OpenSUSE Buildservice und SUSE Studio

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Agenda

OpenSUSE Build Service

SUSE Studio

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OpenSUSE Build Service

OpenSUSE Build Service To The Rescue

- OBS builds binary packages for many distributions and platforms
- OBS makes them available for download

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Software Packaging Is Solved – Is It?

- How to reach many users with working software package?
- How to build for different distributions?
  - Different distributions place files in different locations
- How to build for different versions of a distribution?
- How to build for different architectures?
- How to build in such a way that local modifications of build machine will not break the build package?

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- The openSUSE Build Service (OBS) is an open and complete distribution development platform. It provides the infrastructure to easily create and release open source software for openSUSE and other Linux distributions on different hardware architectures.

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OpenSUSE Build Service - Facts

- The openSUSE Build Service (OBS) is an open and complete distribution development platform
- infrastructure to easily create and release open source software
  - Debian, Fedora, Mandriva, openSUSE, Red Hat, SUSE Linux Enterprise and Ubuntu
- build the openSUSE distribution
- public server http://build.opensuse.org
  - over 20.000 users
  - about 100.000 packages
  - 21 base distributions
  - on 6 architectures.

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Welcome to the openSUSE Build Service

The openSUSE Build Service (OBS) is an open and complete distribution development platform that provides a transparent infrastructure for development of the openSUSE distribution.

The openSUSE Build Service provides software developers with a convenient and easy to use tool to create and release open source software for openSUSE and other Linux distributions like Ubuntu, Fedora, Mandriva and Debian on different hardware architectures and for a broad user audience. In addition to that you can also build appliances via kiwi inside of the OBS based on the packages you build before.

With the openSUSE Build Service, users can easily find the latest open source packages they are looking for and customize them. For developers it is an efficient place to build up groups and work together through its project model.

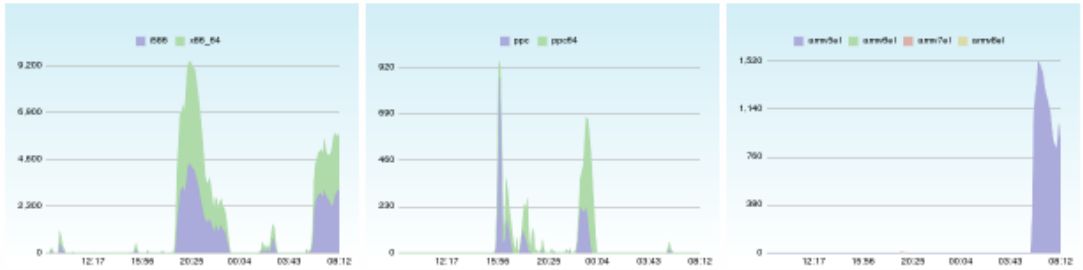
The openSUSE Build Service developer team is greeting you. In case you use your OBS productive in your facility, please do us a favor and add yourself at this wiki page. Have fun and fast build times!

Go here to register a new user.

Proceed to:

List of All Projects | Search | Status Monitor

System Status



Contact

Please join our mailing list (Archives) for discussions around the Build Service.

We also have an active IRC channel #opensuse-buildservice running on Freenode.

Latest updates

- trac-announcer-plu...: 14 min ago
- trac-announcer-plu...: 15 min ago
- openCOLLADA: 50 min ago
- blender: 1 hour ago
- vim: 1 hour ago
- kchildlock0761: 1 hour ago

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AMD Smarter Choice

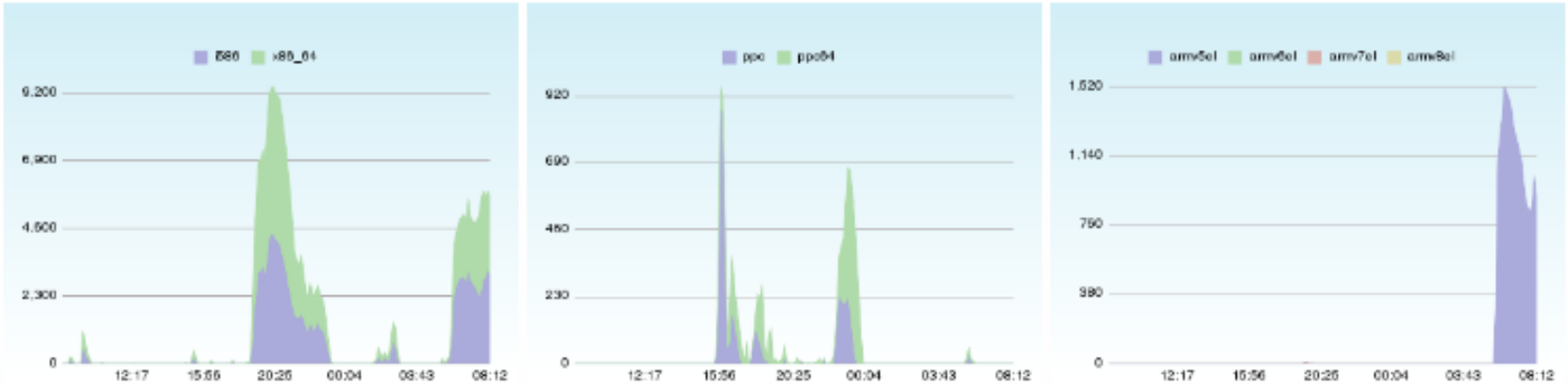
Top Business Colocation Services Germany

Silver Sponsor

B1 SYSTEMS

OBS System Status

System Status



The above graphs show the amount of packages that are waiting to be build (6208 at the moment) on the different architectures. Currently 243 of 294 build hosts are busy building packages.

The openSUSE Build Service hosts **15,738** projects, with **106,777** packages, in **27,257** repositories and is used by **25,343** confirmed users.

