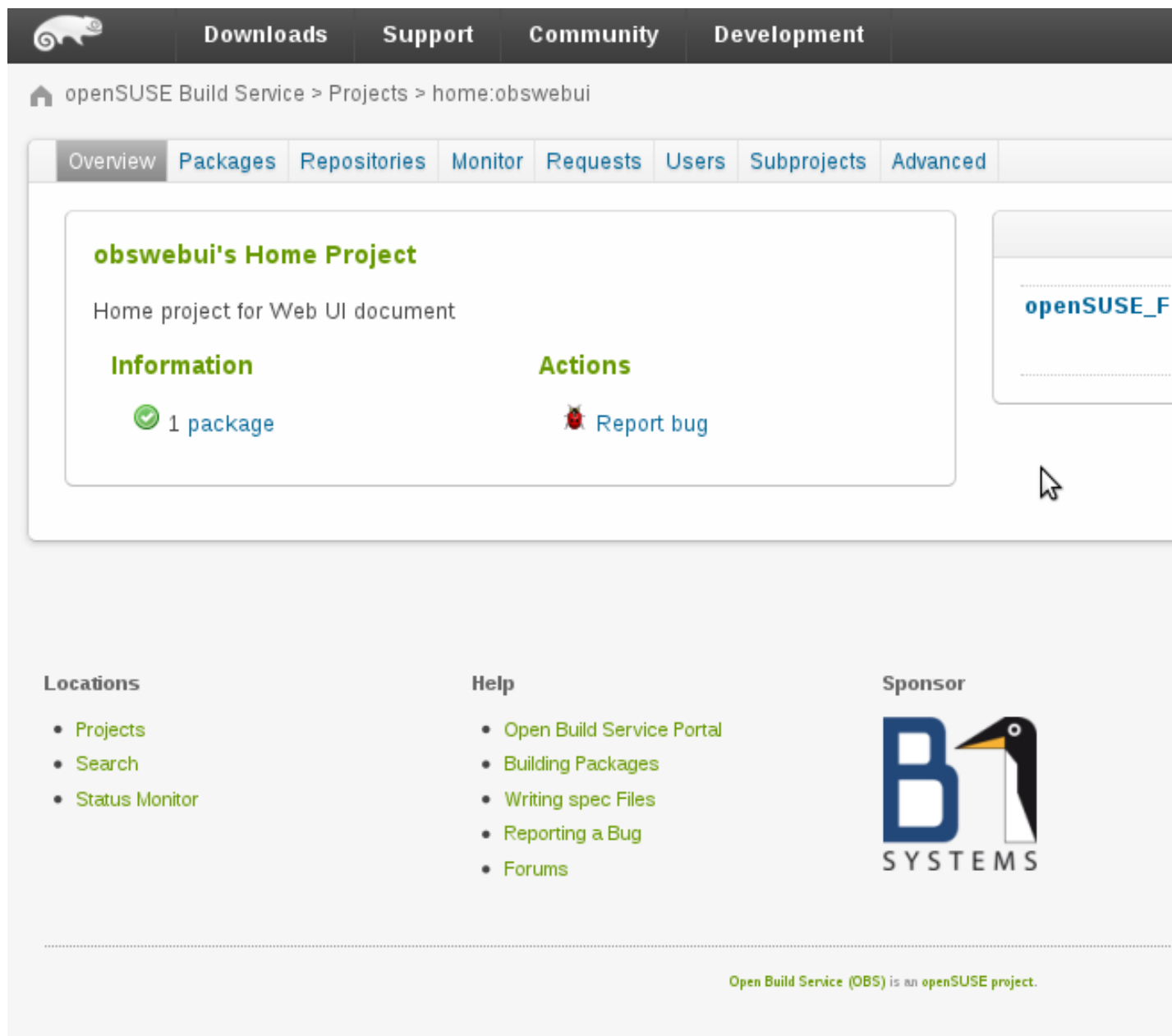



FIGURE 1.14: FLOOD\_BUILD\_SUCCESS

Click the “succeeded” message, then you will see the build log as below.



DownloadsSupportCommunityDevelopment



openSUSE Build Service > Projects > home:obswebui > flood > Build Log

OverviewSourcesRepositoriesRevisionsRequestsUsersAdvanced

## Build Log for Package flood (Project home:obswebui)

**Repository:** openSUSE\_Factory **Architecture:** i586

**Status:** Build finished

 Start refresh  Download logfile

```
de77e30e44c9506bca6318678c3e'  
  
processing specfile /var/cache/obs/worker//root_12/.build-srcdir/flood.spec ...  
running changelog2spec --target rpm --file /var/cache/obs/worker//root_12/.build-srcdir/flood.spec  
init_buildsystem --cachedir /var/cache/build --prepare --clean --rpmlist /var/cache/obs/worker//root_12/  
/.build-srcdir/flood.spec build rpmlint-Factory ...  
preinstalling aaa_base...  
preinstalling acl...  
preinstalling attr...  
preinstalling bash...  
preinstalling coreutils...  
preinstalling diffutils...  
preinstalling filesystem...  
preinstalling fillup...  
preinstalling glibc...  
preinstalling grep...
```

FIGURE 1.15: FLOOD\_BUILD\_LOG

## 1.5 Repository Output: Built Packages

To find the RPMs you built, go to your home project page and click Repositories. From there click on the blue repository name. For example, openSUSE\_Factory:

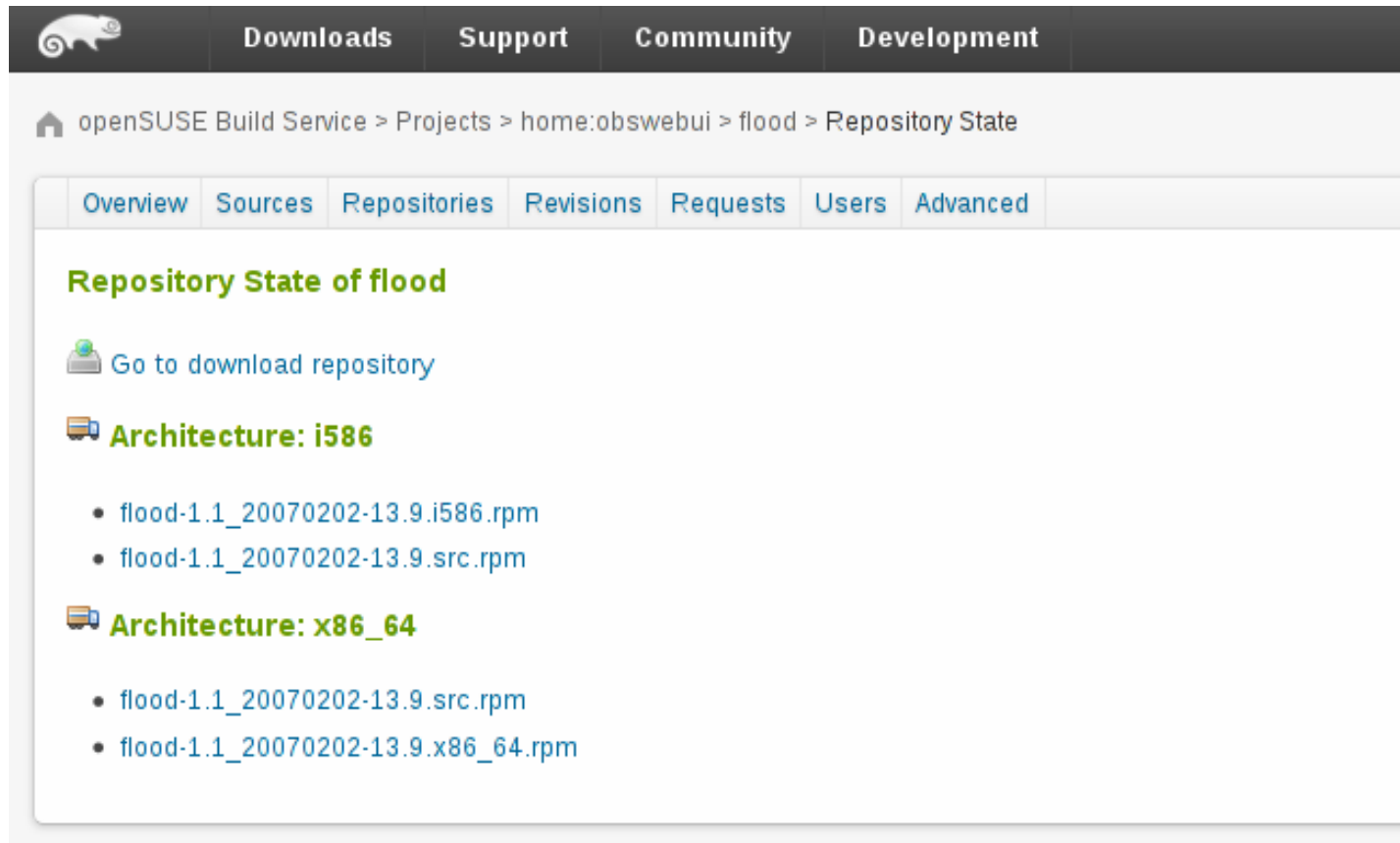


FIGURE 1.16: MY\_REPOSITORY



### Note

Published repositories are marked with the OBS truck

Now click *Go to download repository*. Note that publishing the repository might take a while. Before the binary repository is published, you will receive a 404 error. When the binaries are available, you will see something like this:

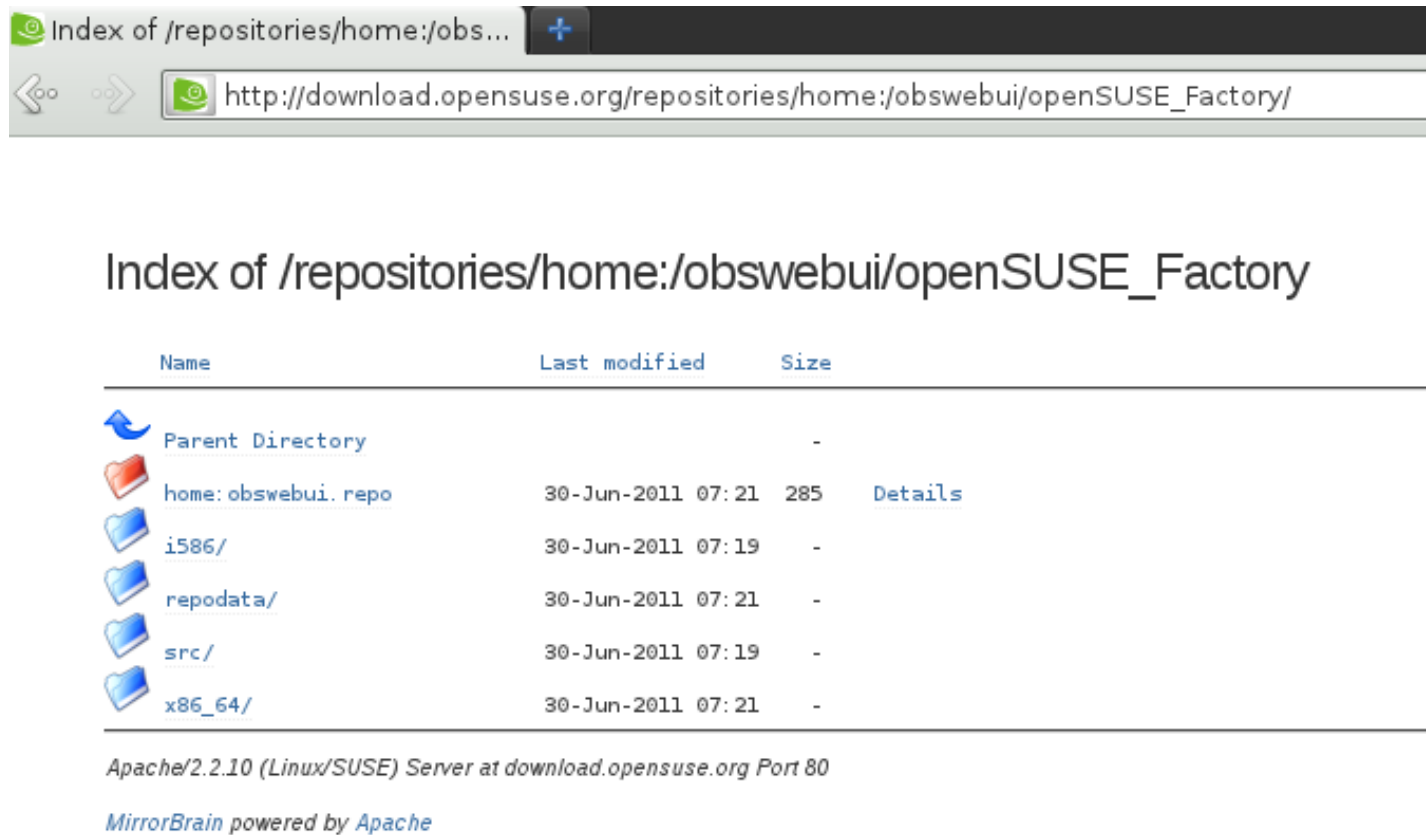


FIGURE 1.17: REPOSITORY STRUCTURE

Your rpms can be found in the subdirectories, and the `.repo` file is suitable for use with zypper, yum or other repository-friendly package management tools.