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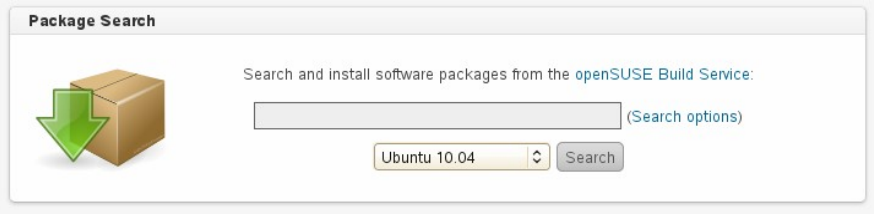
Different Users

- For Users:
  - Build openSUSE releases
  - find latest software packages
- For Developers
  - Project model
  - Different archs
  - resolving of dependencies
  - Linking: test patches
  - Open interface



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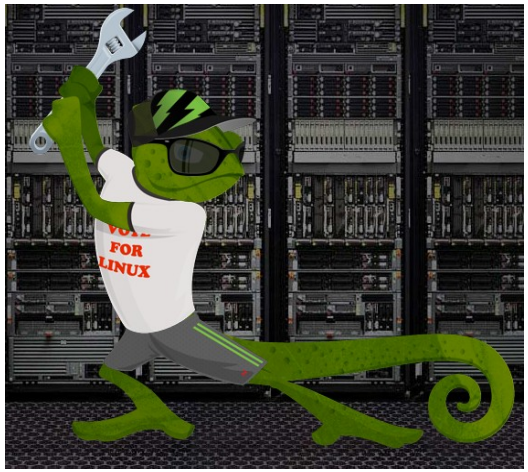
Different Users

- For Distributors or ISVs
  - OBS under GPLv2
  - Use as OBS appliance
  - Who: DELL, Intel, LinuxFoundation, Cray, Open-Xchange, Moblin, VideoLAN repos, Packman, MeeGo



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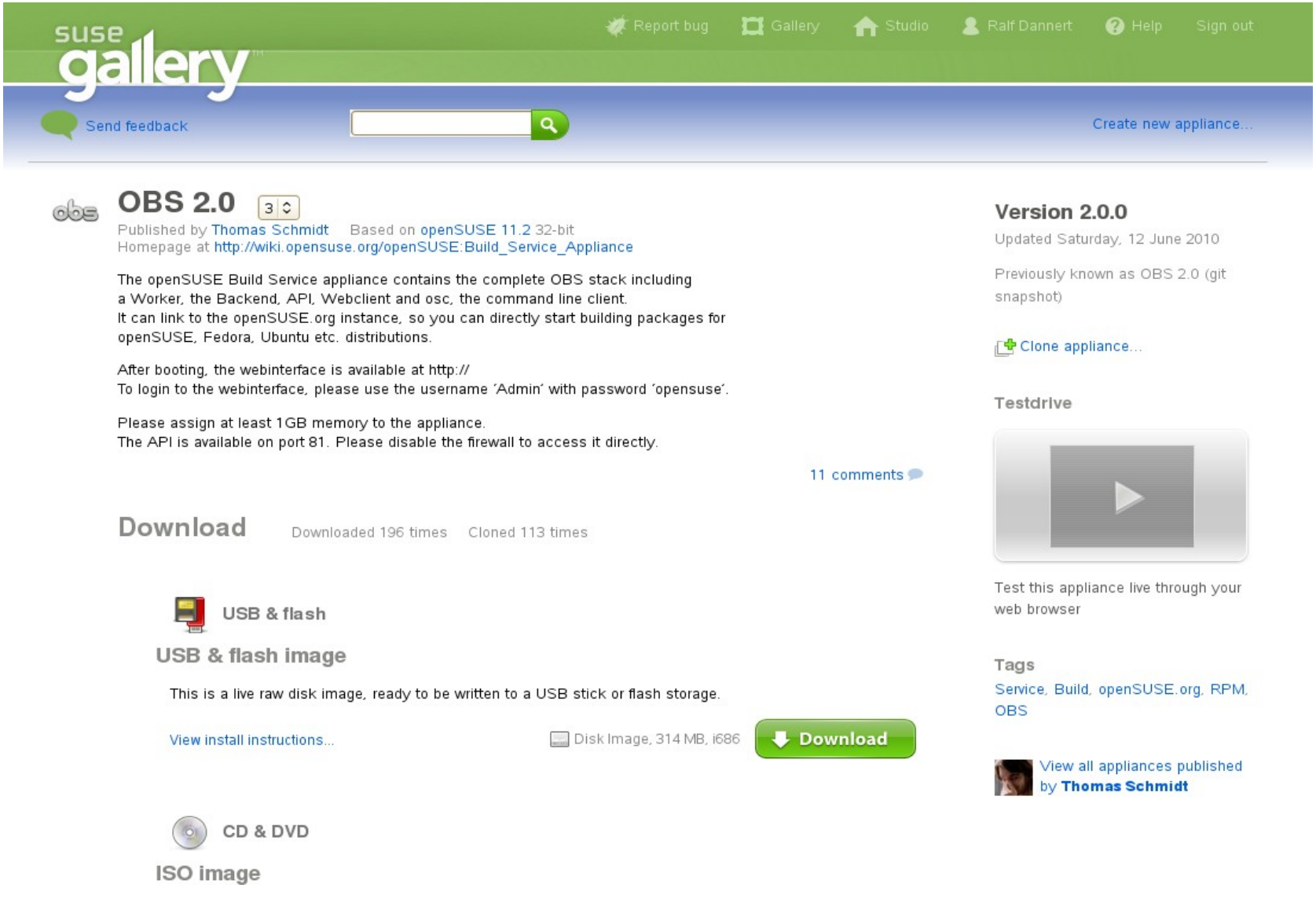
OBS Appliance On Susegallery.com



Building For Different Distributions

- Project management
  - building for multiple distributions
  - building on top of multiple projects
- Building packages: how to control the build environment
  - automatic package expansion
  - dealing with ambiguities and excess packages
  - automatic package name rewriting
- Working around installation script differences.
  - build service offers standard set of macros

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Distributions As Projects

- Build service contains multiple complete distributions:
  - OpenSUSE Factory
  - OpenSUSE 11.3
  - Mandriva 2010.1
  - Fedora 13
  - Debian Etch
  - Ubuntu 10.04
- These distributions can be used as “base” for other projects.

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Deb Versus Rpm Packages

- contents of spec file and debian build files are very different:
  - rpm uses many macros
  - deb uses many debian helper (dh_xxx) scripts
  - different installation script semantics (order, arguments)

→ Build service does not try to build a deb package from a spec file or vice versa

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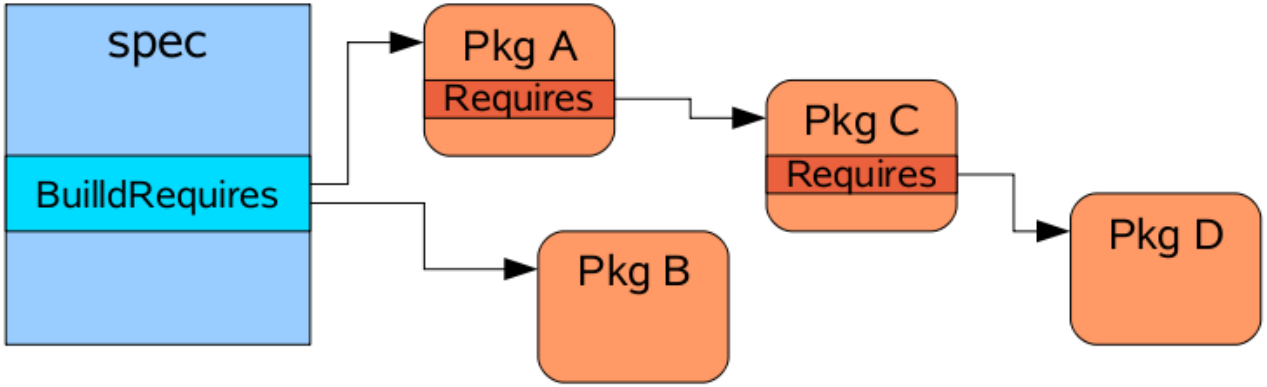
Setting Up The Build Environment