## 1.6 Managing Repositories

This section will show how you can manage your project's repositories.

## 1.6.1 Adding a repository

To add a repository to your project, click on "Add Repositories" on the project's repository tab. This will direct you to a list of possible distributions you can build packages for, see *Figure 1.18*, "Adding a Repository to a Project".

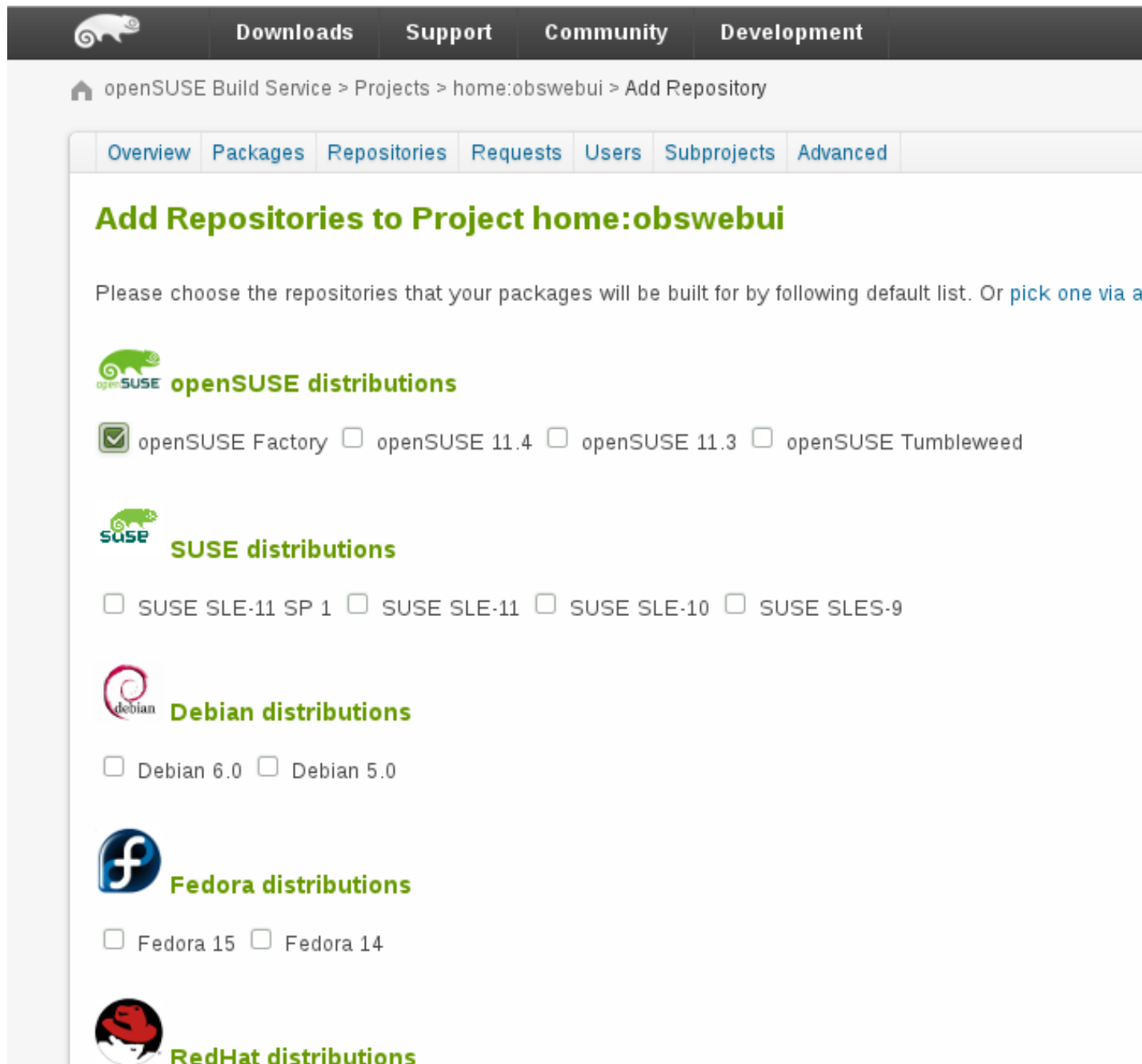


FIGURE 1.18: ADDING A REPOSITORY TO A PROJECT





## Note

If you could not find a repository that fits your needs, you might want to switch to the expert mode. Click on the "Expert mode" link right to the button. This page allows you to search and select a repository of any project available in OBS and add it to your projects repository list.

This will take you back to your home: project. The build repository might be disabled: if so, click on the cogwheel to enable it. Congratulations, it is configured. On a heavily loaded server, it can sometimes take a few minutes for your changes to become effective, but your linked package will automatically begin building.

### 1.6.2 Add Download on Demand repositories to a project

When you have administrator rights you will be able to add Download on Demand repositories to your project. To do so, click on the "Add DoD repository" link and enter your DoD repository data into the form.

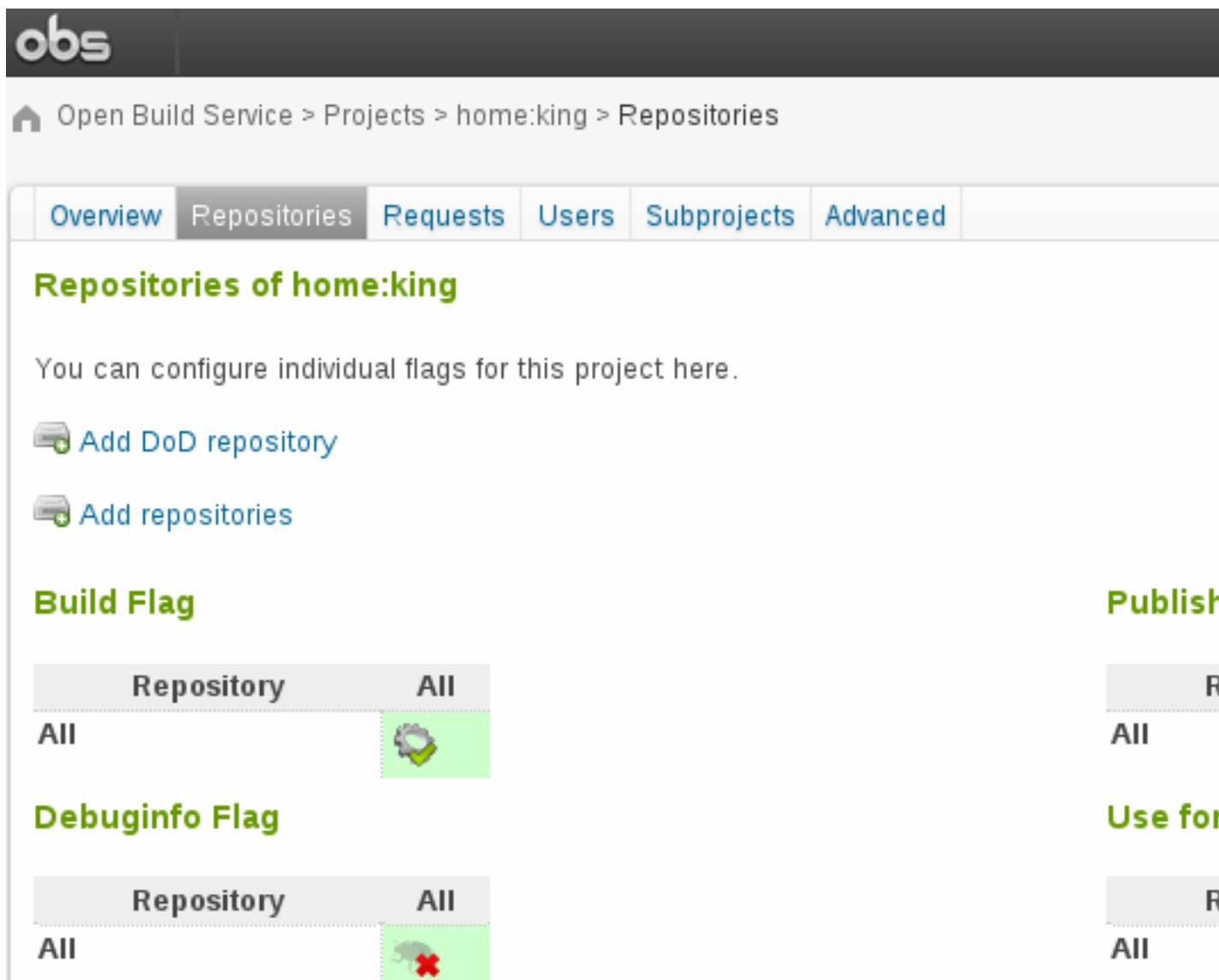


FIGURE 1.19: ADDING A DOWNLOAD ON DEMAND REPOSITORY

The minimal set of fields you have to enter are architecture, repository type and the URL that provides the binary packages. Detailed information about the data you can enter here you can find at the [DoD concept section \(http://openbuildservice.org/help/manuals/obs-reference-guide/cha.obs.concepts.html#concept\\_dod\)](http://openbuildservice.org/help/manuals/obs-reference-guide/cha.obs.concepts.html#concept_dod). Press "Save" to create the repository.

## Repositories of home:king

You can configure individual flags for this project here.

**Add DoD repository**

Repository name

DoD test repository

**Download on Demand Source**

Architecture

x86\_64 ▾

Type

rpmmd ▾

Url

http://opensuse.org/repo

Arch. Filter

Master Url

SSL Fingerprint

Public Key

Save

 [Add repositories](#)

FIGURE 1.20: DOWNLOAD ON DEMAND REPOSITORY FORM

When the repository got added you are able to edit, delete or add additional DoD repository sources.

### 1.6.3 Adding DoD Repository Sources to a Repository

The screenshot shows the OBS web interface for the 'home:king' project. The 'Repositories' tab is active. It displays a list of repositories for the 'x86\_64' architecture, including 'DoD test repository'. Below this, there are links to 'Delete repository', 'Go to download repository', and 'Download on demand sources'. A table shows the status of repository sources for 'All' and 'x86\_64' architectures. The 'Debuginfo Flag' section shows that debuginfo sources are not enabled for the listed repositories.

**Repositories of home:king**

You can configure individual flags for this project here.

**DoD test repository** (x86\_64)

Delete repository Go to download repository

**Download on demand sources** Add

x86\_64: <http://opensuse.org/repo> (rpmmd) Edit Delete

Add DoD repository

Add repositories

**Build Flag**

Repository	All	x86_64
All		
DoD test...ository		

**Debuginfo Flag**

Repository	All	x86_64
All		
DoD test...ository		

FIGURE 1.21: ADDING DOWNLOAD ON DEMAND REPOSITORY SOURCES

Open the DoD repository sources form by clicking the "Add" link. Here you can enter your additional DoD repository source. Click the "Add Download on Demand" button.

## Repositories of home:king

You can configure individual flags for this project here.

### DoD test repository (i586, x86\_64)

 [Delete repository](#)  [Go to download repository](#)

#### Download on demand sources

**Add Download on Demand for DoD test repository**

Architecture	<input type="text" value="i586"/>
Type	<input type="text" value="rpmmd"/>
Url	<input type="text" value="http://opensuse.org/repo/i586"/>
Arch. Filter	<input type="text"/>
Master Url	<input type="text"/>
SSL Fingerprint	<input type="text"/>
Public Key	<input type="text"/>

Add Download on Demand

**x86\_64:** [http://opensuse.org/repo/x86\\_64](http://opensuse.org/repo/x86_64) (rpmmd)  [Edit](#)  [Delete](#)

FIGURE 1.22: FORM FOR ADDING DOD REPOSITORY SOURCES

## 1.6.4 Editing DoD Repository Sources

To edit DoD repository sources after they got added click on the "Edit" link that you find right to each DoD repository source.

## Repositories of home:king

You can configure individual flags for this project here.