- The build service can build deb and rpm binary packages
  - parses BuildRequires / Build-Depends from spec file / dsc file
  - packages get automatically added so that all of the run-time dependencies are met



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Terminology

- Projects:
  - resources needed to build one or more packages
  - source archives, patch files, spec files, etc
- Output:
  - one or more repositories(correspond to OS versions)
- "playground" project:
  - home:username
- runtime "Requires" will often also depend on it at build time "Build-Requires"

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Handling Of Dependencies

- where to get the required package?
  - add required package(s) to repo
  - link other project's repository to your repo
    - editing the meta-data
    - will search for "Build-Requires"
  - Linking: re-use package that already exists
    - Link: building a different version (modify) with different build number
    - Aggregate: "read-only" link, is copied
  - OBS detects changes in linked packages and triggers rebuilds

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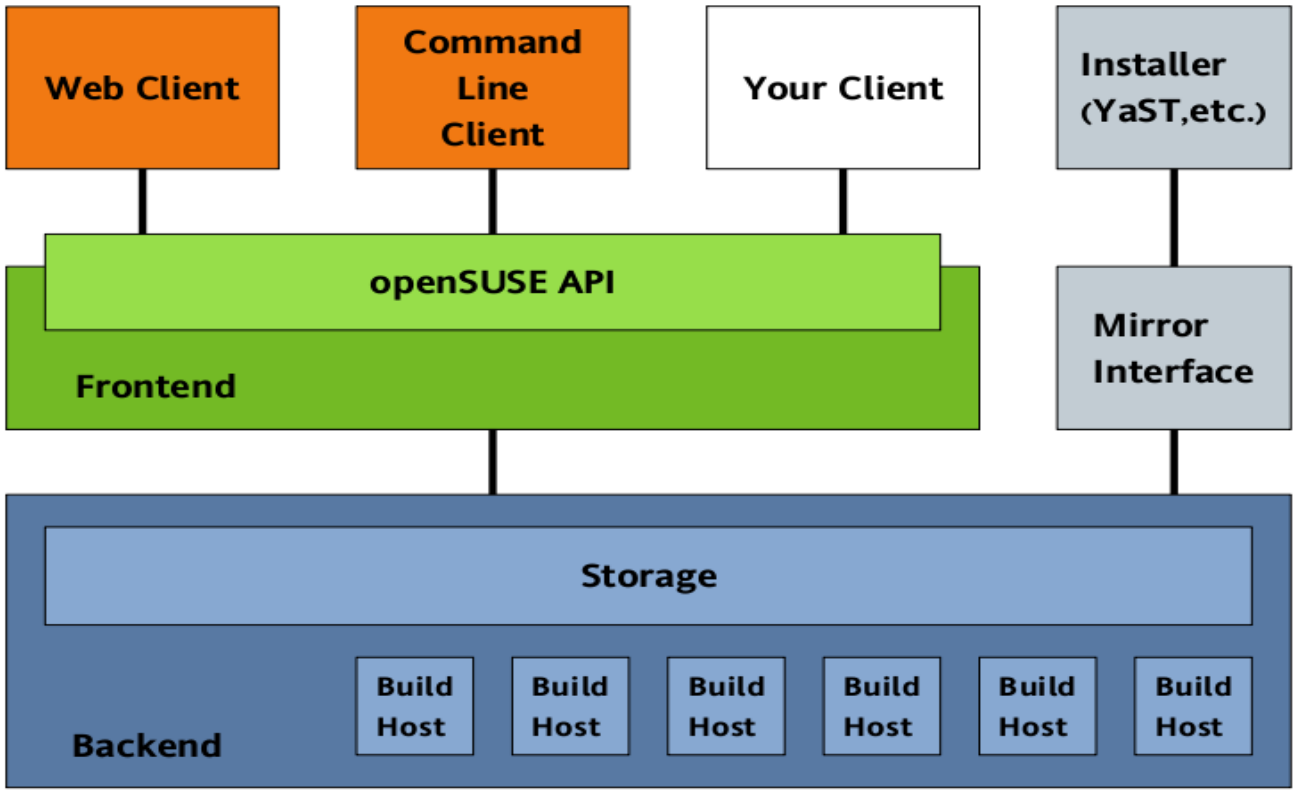
Architektur



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openSUSE Build Service Cheat Sheet

for openSUSE Distribution building – Version 1.0 by aj@opensuse.org

Fixing a Package in Factory

- Branch package into project in your home project and check out package directly:
  `osc bco (getpac) $PACKAGE`
  (Note: `getpac` is alias for `bco`)
- Fix package
- Build and test locally:
  `osc build`
- Add changes entry:
  `osc vc`
- Commit everything into Build Service:
  `osc commit (ci)`
- Wait for building of packages on all architectures and check status:
  `osc results (r)`
- Submit to devel project:
  `osc submitrequest (sr)`

Reviewing Package Submissions

The web user interface has a good summary at:
https://build.opensuse.org/home/list_requests .

Via osc:

- Show all review requests that you can approve:
  `osc my rq`
- Review single request:
  `osc rq show -d $ID`
- Handle it:
  - Approval:
    `osc request (rq) accept $ID`
  - Rejection:
    `osc request (rq) decline $ID`
- Forward to Factory:

```
osc submitrequest (sr) $SOURCEPRJ \
 $PKG openSUSE:Factory
```


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OBS Commandline Client - Osc

- osc rdiff
  - rdiff: Server-side "pretty" diff of two packages
  - Compares two packages (three or four arguments) or shows the changes of a specified revision of a package (two arguments)
- osc linkpac
  - linkpac: "Link" a package to another package
  - A linked package is a clone of another package, but plus local modifications. It can be cross-project
- Useful commands:
  - dependson, aggregatepac, copypac, triggerreason, submitrequest

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Osc

- osc meta pkg PRJ PKG -e
  - prj denotes metadata of a buildservice project.
  - prjconf denotes the (build) configuration of a project.
  - pkg denotes metadata of a buildservice package.
  - user denotes the metadata of a user.
  - pattern denotes installation patterns defined for a project.
- osc buildinfo REPOSITORY ARCH [BUILD_DESCR]
  - contains a list of the packages used in building, their source, and the expanded BuildRequires
  - BUILD_DESCR is a local RPM specfile or Debian "dsc" file

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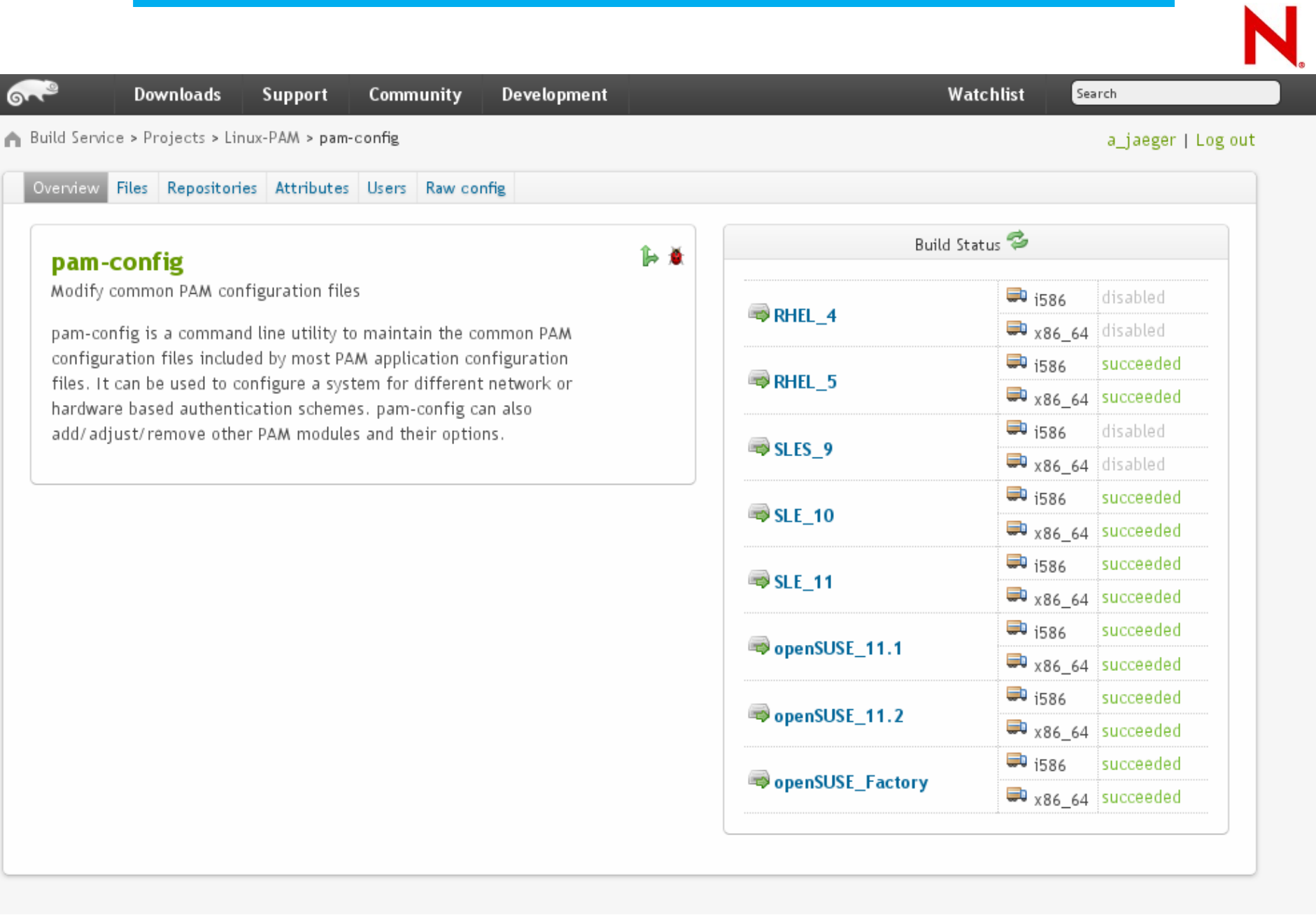
You can configure individual flags for this package here. The repositories are inherited from the project net-snmp.

Build Flag

	All	i586	x86_64
All			
CentOS_5			
Debian_4.0			
Debian_5.0			
Fedora_12			
Fedora_7			
Fedora_8			
Fedora_9			
Fedora_Extras_6			
openSUSE_10.2			
openSUSE_11.1			
openSUSE_11.2			
openSUSE_Factory			

Publish Flag

	All	i586	x86_64
All			
CentOS_5			
Debian_4.0			
Debian_5.0			
Fedora_12			
Fedora_7			
Fedora_8			
Fedora_9			
Fedora_Extras_6			
openSUSE_10.2			
openSUSE_11.1			
openSUSE_11.2			
openSUSE_Factory			



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OBS Powered By Mirrorbrain

Mirrors for http://download.opensuse.org/repositories/net-snmp/CentOS_5/net-snmp.repo

Powered by MirrorBrain

- Size: 229 (229 bytes)
- Last modified: Tue, 19 Oct 2010 00:42:16 GMT (Unix time: 1287448936)
- SHA-256 Hash: `b567fcae0de9ece9feb967dace7b47b1af0a38677f644920a501ec51ce42c340`
- SHA-1 Hash: `d505ad99861bf1fc60d9d5e7cd4264d3757abc69`
- MD5 Hash: `b6b24c1aa9b9981250694102cd028ab9`
- BitTorrent Information Hash: `5d79f964c396da0fe251d95bc6073e6e32c5e50b`

Metalinks for easier, more reliable, self healing downloads:
http://download.opensuse.org/repositories/net-snmp/CentOS_5/net-snmp.repo.meta4 (IETF Metalink)
http://download.opensuse.org/repositories/net-snmp/CentOS_5/net-snmp.repo.metalink (old (v3) Metalink)
P2P Links:
http://download.opensuse.org/repositories/net-snmp/CentOS_5/net-snmp.repo.torrent (BitTorrent)
http://download.opensuse.org/repositories/net-snmp/CentOS_5/net-snmp.repo.magnet (Magnet)

List of best mirrors for IP address , located in country DE, 212.184.0.0/15 (AS3320):

Found 3 mirrors which handle this country (DE):

- http://ftp.halifax.rwth-aachen.de/opensuse/repositories/net-snmp/CentOS_5/net-snmp.repo (de, prio 130)
- http://ftp5.gwdg.de/pub/opensuse/repositories/net-snmp/CentOS_5/net-snmp.repo (de, prio 110)
- http://widehat.opensuse.org/repositories/net-snmp/CentOS_5/net-snmp.repo (de, prio 50)

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Try It!