**DoD test repository** (*i586*, *x86\_64*)

 Delete repository  Go to download repository

**Download on demand sources**  Add

**x86\_64:** [http://opensuse.org/repo/x86\\_64](http://opensuse.org/repo/x86_64) (rpmmd)

**Edit Download on Demand for DoD test repository / x86\_64**

Architecture	<input type="text" value="x86_64"/>
Type	<input type="text" value="rpmmd"/>
Url	<input type="text" value="http://opensuse.org/repo/x86_"/>
Arch. Filter	<input type="text"/>
Master Url	<input type="text" value="http://master.opensuse.org/fo"/>
SSL Fingerprint	<input type="text" value="sha256:0a64...0303"/>
Public Key	<input type="text"/>
<input type="button" value="Update Download on Demand"/>	

FIGURE 1.23: FORM FOR EDITING DOD REPOSITORY SOURCES


**i586:** <http://opensuse.org/repo/i586> (rpmmd)  Edit  Delete



### 1.6.5 Editing DoD Repository Sources

To delete a repository or repository source, click on the "Delete" link and accept the confirmation dialog.

## 1.7 Image Templates

Image templates are pre-configured image configurations. The [image templates page \(https://build.opensuse.org/image\\_templates\)](https://build.opensuse.org/image_templates)  provides a list of these templates. Users can clone these templates and further configure them as they like.

How you can create your own image templates will be shown here.

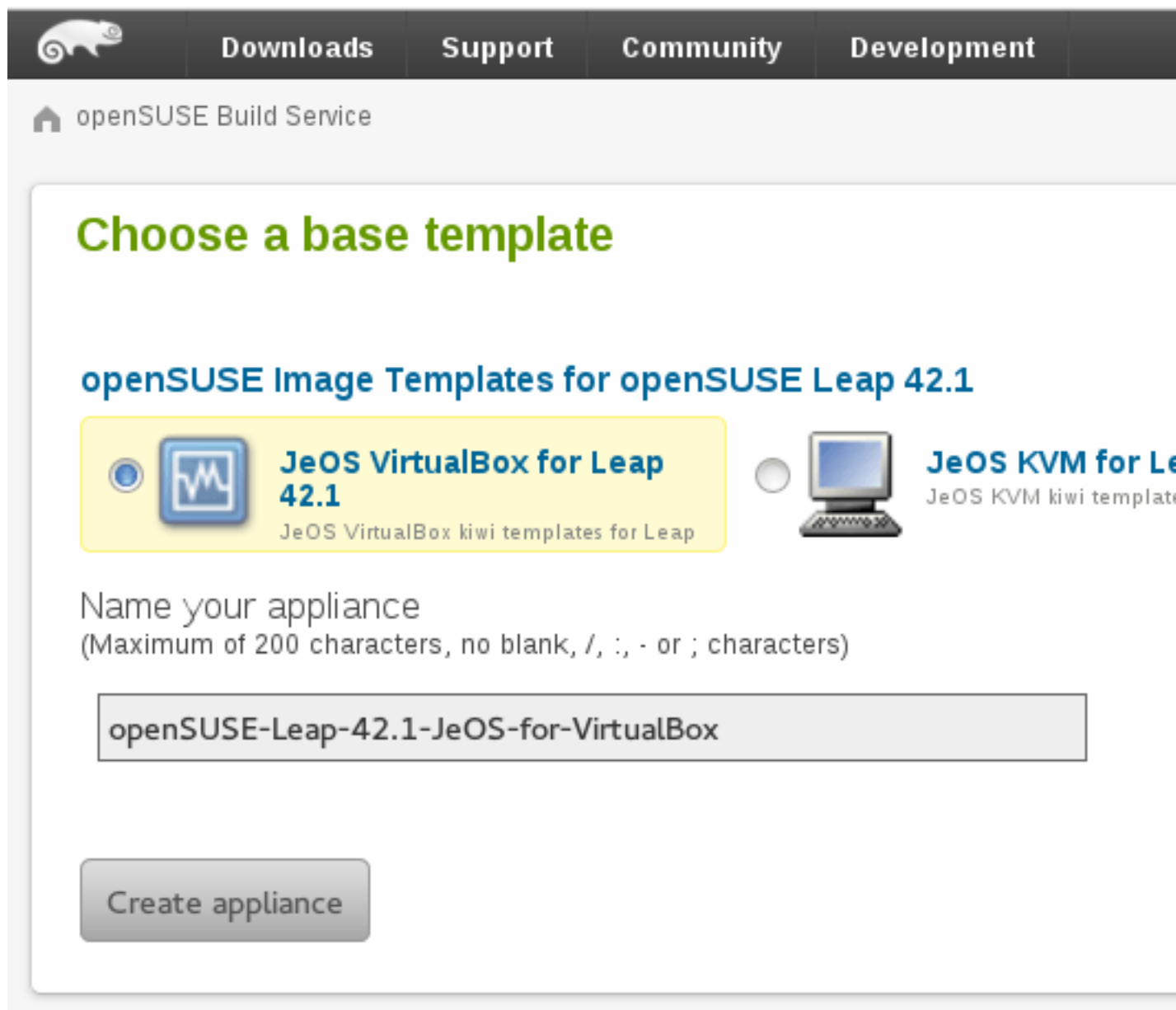


FIGURE 1.24: OBS TEMPLATES PAGE

### 1.7.1 Creating Own Image Templates

Create a subproject of your home project.

Overview

Repositories

Monitor

Requests

Users

Subprojects

Advanced

## Subprojects of home:bgeuken

Subproject	
branches:devel:languages:ruby:extensions	Branch project
branches:home:justlest:prometheus	Branch project
branches:OBS:Server:Unstable	Branch project

**Subproject Name:**  
home:bgeuken:

**Title:**

**Description:**

☐ Disable build results publishing.

[Create Project](#)

FIGURE 1.25: FORM FOR CREATING IMAGE TEMPLATE SUBPROJECT



## Note

Published image templates are fetched via a project's attribute. Any package container living in a published project will be visible on the image templates page.

Within that project create a new package. That will be your actual image template.

The screenshot shows a web interface with a top navigation bar containing tabs: Overview, Repositories, Requests, Users, Subprojects, and Advanced. The main heading is 'Create New Package for home:bgeuken:my\_image\_temp'. Below this, there are three input fields: 'Name:' with the value 'minimal\_apache\_server', 'Title:', and 'Description:'. At the bottom, there is a checkbox labeled 'Disable build results publishing.' and a 'Save changes' button.

Overview	Repositories	Requests	Users	Subprojects	Advanced
<b>Create New Package for home:bgeuken:my_image_temp</b>					
<b>Name:</b> minimal_apache_server					
<b>Title:</b> 					
<b>Description:</b> 					
<input type="checkbox"/> Disable build results publishing.					
<button>Save changes</button>					

FIGURE 1.26: NEW IMAGE TEMPLATE

Add the 'KIWI image build' repository to your project. This repository is needed to build KIWI images in your project. Go to the 'Repositories' tab, click on 'Add repositories' and click on the 'KIWI image build' check box.

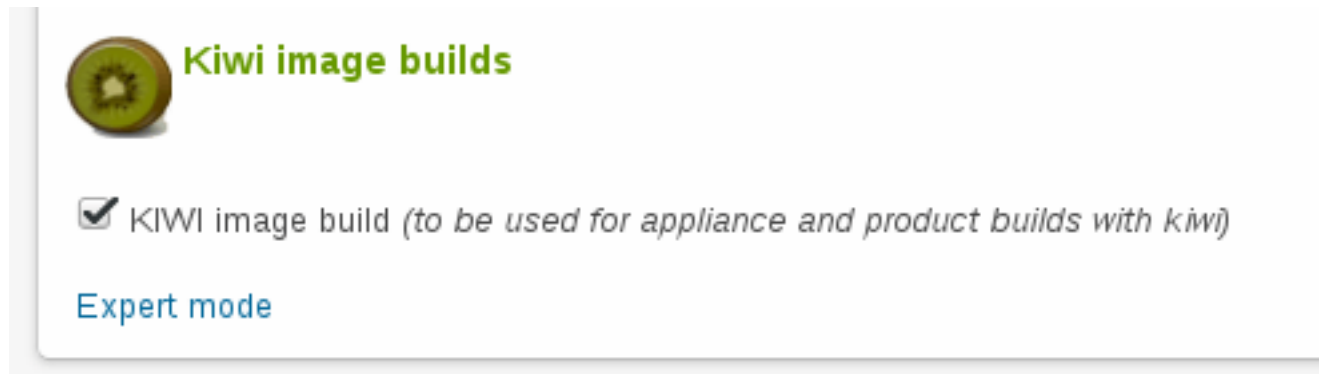


FIGURE 1.27: ENABLING THE KIWI IMAGE BUILD REPOSITORY

Add sources for your image configuration.

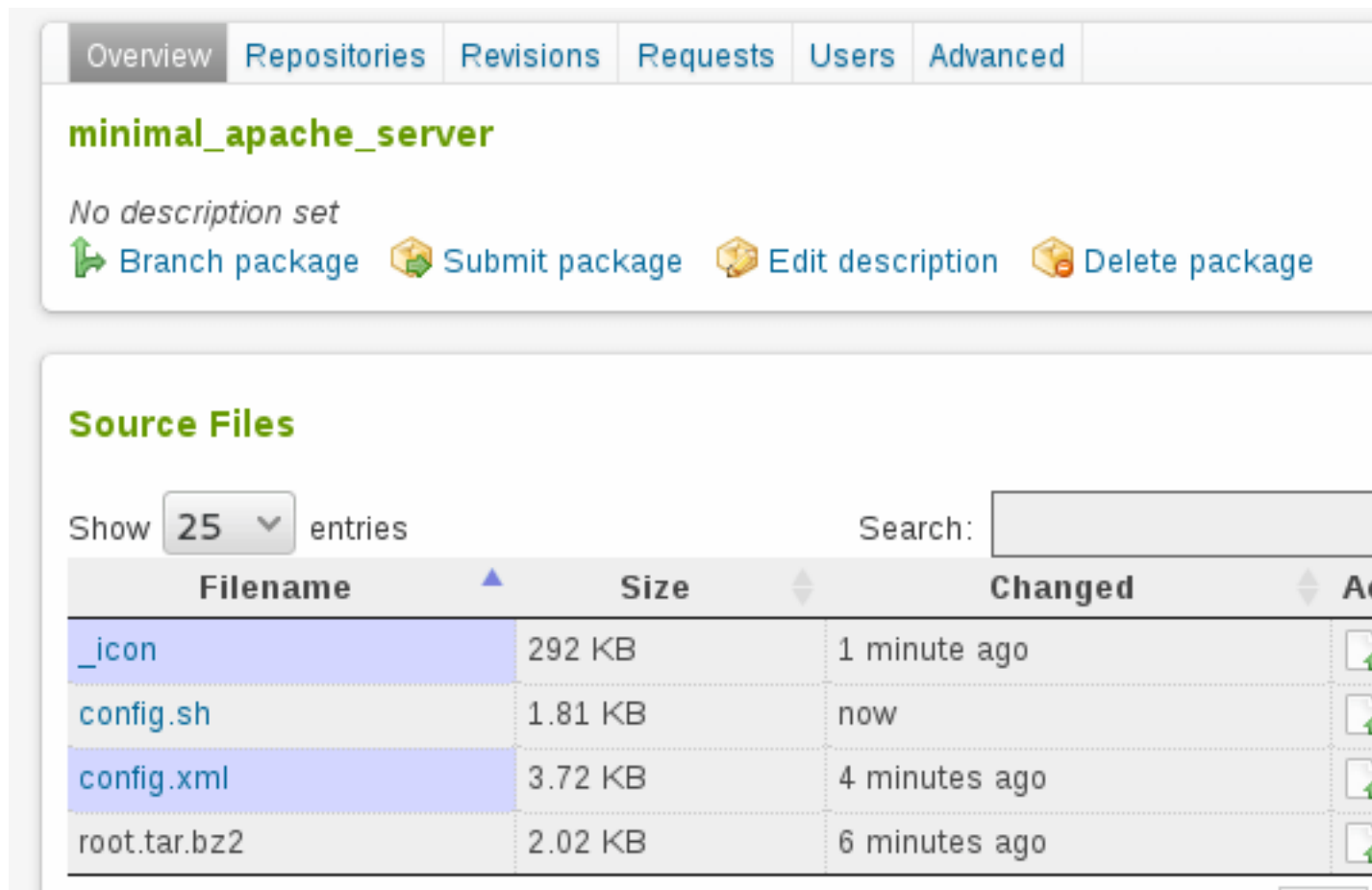


FIGURE 1.28: OVERVIEW OF SOURCES OF A CUSTOM IMAGE TEMPLATE

KIWI configurations usually consists of an xml configuration root tarball.

In addition, you can define an icon for your image templates by adding graphical image (for example, PNG, JPG) to your template sources and name it `_icon`. If that file exists, it will be used as icon for your image on the image templates page.

For a full list of image descriptions and general information about building images with KIWI, see the [KIWI project page \(http://opensuse.github.io/kiwi/\)](http://opensuse.github.io/kiwi/) and the [KIWI cookbook \(https://doc.opensuse.org/projects/kiwi/doc/\)](https://doc.opensuse.org/projects/kiwi/doc/).