- Access http://build.opensuse.org
- a running instance of the Build Service, contains links to documentation and source
- http://en.opensuse.org/Category:Build_Service
- Wiki documentation class for Build Service
- opensuse-buildservice@opensuse.de
- The mailing list for discussing the Build Service.
- #opensuse-buildservice on freenode

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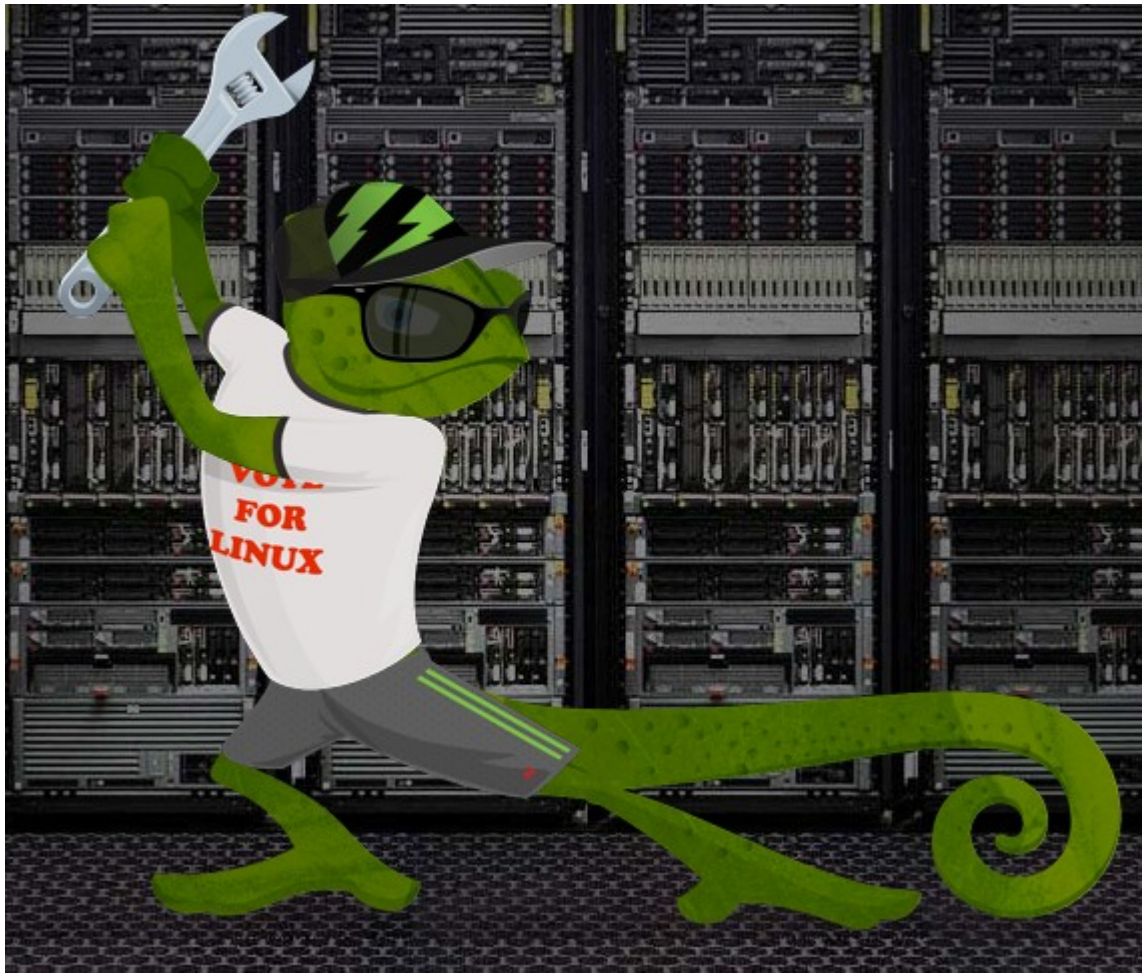

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The Value Of Software Appliances

Vorteile Von Appliances

- Einfach in Betrieb zu nehmen
- Kleine Systeme
- Keine Software-Installation und Konfiguration durch User
- Definierter Inhalt
- Definierte Systemumgebung
- Leicht zu warten

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Beispiel-Anwendungen

- Demo-Medien (Marble Live-CD, Mono Demo-DVD)
- Live USB-Sticks (openSUSE mit KDE 4.2)
- Installations-Medien für spezielle Hardware (EeePC)
- Server-Appliances (LAMP-Server)

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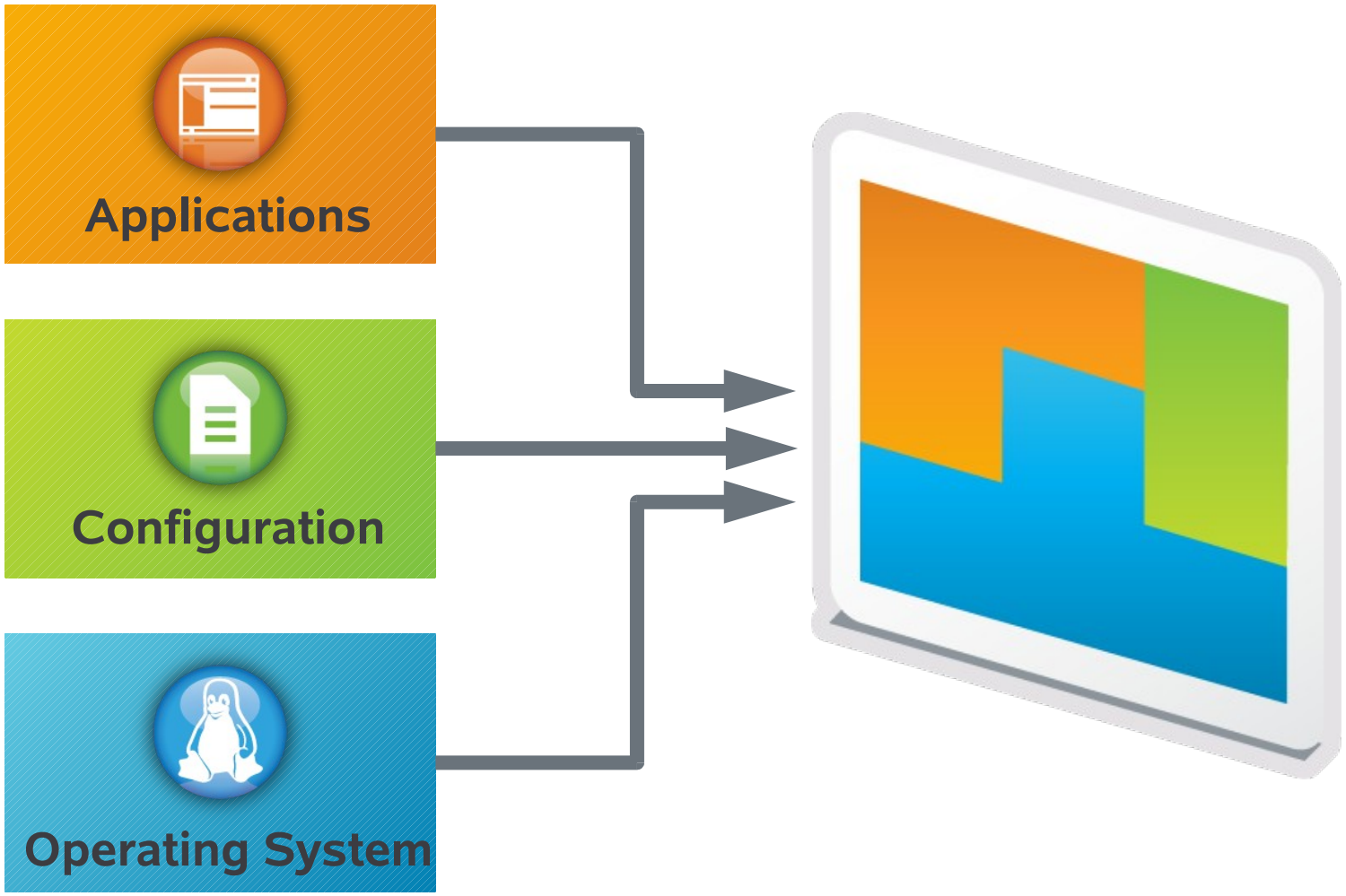
Why Not Do Most Of That Just Once?



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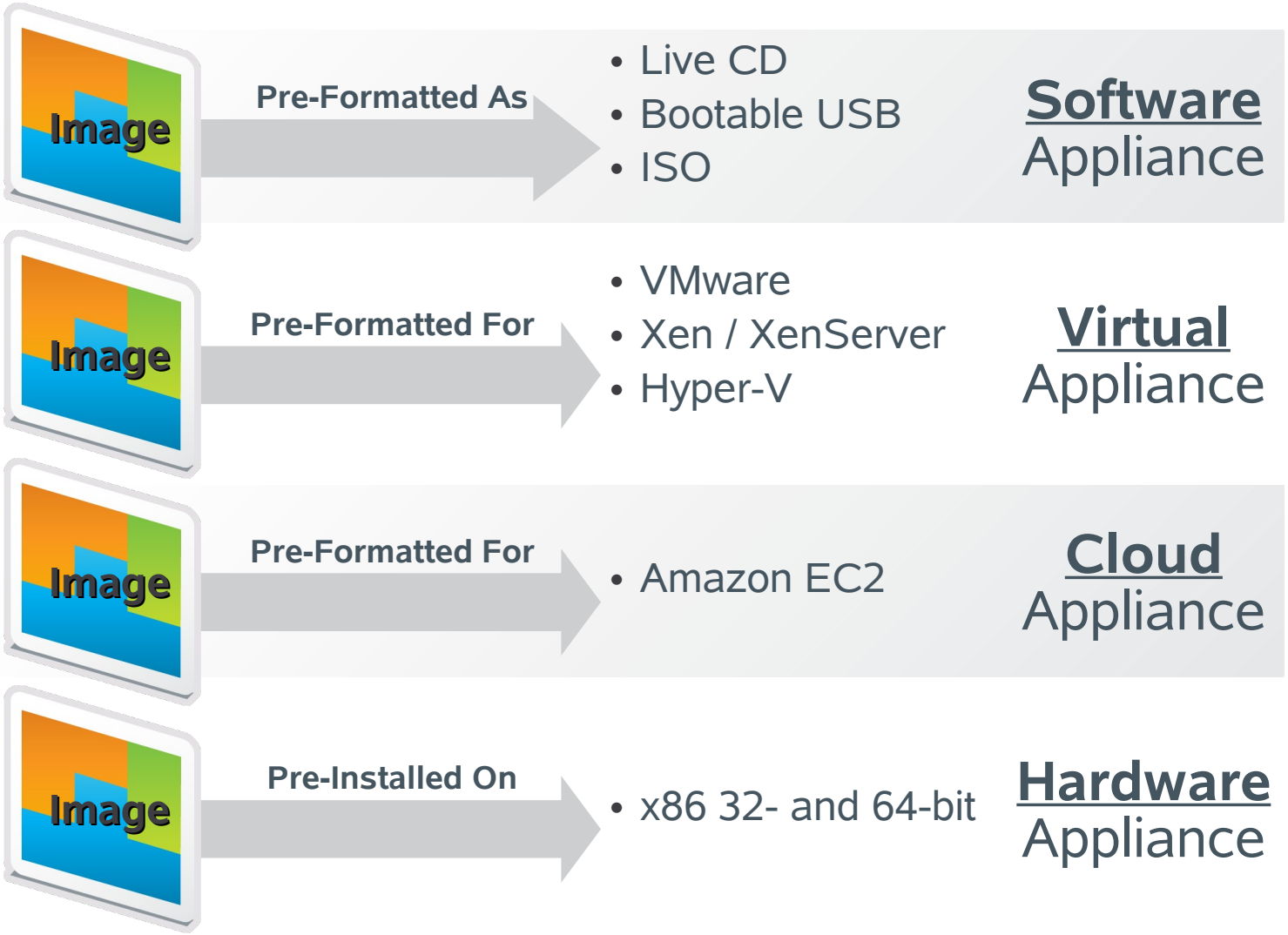
Several Types Of Appliances
All Relevant to Novell®



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SUSE® Linux Enterprise
Great Platform for Appliances

- SUSE Linux Enterprise Server
  - Underlying OS for Appliance Program
  - Fully supported, scalable, enterprise class Linux distribution
  - Optimized to be the Perfect Guest across VMs (Xen, Hyper-V and VMware)
  - Single platform certification - physical, virtual or appliance form
  - Mono® /.NET supported application platform
  - Systems management interoperability with MS
- SUSE Linux Enterprise JeOS
  - Fully supported and easy for appliance builds
- SUSE Linux Enterprise Server for Amazon EC2
  - Flexibility to create appliances ready for cloud computing
- SUSE Linux Enterprise Server for VMware
  - SUSE Linux Enterprise Server is standard OS for VMware virtual appliance-based offerings