## 1.7.2 Publishing Image Templates on the Official Image Templates Page

Once everything is set up and your templates are building, you might want to publish them. In that case contact the admin of the OBS instance you are using and ask them kindly to do so. If you happen to use the [official OBS \(https://build.opensuse.org/\)](https://build.opensuse.org/), that would be `admin@opensuse.org`.

## 1.8 KIWI Editor

You can edit the KIWI file associated to your project. It is only possible, at the moment, to edit the repository list and packages with type image. If you are running your own instance of OBS be sure you have the `kiwi_image_editor` feature enabled in your `config/feature.yml` file.

### 1.8.1 Accessing the KIWI Editor

Go to your package, and upload a file with the `.kiwi` extension (for example, `test.kiwi`), with valid KIWI content.

[Overview](#)
[Repositories](#)
[Revisions](#)
[Requests](#)
[Users](#)
[Advanced](#)

## kiwi\_package

No description set

Branch package
 Submit package
 Edit description
 Delete package

### Source Files

Show  entries Search:

Filename	Size	Changed	Act
<a href="#">kiwi_file.kiwi</a>	1.85 KB	about 3 hours ago	

Showing 1 to 1 of 1 entries Previous

[Add file](#)

### Latest Revision

[David Kang \(david\\_kang\)](#) committed [about 3 hours ago](#) (revision 6)

[Files changed](#) [Browse Source](#)

### Comments for home:david\_kang (0)

Add a new comment (markdown markup supported)

FIGURE 1.29: EXAMPLE OF A PACKAGE WITH A KIWI XML FILE



## Note

You should see now a "Edit KIWI" link (next to "Delete package" link).

Click on the "Edit KIWI" link and you will be redirected to the Editor.



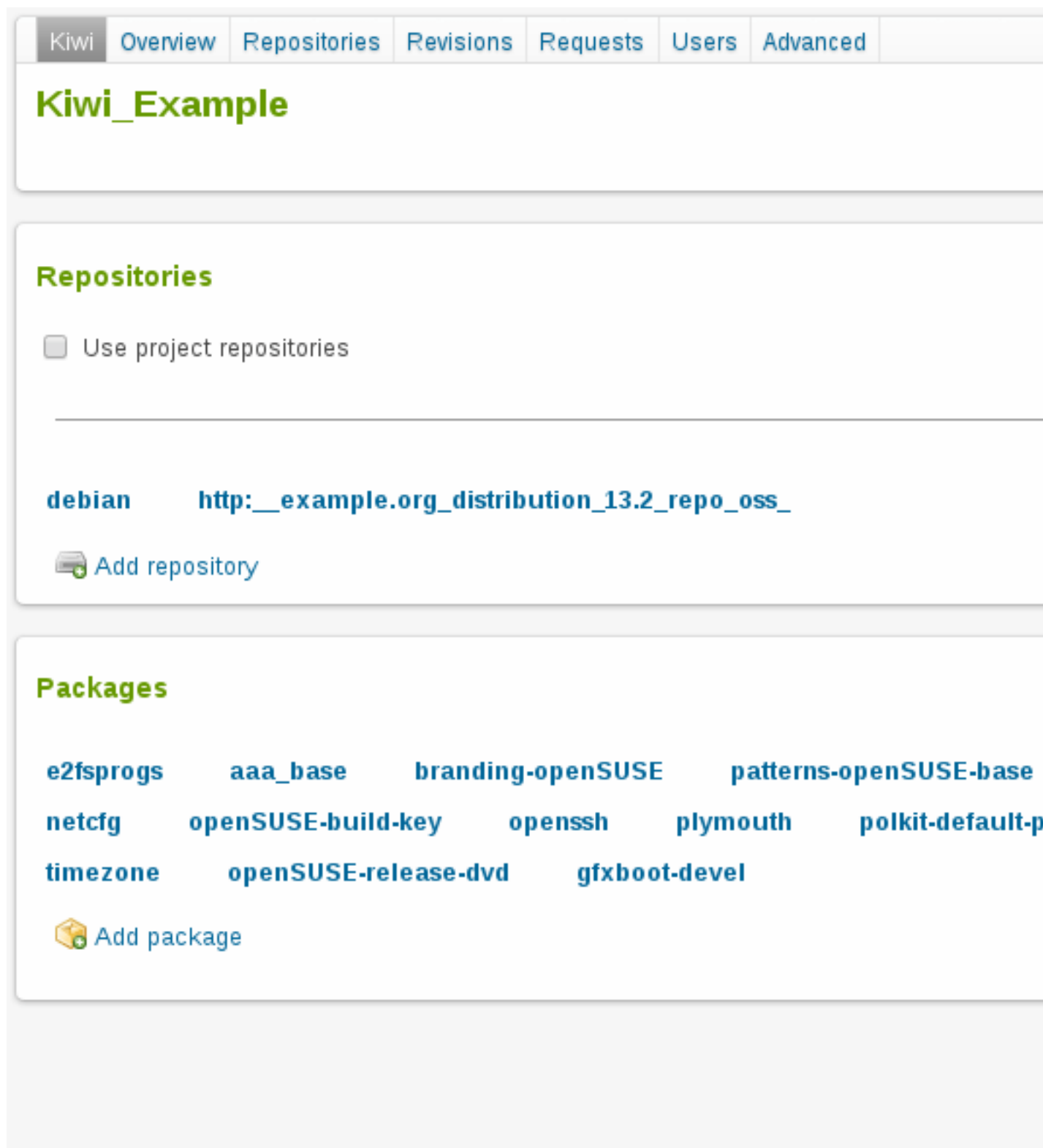


FIGURE 1.30: KIWI EDITOR. SHOW SCREEN

- *Repositories*: Displays the repositories set in the Kiwi file.
- *Packages*: Displays the packages of the package group with type *image*.

## 1.8.2 Adding Repositories in the KIWI Editor

To add a new repository click *Add repository* link and fill in the dialog. There are two ways to create it:

- *Basic Mode*: Adding the name of a project will provide a list with the repositories from that project.



FIGURE 1.31: KIWI ADDING A NEW REPOSITORY - BASIC MODE

- *Expert Mode*: This mode provides you with a set of customizable parameters for creating a repository.
  - *Type*: Valid options are *rpm-md* and *apt-deb*.
  - *Priority*: Repository priority for the given repository.
  - *Alias*: Alternative name for the configured repository.

- *Source Path*: Define the repository path.
- *User*: Specifies a user name for the given repository.
- *Password*: Specifies a password for the given repository.
- *Prefer License*: The repository providing this attribute will be used primarily to install the license tarball if found on that repository.
- *Image Include*: Specifies whether the given repository should be configured as a repository in the image.
- *Replaceable*: Defines a repository name which may be replaced by the repositories specified in the image description. This attribute should only be applied in the context of a boot image description.

**Edit repository**

Type:  Priority:  Alias:

Source:   
Write a valid source path

User:  Password:

☐ Prefer license ☐ Image include ☐ Replaceable

FIGURE 1.32: KIWI ADDING A NEW REPOSITORY - EXPERT MODE

To use the configuration of the current project check the *Use project repositories* checkbox.

## Repositories

☒ Use project repositories



This option will use the repositories from the current project. Other repositories

FIGURE 1.33: KIWI USE PROJECT CONFIGURATION



### Note

This option will remove the other repositories from your kiwi file.

## 1.8.3 Adding Packages in the KIWI Editor

Adding a package is practically the same as adding a repository. We offer an autocomplete for the package name that will show you the package available in the repositories added previously.



**Edit package**

Name:  
e2fsprogs

Arch:

Replaces:

☐ Bootinclude ☐ Bootdelete

Cancel Continue

FIGURE 1.34: KIWI ADDING A NEW PACKAGE



## Note

The package groups shown in the editor are only those with type *image* and the packages will be added in this kind of package group. If it did exist previously the KIWI Editor creates a package group with type *image* for you.

## 1.9 Manage Group

Only administrators and users with Maintainer rights can manage groups. They can add and remove other users from the group, as well as give them Maintainer rights.

On the Group Members tab, there is a link to Add Member, then enter the name of an existing user. You can click on the Maintainer checkbox to give Maintainer rights to a user.

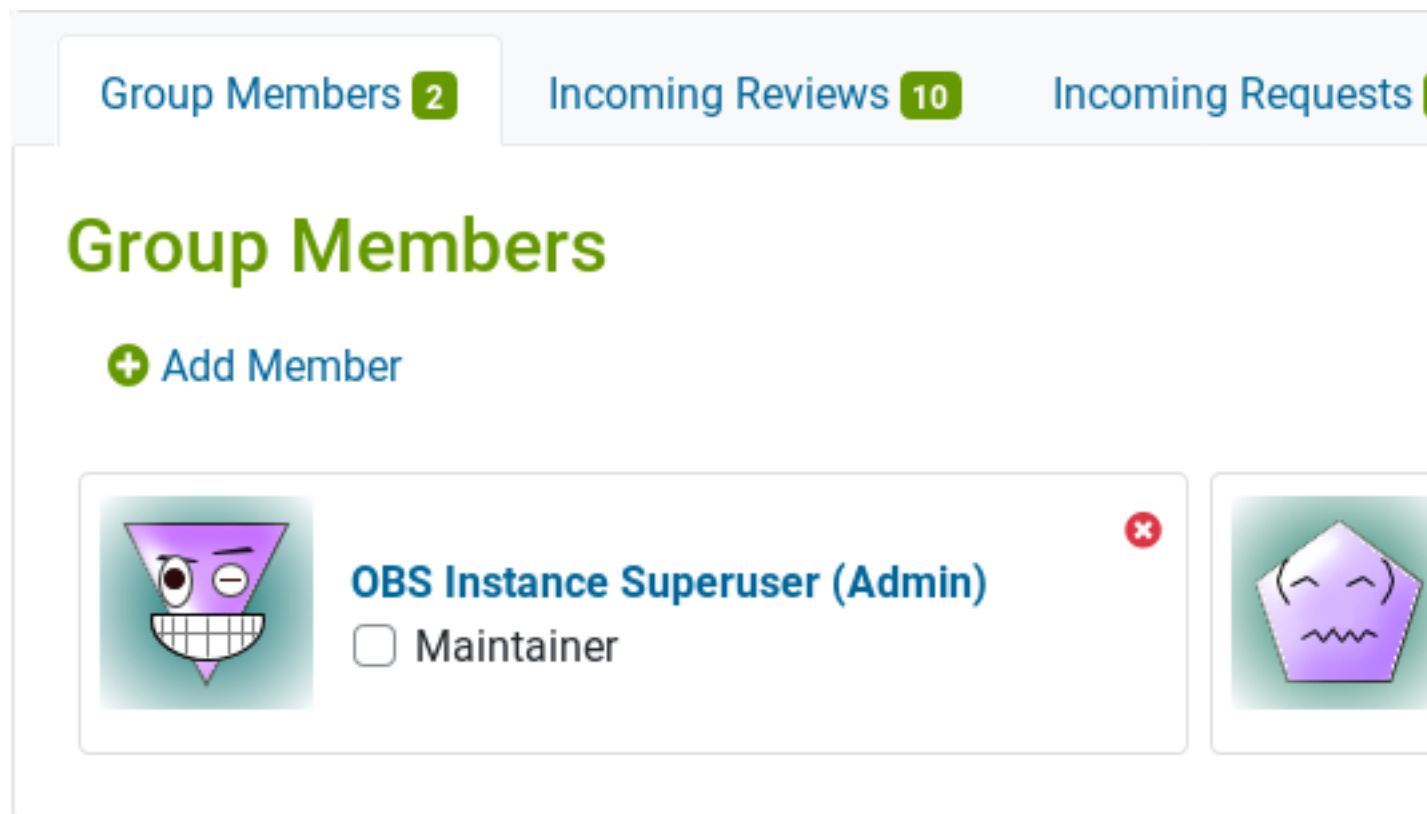


FIGURE 1.35: MANAGE A GROUP

## 1.10 Staging

At the moment, it is possible to create a Staging for any kind of project unless the project is already one of the staging projects.

All the Staging workflow starts in the tab 'Staging' which can be found on the project's page. It will take you to the first step to create a new Staging or to the dashboard if the Staging already exists.

### 1.10.1 Creating a Staging

The creation of a Staging will automatically create two staging projects as a subproject of the main project. Before creating, we need to select a group of managers, they will be in charge of assigning requests to the staging projects and also excluding requests from the Staging.