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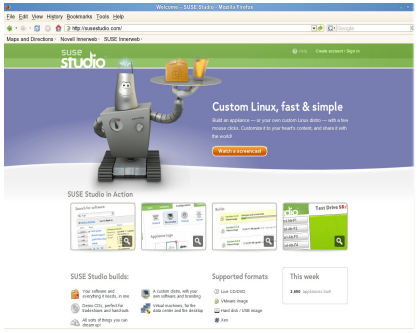
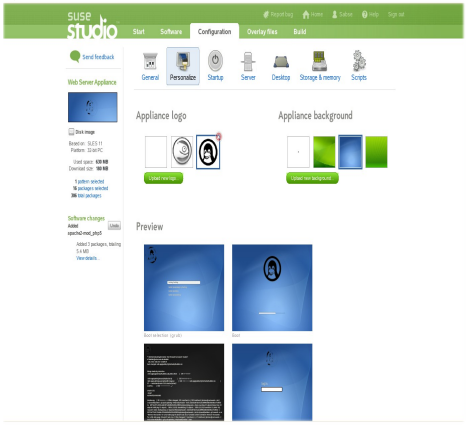
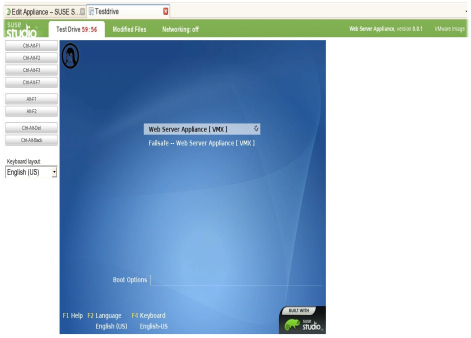
Build Software Appliances With SUSE Studio

Fastest and easiest way to **create**, **test** and **configure** software appliances based on SUSE Linux Enterprise.

Create images for a complete range of devices and use cases, from desktops and purpose-build Linux servers, to virtual appliances and cloud computing platforms.







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SUSE Studio

Start Building And Deploying Appliances

- SUSE Appliance Toolkit
  www.novell.com/toolkit
- Software Appliance Resource Center www.novell.com/applianceinfo

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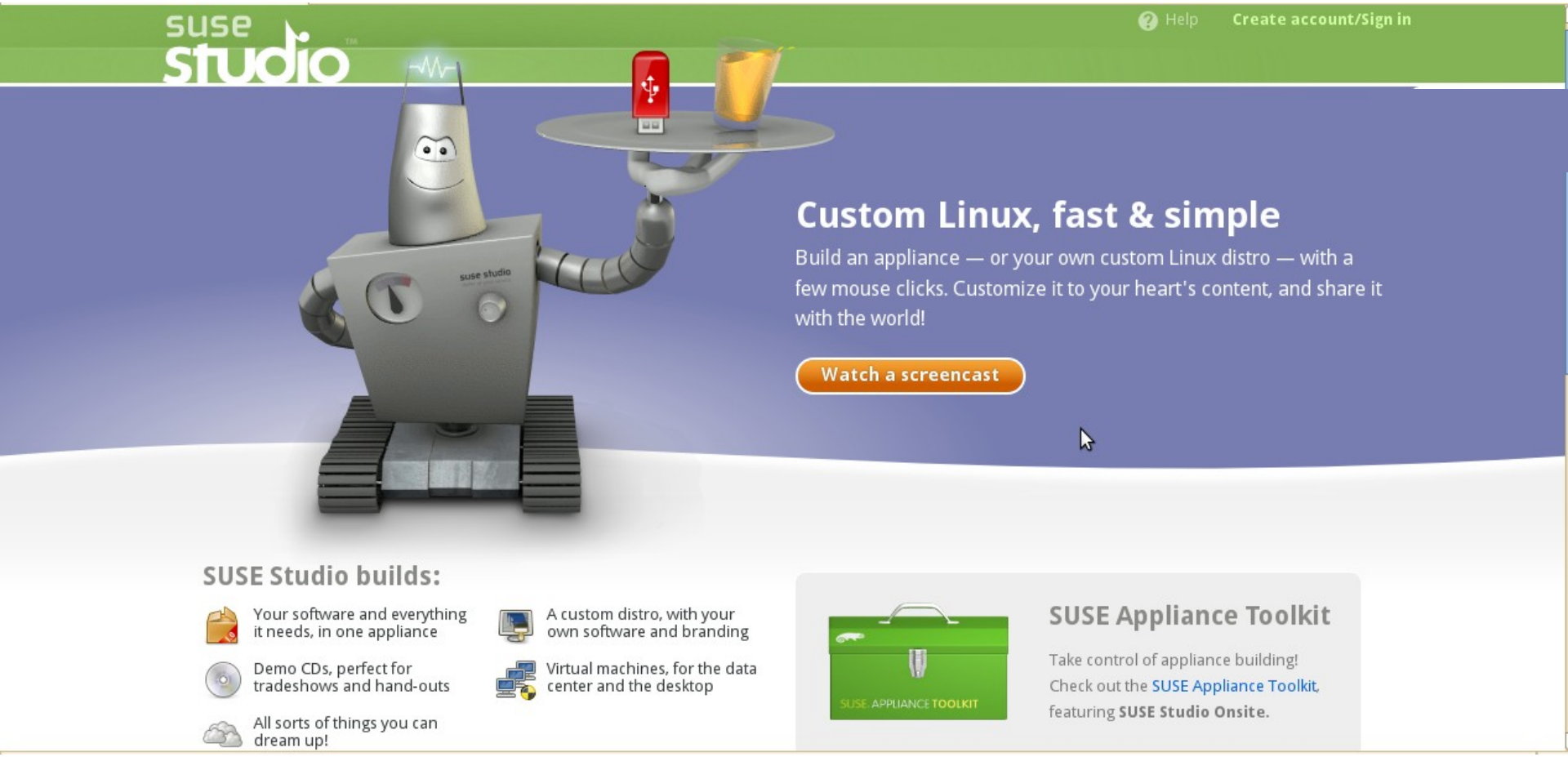
www.susestudio.com



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Create An Appliance – 5 Simple Steps