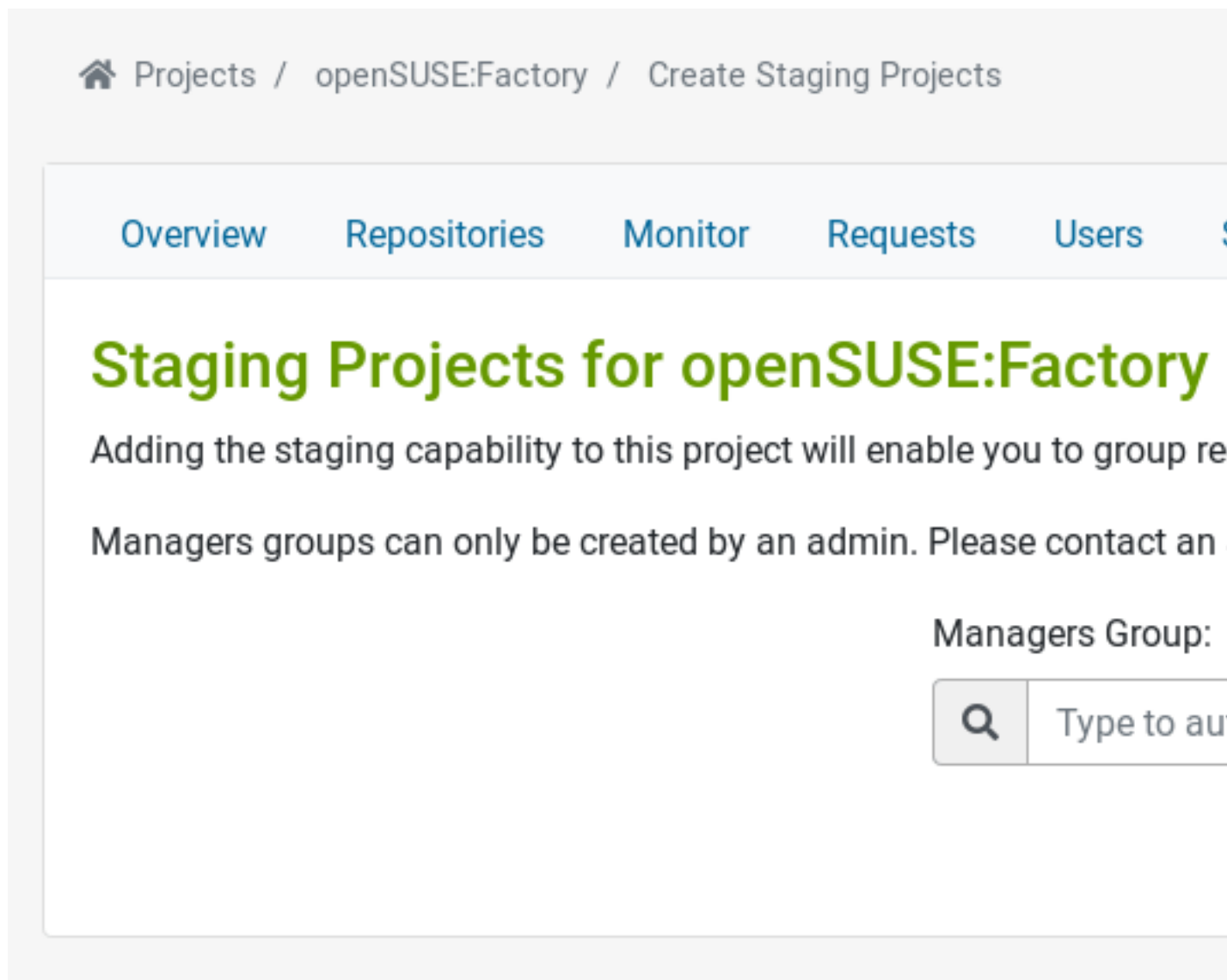


FIGURE 1.36: CREATING A STAGING FOR OPENSUSE:FACTORY



## Note

An Admin should previously create the manager groups.

### 1.10.2 Start using it

In this view, we can find all the staging projects with an associated request and their current state.

✓ Staging for openSUSE:Factory was successfully created

Overview

Repositories

Requests

Users

Subprojects

## Staging for openSUSE:Factory

 Configure

 Delete

Staging Project	Request
No data available in t	

FIGURE 1.37: STAGING SHOW SCREEN



- Table content:
  - *Staging Project*: Shows the staging project name, its overall state (see legend), and the overall build progress of the packages within the project.
  - *Requests*: Show the associated requests and their current state.
  - *Problems*: Shows build problems of packages within the project and status problems reported to the Build Service's Status API by external services like openQA.
- Info section:
  - *Managers*: Shows the Staging Managers group.
  - *Empty projects*: Staging projects without assigned requests.
  - *Backlog*: List of requests that can be assigned to a staging project.
  - *Ready*: List of requests that were in the backlog and have an accepted review.
  - *Ignored*: List of requests excluded from this staging workflow.

### 1.10.3 Delete a Staging

By clicking on the delete button on the Staging index page, we are able to delete a Staging. By selecting the associated staging projects in the appearing modal window, we are able to delete them as well. If not selected, they will remain as regular subprojects.

## Do you want to delete the staging for openSUSE:Factory?

Please confirm deletion of the staging for openSUSE:Factory

Check the staging projects you want to be deleted:

- ☒ openSUSE:Factory:Staging:A
- ☐ openSUSE:Factory:Staging:B

Cancel

Delete

FIGURE 1.38: DELETE A STAGING WORKFLOW

### 1.10.4 Configuration

It is possible to create/delete staging projects (openSUSE:Factory:Staging:A, openSUSE:Factory:Staging:B, etc) and change the Managers Group of the Staging.

[Overview](#)
[Repositories](#)
[Monitor](#)
[Requests](#)
[Users](#)
[Staging](#)

## Configure Staging for home:scp

[+ Create Project](#)
[Managers](#)

Staging Project	Req
<div>home:scp:Staging:A</div> <div>review</div> <div>0 %</div>	<div>pa1</div> <div> </div>
<div>home:scp:Staging:B</div> <div>empty</div>	None
<div>home:scp:Staging:C</div> <div>empty</div>	None

FIGURE 1.39: CONFIGURING A STAGING



### Note

Changing the Managers Group of a Staging will automatically unassign the old group and assign the new group to the related staging projects.

#### 1.10.4.1 Create Staging Project from Scratch

Right after the creation of a Staging, two new staging projects are automatically created and assigned to it: Staging:A and Staging:B. However, it is also possible to create a new staging project from scratch.

On the Staging dashboard, click on *Configure* and then on *Create Project* to add a name for the new staging project.

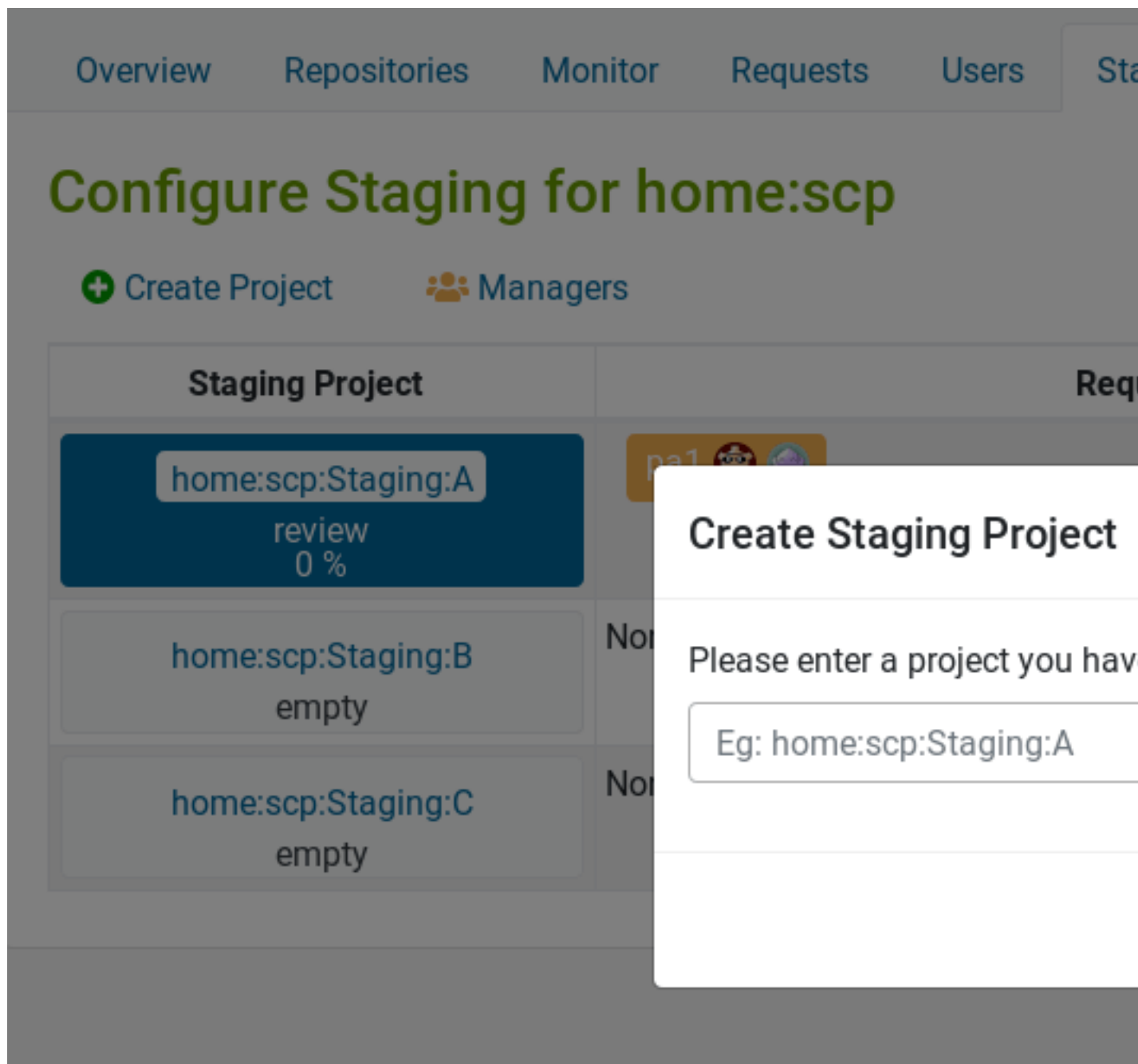
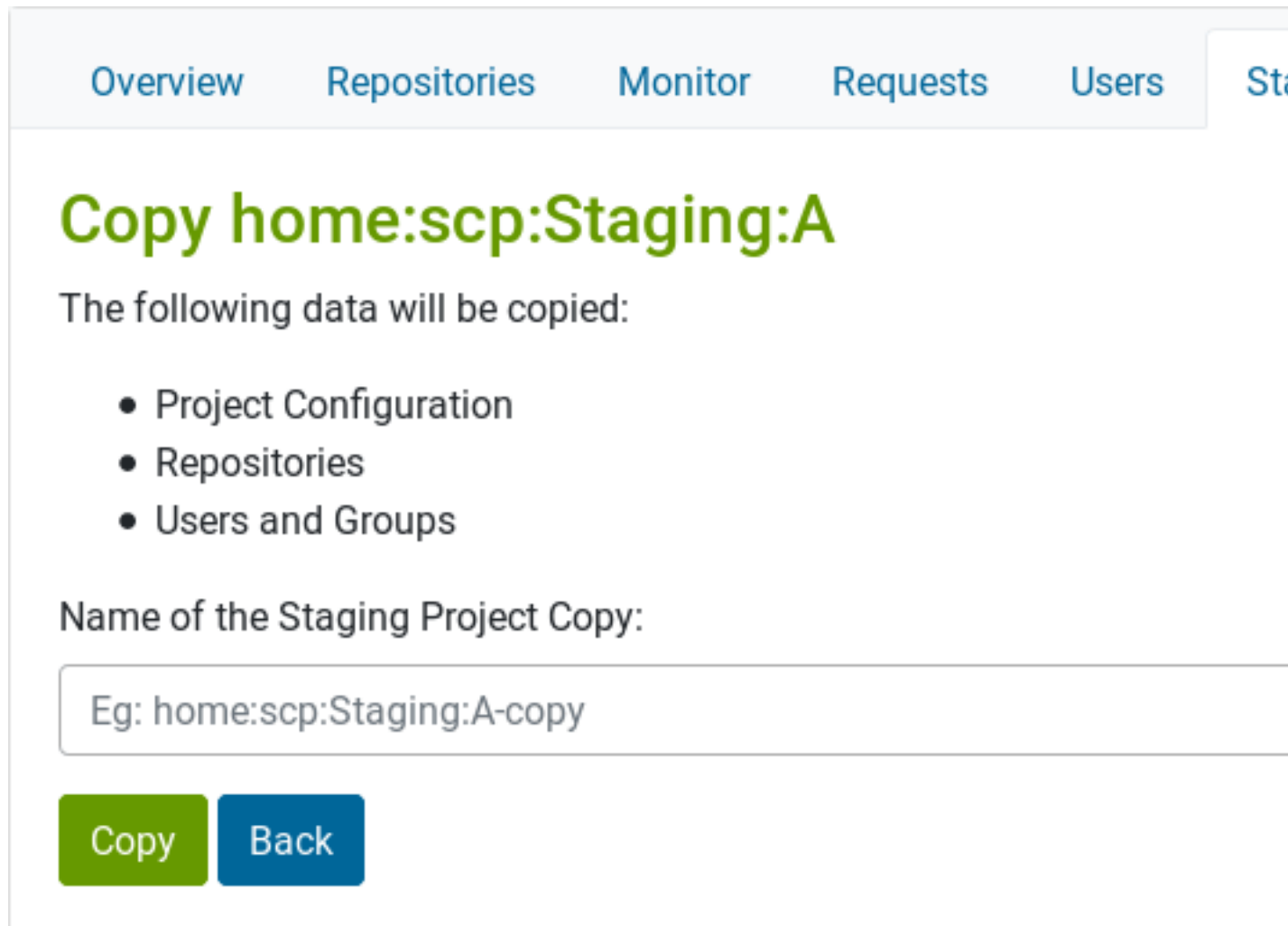


FIGURE 1.40: CREATE A NEW STAGING PROJECT

#### 1.10.4.2 Create Staging Project from Template

It is possible to create a staging from a template. Inside *Staging Configure* page, simply choose the staging project you want to copy from (the template), click on its Copy icon on the actions column and add a new name. The staging project copy is processing on background, so there might be a delay before it shows up.



The screenshot shows a web interface with a top navigation bar containing tabs: Overview, Repositories, Monitor, Requests, Users, and Staging. The main content area is titled 'Copy home:scp:Staging:A' in green. Below the title, it says 'The following data will be copied:' followed by a bulleted list: Project Configuration, Repositories, and Users and Groups. Below the list, it asks 'Name of the Staging Project Copy:' and provides a text input field with the placeholder 'Eg: home:scp:Staging:A-copy'. At the bottom, there are two buttons: a green 'Copy' button and a blue 'Back' button.

FIGURE 1.41: COPY STAGING PROJECT FROM TEMPLATE

#### 1.10.5 Staging Project

A staging project contains requests assigned by a Staging Manager. An overview page is provided for a staging project where you can find more detailed information about the requests, reviews and checks.

Overview

Repositories

Requests

Users

Staging

## openSUSE:Leap:15.1:Staging:A

### Packages

bluedevil5

perl-Citrix

### Status



Untracked requests

None



Obsolete requests

#1 (revoked), #3 (declined)



Missing reviews

None



Building repositories

None



Broken packages

None



Checks

- openQA (Expected - Waiting for s
- circleCI (Expected - Waiting for s

FIGURE 1.42: LOOKING INTO A STAGING PROJECT

- *Obsolete Requests*: Requests that were declined, revoked or superseded.
- *Missing Reviews*: Requests with pendings reviews.
- *Building Repositories*: List of packages that are still building.
- *Broken Packages*: List of packages with failling builds.
- *Checks*: List of checks of the staging project.

All the actions performed on requests that are assigned to the staging project are tracked. They are listed in the 'History' section.

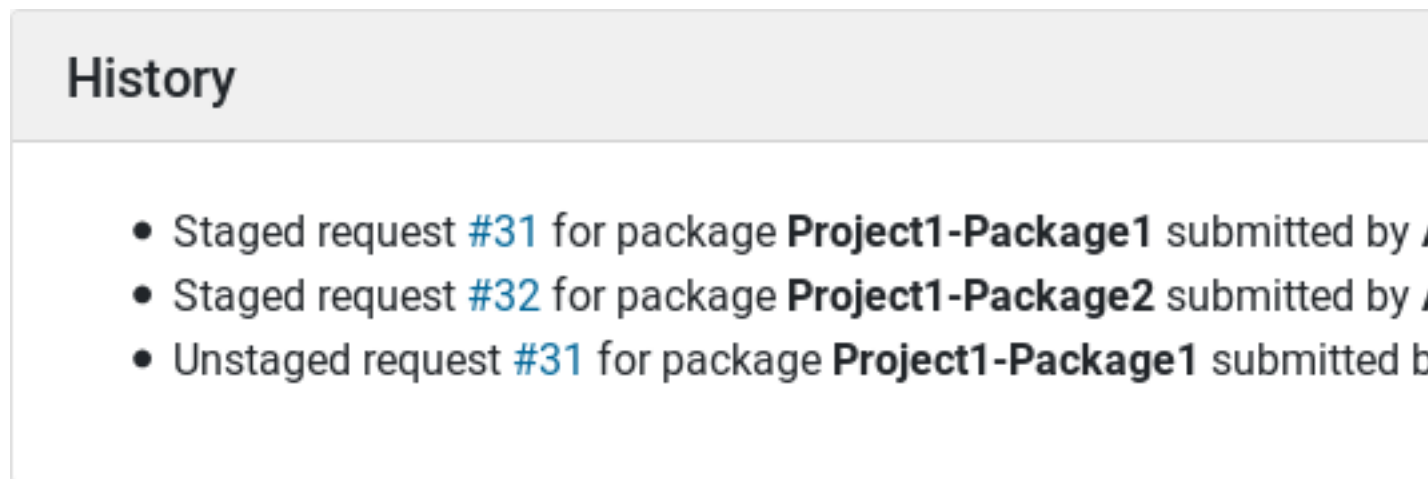


FIGURE 1.43: HISTORY



## 2 Basic Concepts and Work Styles

These best practices should be known by every OBS user. They describe how to set up projects and working with own or foreign sources.

### 2.1 Setup a project reusing other projects sources

You can also setup your own project using the sources, spec files and patches from another project and develop within this project.

```
#osc copypac SOURCEPRJ SOURCEPAC DESTPRJ
```

By default, Open Build Service will strip the maintainer info and now make it part of your own project. To clarify, when we speak of a project, it can mean just one package or a complete set of packages with their own build dependencies.

### 2.2 Contributing to External Projects Directly

In case a user does not have commit permissions for a project, they can request maintainership permissions for this project. This makes sense if the user is already known to the project owners and they trust them as a maintainer. There is a way to do this via the request system of OBS, but only via osc so far:

```
# osc createrequest -a add_me maintainer PROJECT
```

### 2.3 Contributing to Foreign Projects Indirectly

Users who are new to a given project, either because they are new users with Open Build Service or packaging or do not have any deeper knowledge about a certain project will not have direct commit permissions. However, they can still create a copy of any package source and ask back to merge their changes. Open Build Service has support to make this easy.

Wiki reference: [User comment page \(http://en.opensuse.org/openSUSE:Build\\_Service\\_Collaboration\)](http://en.opensuse.org/openSUSE:Build_Service_Collaboration) 

## 3 How to integrate external SCM sources

Application development usually happens in SCM systems like git, subversion, mercurial and alike. These external sources can be used directly in OBS via source services. OBS will always keep a copy of the sources to guarantee that the build sources are still available even when the external SCM server disappears or get altered.

### 3.1 How to create a source service

Let OBS create a tar ball out of an SCM repository. This just creates or extend a `_service` file with some rules how to download and package sources. The actual work happens on a local build or on a service side build. Please note that you need the `obs-service-obs_scm` installed for local runs.

```
# osc add https://SOME_URL.git
```

The web interface is creating as well a `_service` file when adding an URL to a SCM system.

#### 3.1.1 Follow upstream branches

The created `_service` file is set up to follow latest source submissions on each run and looks like this:

```
<services>
  <service name="obs_scm">
    <param name="url">https://github.com/FreeCAD/FreeCAD.git</param>
    <param name="scm">git</param>
  </service>

  <service name="set_version" mode="buildtime"/>
  <service name="tar" mode="buildtime"/>
  <service name="recompress" mode="buildtime">
    <param name="file">*.tar</param>
    <param name="compression">xz</param>
  </service>
</services>
```

This will create an obscpio archive via the obs\_scm service with the latest sources. This archive will get extracted at build time and be processed via the other services to build a compressed tar ball for rpmbuild. To follow a specific branch and additional parameter for "revision" is needed for the obs\_scm service.

### 3.1.2 Fixed versions

You may want to build an archive for a fixed version, for example an official release which has been tagged by the upstream project. It is recommend to specify the mode="disabled" and to submit the archive via the following

```
# osc service runall
# osc ar
# osc commit
```

commands.

### 3.1.3 Avoid tar balls

tar balls are not a requirement by OBS, but by the packaging tool, eg. rpmbuild. However, you may want to decide not to ship a tar ball inside of the src.rpm. This makes sense for large sources where the compression time and needed disk space is just considered a waste for short living builds. You can simplify your \_service file in that case, but you need to help rpmbuild to work directly in the source. It is also a good practice to package the \_service file instead of the tar ball to give the user a chance to rebuild the src.rpm as long the external SCM server is providing the sources. The simplified \_service file looks like this:

```
<services>
  <service name="obs_scm">
    <param name="url">https://github.com/FreeCAD/FreeCAD.git</param>
    <param name="scm">git</param>
  </service>

  <service name="set_version" mode="buildtime"/>
</services>
```

The spec file needs some hints to build inside the extracted sources directly. The macro can be used to switch to build tar balls or not to keep it working for stable releases where you want to provide a complete source rpm.

```
...
%define build_tar_ball 0
...
%if %{build_tar_ball}
Source0:      %{name}-%version.tar.xz
%else
Source0:      _service
%endif
...
%prep
%if %{build_tar_ball}
%setup -q
%else
%setup -q -n %_sourcedir/%name-%version -T -D
%endif
```

## 4 Publishing Upstream Binaries

This chapter covers main step of using OBS to publish binaries of your project for multiple distributions.

### 4.1 Which Instance to Use?

#### 4.1.1 Private OBS Instance

OBS is open source project and therefore you can set up your own instance and run it by your own. The main advantage of this approach is that you can keep all your sources and build recipes unpublished if you need to (for example because of NDA). Obvious downside of this approach is that you need to maintain your own server/servers for running builds, publishing and mirroring. Also making your project public may attract some potential contributors.

More information about setting up your own private OBS instance can be found in *Chapter 5, Setting Up a Local OBS Instance*.


#### 4.1.2 openSUSE Build Service

Other option is to use some publicly available instance of OBS. One good example is openSUSE Build Service at <http://build.opensuse.org><sup>7</sup>. This OBS instance can be used by anybody to freely create binaries for any of the supported distributions. Big advantage is that somebody is already taking care of all the infrastructure. You can store your sources there, build your packages and got them mirrored around the world. You do not need to get your own server and configure it, you can start using it right away.



### 4.2 Where to Place Your Project

This part helps you to decide on how to name and where to place your project and what project structure to create. This is more important if you are sharing your OBS instance with other people like in *openSUSE Build Service* (<http://build.opensuse.org>)<sup>7</sup>.

### 4.2.1 Base Project

If there are more packages in OBS, like for example in [openSUSE Build Service \(http://build.opensuse.org\)](http://build.opensuse.org) , these packages need to be somehow divided into projects so it is easier to find what people are looking for and it is not all just one big mess.

In openSUSE Build Service, packages are divided into categories regarding their function. MySQL is in *server:database* repository, lighttpd in *server:http* and for example KMyMoney has its own subproject in *KDE:Apps*. So it is a good idea to think about in what category available on the OBS your application will fit the best.

If you need whole project for yourself - for example some of your dependencies is being built in the same project, you need to request creating subproject. In openSUSE Build Service, this is done through asking OBS admins for it on [opensuse-buildservice mailing list \(mailto:opensuse-buildservice+subscribe@opensuse.org\)](mailto:opensuse-buildservice+subscribe@opensuse.org) . Its archive and link for subscribing can be found at <http://lists.opensuse.org/opensuse-buildservice/> .

If you need to just put your package somewhere, you can create it in your home project and then send submitrequest to the project you want your package to get included in.

### 4.2.2 Supporting Additional Versions

If you want to support more than one version of your program, you need to use several projects. The same package cannot be contained in the same project multiple times.

#### 4.2.2.1 Stable and Development Versions

Let's assume that you have found project suitable for your program. Some projects already have something like *STABLE* and *UNSTABLE* subprojects. So you can use these, if you discuss it with maintainers of these project. Other way is to ask somebody from the maintainers of the project to create either these subprojects (if they do not exist) or something similar. Always try to discuss it with the maintainers of the project. They might have good ideas, suggestions and may help you in various ways.

#### 4.2.2.2 Multiple Stable Versions

If you want to support multiple version, you would need more projects than just two as suggested in previous section. These special projects should contain versions they are supposed to support in their name. If you are creating them under some project you are sharing with other packages, having you package name in the name of projects is a good idea as well.

GNOME is a good example: There is the *GNOME* project and many subprojects. Among them are, for example, *GNOME:STABLE:2.30*, *GNOME:STABLE:2.32*, and *GNOME:STABLE:3.0*. These projects hold different stable versions of GNOME with latest fixes.

### 4.3 Creating a Package

Packaging is quite a complex topic. Instead of trying to cover it in this book, it is a good idea to start with available internet documentation. One of the recommended online resource is Portal:Packaging on openSUSE wiki. You can find it at <http://en.opensuse.org/Portal:Packaging>. It contains links to several packaging tutorials and other packaging related documentation.

### 4.4 Getting Binaries



#### Note

The following sections discuss feature available only in openSUSE Build Service—a freely available instances of OBS.

For a nice download page for your software published on openSUSE Build Service, use the openSUSE download page. You can include it for example using either `iframe` or `object` on newer websites. An example of download page can be following one <http://software.opensuse.org/download.html?project=openSUSE:Tools&package=osc>. You can see how it looks like in *Figure 4.1, “openSUSE download page for package from OBS”*. It contains links to the packages and instructions how to install them.

## Select Your Operating System



CentOS



Debian



Fedora



Mandriva



openSUSE



RHEL



SL



SLE

## Install using One Click Install

openSUSE Factory

openSUSE Factory PPC

openSUSE 11.4

openSUSE 11.3

openSUSE 11.1 Evergreen

## Add repository and install manually

## Grab binary packages directly

Packages for **openSUSE Factory**:

- [osc-0.132.5-56.2.noarch.rpm](#)
- [osc-0.132.5-56.2.src.rpm](#)

Packages for **openSUSE Factory PPC**:

- [osc-0.132.5-56.2.noarch.rpm](#)
- [osc-0.132.5-56.2.src.rpm](#)

Packages for **openSUSE 11.4**:

- [osc-0.132.5-56.1.noarch.rpm](#)
- [osc-0.132.5-56.1.src.rpm](#)

Packages for **openSUSE 11.3**:

- [osc-0.132.5-56.1.noarch.rpm](#)
- [osc-0.132.5-56.1.src.rpm](#)

FIGURE 4.1: OPENSUSE DOWNLOAD PAGE FOR PACKAGE FROM OBS

URL always has to start with <http://software.opensuse.org/download.html?>. You can attach any number of `&`-separated parameters. But at least two of them - *project* and *package* - are required. All parameters with descriptions can be found in *Table 4.1, "Parameters for Download Page"*.



TABLE 4.1: PARAMETERS FOR DOWNLOAD PAGE

parameter	description
<u>project</u>	Project in which your package is located
<u>package</u>	Name of your package as it is specified in OBS
<u>bcolor</u>	Background color in hexa (for example <u>bcolor=004</u> ) to make the download page better match your project page
<u>fcolor</u>	Text color in hexa (for example <u>fcolor=fff</u> ) to make the download page better match your project page
<u>acolor</u>	Link color in hexa (for example <u>acolor=ff0</u> ) to make the download page better match your project page
<u>hcolor</u>	Highlight color in hexa (for example <u>hcolor=0ff</u> ) to make the download page better match your project page

#### 4.4.1 Examples

Now we will take a look at how to include the download page into your project pages. As an example, we will use the osc client from the *openSUSE:Tools* project. To demonstrate the colors change, we will use theme that would match Midnight Commander.

First we will start with recent web page supporting new standards. On such a website, we would use object to include download code:

```
<object type="text/html"
  data="http://software.opensuse.org/download.html?
project=openSUSE:Tools&package=osc&bcolor=004&acolor=ff0&fcolor=fff&hcolor=0ff"
  width="100%" height="100%">
  <param name="src"
    value="http://software.opensuse.org/download.html?
project=openSUSE:Tools&package=osc&bcolor=004&acolor=ff0&fcolor=fff&hcolor=0ff" /
>
  Your browser doesn't support objects, please continue to the
```

```

    <a href="http://software.opensuse.org/download.html?
project=openSUSE:Tools&package=osc&bcolor=004&acolor=ff0&fcolor=fff&hcolor=0ff">
    download page</a>
</object>

```

If you are using php on your server, you can make it easier by using following code:

```

<?php
    $url = "http://software.opensuse.org/download.html?
project=openSUSE:Tools&package=osc&bcolor=004&acolor=ff0&fcolor=fff&hcolor=0ff";
    echo '
<object type="text/html"
    data="' . $url . '"
    width="100%" height="100%">
    <param name="src"
        value="' . $url . '" />
    Your browser doesn't support objects, please continue to the
    <a href="' . $url . '">download page</a>
</object>
';
?>

```

If you are running some legacy website, you might have to use iframe :

```

<iframe src="http://software.opensuse.org/download.html?
project=openSUSE:Tools&package=osc&bcolor=004&acolor=ff0&fcolor=fff&hcolor=0ff"/
>

```

## 5 Setting Up a Local OBS Instance

This chapter explains how you could setup/Install/test OBS in your system. This chapter is written for those who are not so familiar with Linux and OBS. So in case you are confident to set up OBS, skip this chapter. Following would be explained in this chapter.

- OBS 1 click install, then manual setup in openSUSE 13.1;
- OBS 1 click install, then manual setup in SLES11;
- OBS test run on Microsoft Windows using VMware player;
- OBS appliance installed manually in a VirtualBox.

Unfortunately, didn't have a chance to install OBS in other Linux distribution yet. The last section will explain your first steps with the new OBS server.

How you could install and purchase openSUSE 13.1 and SLES12 will not be explained in this chapter. VMware player install and purchase also will not be explained. For these topics, you could visit for help:

- <http://software.opensuse.org/131/en> ↗
- <http://www.suse.com/products/server/> ↗
- [http://my.vmware.com/web/vmware/free#desktop\\_end\\_user\\_computing/vmware\\_player/6\\_0](http://my.vmware.com/web/vmware/free#desktop_end_user_computing/vmware_player/6_0) ↗

### 5.1 Testing OBS on Microsoft Windows Using VMware Player

Those who are not familiar with Linux can run and test OBS. To run and test OBS in Windows, you could use a virtual machine program such as VMware or VirtualBox, etc. This chapter explains, how you can run OBS using VMware player. To check and test with VirtualBox or another virtual machine, check in below.

After you are done installing VMware player on Windows, you need to download the OBS appliance program. You could get OBS appliance file by visiting <http://openbuildservice.org/download/other/> ↗ and clicking on *VirtualBox/VMware Image*. After downloading, uncompress with some Windows archiving program that understands the .tar.bz2 file format.

Now, open VMware Player application and select *File > Open a Virtual Machine*, or you could press **Ctrl+O** directly. Open the decompressed virtual machine in *Open Virtual Machine* dialog box. Click on *Play virtual machine* icon or hyper link in VMware player.

At the Linux prompt, you can login using "root" as a login name and "opensuse" as a password. Now, OBS local instance should be already loaded and running in your system. To make sure that the OBS Web UI is successfully up and running, open the OBS Web UI.

To access OBS Web user interface, open your web browser and try the address <http://vm.ip.address>. You can check the virtual machine's IP address by using **ifconfig** Linux command. Now, you probably could see a screen like the one below in your window:

To login your local OBS instance, you could use default login name as "Admin" and password as "opensuse". Check if you could login properly by clicking *Login* on your local OBS instance Web UI.

## 5.2 OBS 1-Click Install on openSUSE 13.1

This section explains, how you can install OBS on top of openSUSE 13.1. Open your web browser and go to that URL [http://download.opensuse.org/repositories/openSUSE:/Tools/openSUSE\\_13.1/OBS\\_Server.ymp](http://download.opensuse.org/repositories/openSUSE:/Tools/openSUSE_13.1/OBS_Server.ymp) ↗

This YaST Meta Package file lets you install OBS by 1 click. In case you are using openSUSE 11.2 or below version, check if you could find 1 click install file in this URL [http://en.opensuse.org/openSUSE:Build\\_Service\\_Installation\\_SUSE](http://en.opensuse.org/openSUSE:Build_Service_Installation_SUSE) ↗

After you click on the above URL, you would see *Opening OBS\_Server.ymp* window, Select default selection which is *Open with YaST Meta Package Handler* and press **OK** button. Then *OBS\_Server Installation - YaST* window will appear. Select **Next** button after that till you get successful OBS setup message.

**TIPS :** In case you didn't install libMagickCore.so.2 in openSUSE, you might face dependency warning. In that case, stop the OBS install by pressing *Abort* button in *OBS\_Server Installation - YaST* window. Then search and install libMagickCore using a search engine like Google or others and repeat above processes. Then you will get an OBS setup message.

Now, OBS Server is installed in your openSUSE. To run OBS server, you need to work on several further steps. Open `/usr/share/doc/packages/obs-server/README.SETUP` file. To run OBS server, you need to follow each step of `README.SETUP` carefully based on your system situation. You can also find this `README.SETUP` file in our public [git repository \(https://github.com/openSUSE/](https://github.com/openSUSE/)

[open-build-service/blob/master/dist/README.SETUP.md](#) ↗. If you are using our stable release, you might want to switch to the corresponding branch, eg. 2.7 (<https://github.com/openSUSE/open-build-service/blob/2.7/dist/README.SETUP>) ↗.

If you follow instructions from README.SETUP file, you should be able to run OBS server in your system. There are several tips that I would like to comment regarding README.SETUP file.

TIP #1 : Check *3.1 Initialize fresh Database*. It might be described as

```
# cd /srv/www/obs/api/
# sudo RAILS_ENV="production" rake db:setup
# sudo chown lighttpd.lighttpd log/*

# cd /srv/www/obs/webui/
# sudo RAILS_ENV="production" rake db:setup
# sudo chown lighttpd.lighttpd log/*
```

but it should be

```
# cd /srv/www/obs/api/
# sudo RAILS_ENV="production" rake db:migrate
# sudo chown lighttpd.lighttpd log/*

# cd /srv/www/obs/webui/
# sudo RAILS_ENV="production" rake db:migrate
# sudo chown lighttpd.lighttpd log/*
```

For more information, see [https://en.opensuse.org/openSUSE:Build\\_Service\\_Installation\\_SUSE](https://en.opensuse.org/openSUSE:Build_Service_Installation_SUSE) ↗.

TIP #2 : If you get fail message because of "apisrv" in "6. Using osc with your local build service:", try apiurl instead.

You might face some issues during process to follow README.SETUP file. If you read and follow instructions carefully, you could run OBS local instance on your system successfully.

## 5.3 OBS 1-Click Install on SUSE Linux Enterprise Server 12

1 click install for OBS in SLES12. This section explains how you install OBS in SLES12. Installation of OBS in SLES12 is quite similar to OBS install method on openSUSE. I would skip some contents so you might need to have a look for prior section "OBS 1 click install on openSUSE 13.1".

Before you install OBS on SLES12, you need to download and install SLES12 SDK first. you could download SLES12 SDK in here <http://download.novell.com>.

After you download and install SLES12 SDK, We could use YMP file for OBS 1 click install like openSUSE 13.1. Open your web browser and go to this URL [http://download.opensuse.org/repositories/openSUSE:/Tools/SLE\\_11/OBS\\_Server.ymf](http://download.opensuse.org/repositories/openSUSE:/Tools/SLE_11/OBS_Server.ymf).

Like for openSUSE 11.3, I have referenced the previous from [http://en.opensuse.org/openSUSE:Build\\_Service\\_Installation\\_SUSE](http://en.opensuse.org/openSUSE:Build_Service_Installation_SUSE).

After you clicked on that URL, you would see *Opening OBS\_Server.ymf* window as described in the previous openSUSE 13.1 section. Press *OK* button and *Next* button after YaST2 window pops up. If YaST lets you know successful install of OBS server, then you are ready to activate and run OBS on SLES12.

To run OBS server on SLES12, you need to follow instructions based on `/usr/share/doc/packages/obs-server/README.SETUP` file as described in prior section. From here, you could refer to prior section for successful OBS run on your SLES12.

## 5.4 Installing a Readymade OBS Appliance in a VirtualBox

This method is slightly less easy than the method using the readymade vmdk VMware disk, but it enables you to determine the size of your virtual disks to your convenience. It could also work with a real computer with two disks. It requires some knowledge of command line and partitioning.

1. Download the OBS appliance installer. Visit: <http://www.openbuildservice.org/download> and press the *Download the OBS Appliance Installer* button. It will start downloading an ISO image.
2. In VirtualBox, create a virtual machine with:
  - 4 GB memory
  - 1 virtual hard disk of 20 G for `/` and `/var/cache/obs`
  - 1 virtual hard disk of 50 G for `/srv/obs`

- a virtual CD-ROM driver pointing to the downloaded ISO image
  - network bridging with real Ethernet card
3. Boot the virtual machine and choose to install the OBS server on the smaller virtual hard disk.
  4. Log into the virtual machine with Login: root and Password: opensuse. If needed, switch to German/French/whatever keyboard: **# loadkeys de**. Inspect partitioning: **# df -h**. It shows you that the root partition is small and already almost full (1.6 GB used out of 1.8). Let's prepare the other partitions to get a bit more working space. First, **# fdisk /dev/sda** and prepare **/dev/sda2** to use the remaining space. Second, **# fdisk /dev/sdb** and prepare **/dev/sdb1** to use all the space, with type 8e (Linux LVM):

```
# pvcreate /dev/sdb1
# vgcreate OBS /dev/sdb1
# lvcreate -n server -L 48G OBS
# mkfs.ext4 /dev/OBS/server
```

5. Reboot, this time onto the hard disk. The CD-ROM might be disconnected, we will not need it anymore. Log in as root user, change keyboard if needed, and format **/dev/sda2**: **# mkfs.ext4 /dev/sda2**. Add following entry to **/etc/fstab**:

```
/dev/sda2 /var/cache/obs ext4 defaults 2 1
```

Mount the new partition: **# mount /dev/sda2**. Get your IP address: **# ifconfig**.

## 5.5 First Steps with Your New OBS Server

At this point, one of the methods above should have provided you with a running OBS instance. Let us get our first package building.

1. From a web browser, access the web interface: <https://vm.ip.address/>. Accept the self-signed certificate.
2. In the top right corner of the web interface, there is a *Log In* option. Use it to log in as: Admin opensuse.
3. Click on the *Configuration* button to give your server a name and a description. Click on the *Interconnect* option. Choose *openSUSE* as the remote repository where we will pick up the packages of the build environment. Log out of the web interface.

4. Use *Sign Up* option to create a regular user account (for example: hmustermann).
5. As this normal user, click on the *Home Project* option and create your home project (that would be: "home:hmustermann").
6. Go to this home project, and click on *Create package* to create your first package (let's say: "mypackage").
7. Go back to your home project, and click the *Repositories* button. Choose to add a new repository and pick *openSUSE 13.1* (for example).
8. Reboot the virtual machine to ensure all projects are rescanned.
9. From outside the virtual machine and as a normal user, declare in `~/.osrcrc` your new OBS user:

```
[https://vm.ip.address]
user=hmustermann
pass=bond007
```


then checkout your new package: `$ osc -A https://vm.ip.address co home:hmustermann`. go to your first package: `$ cd home:hmustermann/mypackage`. and add some sources there (tarball, spec file, changelog, patches). Check them in, then trigger a remote build:

```
$ osc add *
$ osc commit
$ osc rebuild
```

10. The built packages can be seen at: `http://vm.ip.address:82/`



## 6 Bootstrapping

This chapter explains Boot strapping. In this chapter, You would learn how you could have other OBS projects and packages to your local OBS instance after your OBS install. There are some useful OSC commands examples and OBS working mechanism explanation in this chapter also. Basically this chapter is a copy from Build Service portal. For information about OBS bootstrapping on the Build Service portal, see [https://en.opensuse.org/openSUSE:Build\\_Service\\_private\\_instance\\_boot\\_strapping](https://en.opensuse.org/openSUSE:Build_Service_private_instance_boot_strapping) .

### 6.1 The Issue

If you create a private instance of an OBS it is likely to be fully independent. This means that your OBS needs to build its full reference tool chain. This process—called bootstrapping—presents the same problem as the Chicken and the Egg, which one came first! In other words, you need to create a tool chain with the tool chain that you want to create.

### 6.2 A Cheat Sheet

#### 6.2.1 Creating Your First Project

Log on to the Web API. The default user Admin, with the password `opensuse` is available. Create your own login and password and set yourself as Admin. Log on to the Web UI as Admin and click on the icon *Configuration* and add the openSUSE Build Service as the remote instance. Select from under *Locations* › *Projects*. At the end of the list, click *Add Project*. Give it a name (e.g. Meego-test) Select your new project and create a sub-project 0.1. You have now a project Meego-test:1.0 Sub projects are handy to propagate Access Control Lists (acl) and for creating the version as a sub project simplifies the user and project administration.

#### 6.2.2 Importing Your Base Linux Project

We are now going to import the base project. I will describe two methods, one where you have a login on a remote OBS instance, one where you have only access to the rpm repository. In both cases you will need access to binary and source rpm.

### 6.2.2.1 With a login on a remote OBS

The osc copypac (I assume that you have installed the osc package on your workstation) has an option -t which enables copying towards a remote target OBS instance. osc help and osc help command will advise on how to use these. First you need to import the project configuration.

```
$ export PROJECT=MeeGo-test:0.1
$ osc -A http://api-url-source-obs meta prjconf $PROJECT > my_project.conf
$ osc -A http://api-url-target-obs meta prjconf -F my_project.conf $PROJECT
```

Then import the project. As you might have some Links in the project that you import, it is a good idea to keep the source and target project names identical.

```
$ PRJ=ProjectToCopy; for i in `osc -A http://api.source.obs.domain ls $PRJ`; do \
osc -A http://api.source.obs.domain \
copypac -t http://api.target.obs.domain $PRJ $i $PRJ ;done
```

### 6.2.2.2 Without a Login on a Remote OBS

If you have access only to the repositories of your source reference target, then your life will be a bit more difficult. My advice would be to recheck if you find you cannot get a login on a public OBS service - such as provided by openSUSE or MeeGo - before proceeding this way. You will not be able to import the project config and you will have to create it by hand. This is too long to be covered in this HowTo. For more explanation about Build Service project config, see [http://en.opensuse.org/openSUSE:Build\\_Service\\_prjconf](http://en.opensuse.org/openSUSE:Build_Service_prjconf).

Then you need to download all your rpm source on to a local machine and import it into your project with the command.

```
$ osc importsrpkgs
```

### 6.2.2.3 Bootstrapping

To initiate the build process, we will copy the rpm binary from the source OBS of the source project. These binary rpms, from which we will remove any reference to release and version, will be used to trigger the first build. The OBS appliance will recompile all the rpms until all rpms in the project have been compiled only with packages compiled from their source code. Some base packages (e.g. tool chains) will be compiled several times during that process. Alternative You can build a first time against a target which is similar to the base that you need to boot

strap in lieu of building against your own base and change the build reference to your bootstrap base once that the first build has been successful. Remember that you can also build against remote baseline. Double check that the preliminary step have been executed correctly. You must have already : copied a Linux base distribution in an OBS project defined a build target for that base project.

If you have not defined a build target, the necessary directory structure will not exist. This is a mandatory step of preparation. Stop the scheduler as it will create a mess if the system is not stable:

```
# rcobsscheduler stop
```

\* Add binaries to the :full directory of the Project ssh onto the OBS server. Now go to the project's build directory, and create a directory called “:full”. Note : standard is the default name of your Build repository as defined in your project. It might change depending on who created the initial build repo.

```
# cd /obs/build/$PROJECT/standard/i586
```

This directory structure should already exist. If not, there is a problem (note that /obs is link and the target may vary with your implementation). Now create the “:full” directory. \$ mkdir :full Copy over all the binary rpms of the project you are trying to build from scratch. These rpms should have the release and version numbers stripped from them. e.g. alsa-util-s-1.0.22-2.7.i586.rpm -- should be – alsa-utils.rpm Note : If the original project has a :full directory you can copy from there to avoid the issue of stripping version and release numbers. \* Add binaries to the :full directory of the Project. Change all user/group privileges under /srv/obs/build/ to “obsrun”

```
# chown -R obsrun:obsrun /srv/obs/build
```

If you leave root as owner of :full, it will still build but the scheduler will fail (almost silently) to upgrade :full with the latest built packages. Except in very special cases, it is very unlikely that you want to do so. \* Start the OBS scheduler

```
# rcobsscheduler start
```

\* Force the obs to reindex your new :full directory. It will send an event to the scheduler which will create a file named :full.solv

```
# obs_admin --rescan-repository $OBS-PROJECT $REPO $ARCH
```

### 6.2.2.3.1 Troubleshooting

At that time you should see your project restarting to build. If that would not be the case. \* check that your files in your target :full directory are all own by the user obsrun. The following command should not return any file name.

```
#find /obs/build ! -user obsrun
#chown -R obsrun:obsrun /obs/build (will correct ownership issue)
```

\* Force the obs to reindex your new :full directory. It will create a file named :full.solv

```
$obs_admin --rescan-repository $OBS-PROJECT $REPO $ARCH
```

\* Check that your rpm are valid (e.g. not damaged during transfer)

```
#cd /obs/build/$PROJECT/standard/i586:full
#for I in `ls *.rpm` ; do rpm -qlp $I >/dev/null; if [ $? -ne 0 ] ;then echo $I >>../
error.lst ; fi ; done
#cat ../error.lst (must be empty, all rpm in error needs re-installation)
```

\* Still not working, get a look in the log files in the directory /obs/log. You can start by having a look at /obs/log/scheduler\_TARGET\_ARCH.log and search from the end for the string "expanding dependencies". You will find from there why the scheduler fails.

```
#tail -f /obs/log/scheduler_i586.log
```

## 6.3 Creating a First Project

After creating a dedicated user via the Web API, log onto the Web UI again with your new login. Open your home project and create a sub project called "MyTest". To add a package in your new Home project, simply create a link [link Package from other Project] with one of the packages recently copied in your new OBS instance (see previous chapter Import your base project). Pick up a small one to speed compilation time. Click on the "+" near Build Repositories to add a repository. Move to the end of the page where all the standard Linux distributions are listed and click on [Advance]. Give a name to your repo, e.g. my-test and pick from the list the project/repo that you have just imported and rebuilt. This will request the OBS to build your new Home project against that repository. You can now check out your Home project with the osc command, modify a file or two and at your next check-in, the OBS will rebuild your Home project. If your reference project changes, the OBS will also rebuild your Home project.

## 7 osc Example Commands

This chapter explains and shows OSC commands examples. You could use OBS much more efficiently with OSC commands. `$man OSC` will show you [GLOBALOPTS], SUBCOMMAND, [OPTS][ARGS....]. You also could find some OSC commands examples from OBS Build Service portal. This chapter will take every OSC command examples from OBS Build Service portal and describes it in here. You could visit Build Service portal OSC command explanation at [https://en.opensuse.org/Build\\_Service/CLI](https://en.opensuse.org/Build_Service/CLI).

### 7.1 Package Tracking

With osc it is also possible to manage packages in a SVN like way. This feature is called package tracking and has to be enabled in `~/.osrc`'s [general] section

```
# manage your packages in a svn like way
do_package_tracking = 1
```

Add a new package to a project

```
osc mkpac [package]
```

Add an already existing directory and its files to a project

```
osc add [directory]
```

Remove a package and its files from a project

```
osc deletepac [package]
```

All the commands above only change your local working copy. To submit your changes to the buildservice you have to commit them (`osc ci -m [message]`). The status command also displays the state of the packages

```
osc st
```

## 8 Advanced Project Setups

These best practices describe more complex setups, for example how to rebuild an entire stack with minimal effort.

### 8.1 Rebuilding an Entire Project with Changes

### 8.2 Integrating Source Handling

### 8.3 Using OBS for Automated QA

## 9 Building Kernel Modules

## 10 Common Questions and Solutions

This currently an unsorted list of asked questions.

### 10.1 Working with Limited Bandwidth

Packages can contain large files, esp. some tar balls can become quite large, in some real life examples several hundred mega bytes. This can be a problem when you need to work on the package via a slow connection.

#### 10.1.1 Using the Web Interface

The web interface is the easiest way to edit simple things without the need of the checkout.

Disadvantages are

- Not the preferred solution for power packagers
- No local build possible
- Still a significant bandwidth is needed compared to the size of the edited file.

#### 10.1.2 Using **osc** with Size Limit

**osc** offers to skip files with a certain size (specified with **-l** switch) on checkout. The limit is stored locally and you can also run an update later without downloading any large files. All other files can be edited, diffed and committed as usual.

Disadvantages are

- The checkout is incomplete
- No local build possible

#### 10.1.3 Using **download\_url**

Manage your large files via source services. The easiest way is to use **osc add \$URL** which just stores a small **\_service** file. The check will not contain the large files by default, but they get downloaded when needed via the service. However, they will never get committed, so this



is the best approach when you have a fast downstream, but slow upstream like with standard DSL connections. Also other users can trust your tar ball, esp. important when you do version upgrades on foreign packages.

Disadvantages are

- The generated files have the `_service:` prefix in check out (but not during build).

#### 10.1.4 Using Source Services in trylocal Mode

Manage your large files via source services in try local mode for example with `download_url` or `download_files` service. This means you can be flexible depending on your current connection without changing the setup. The service is generating the file on the server side when you decide not to commit it, but you can also decide to commit it and avoid the `_service:` prefix on the files. Also other users can trust your tar ball, esp. important when you do version upgrades on foreign packages.

Disadvantages are

- A checkout may still need the size limit switch when last commit contained the large files.

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