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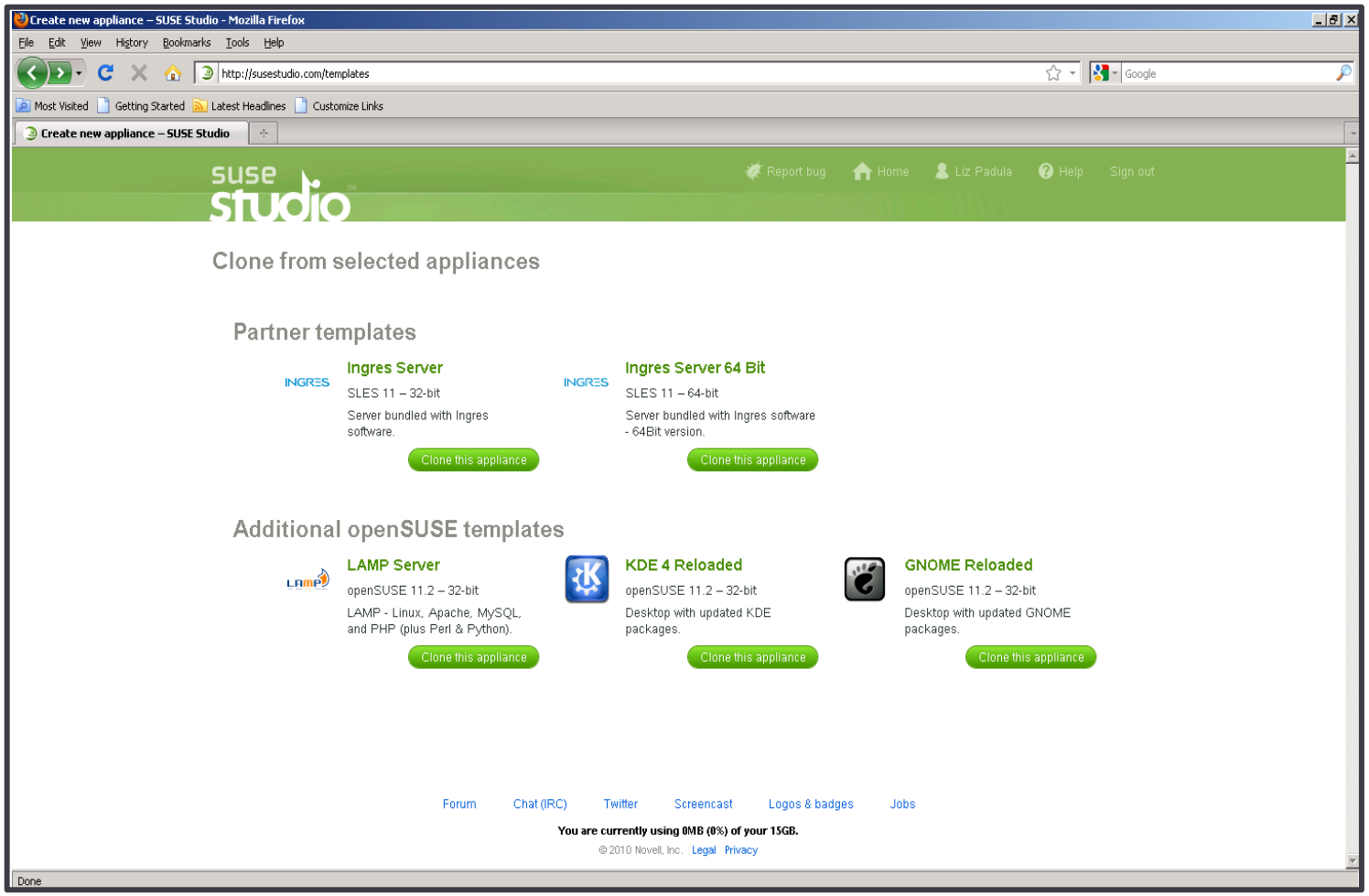
1. SUSE® Studio
– Choose Your Base Template



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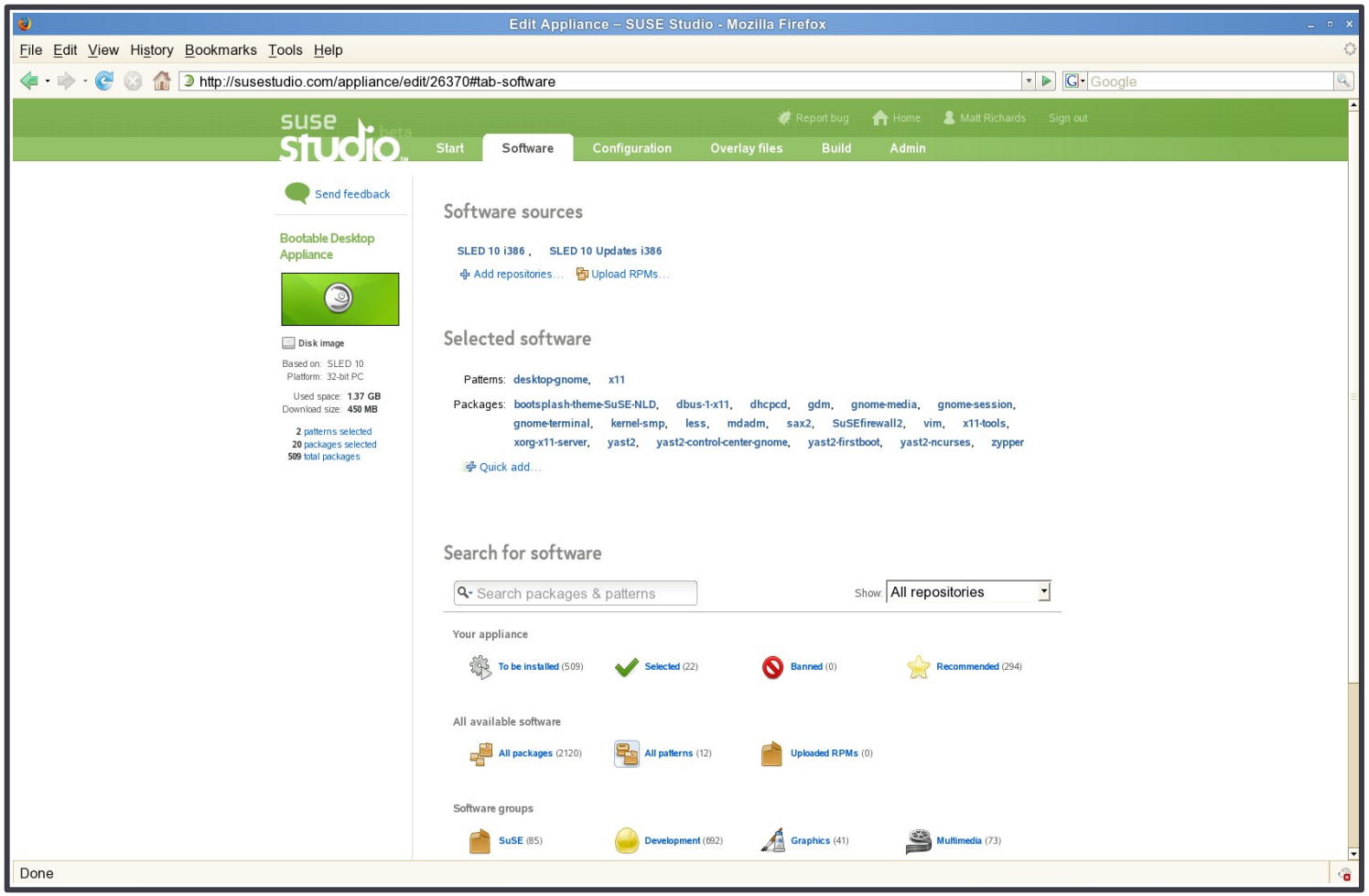
2. SUSE® Studio
– Add Packages and Software



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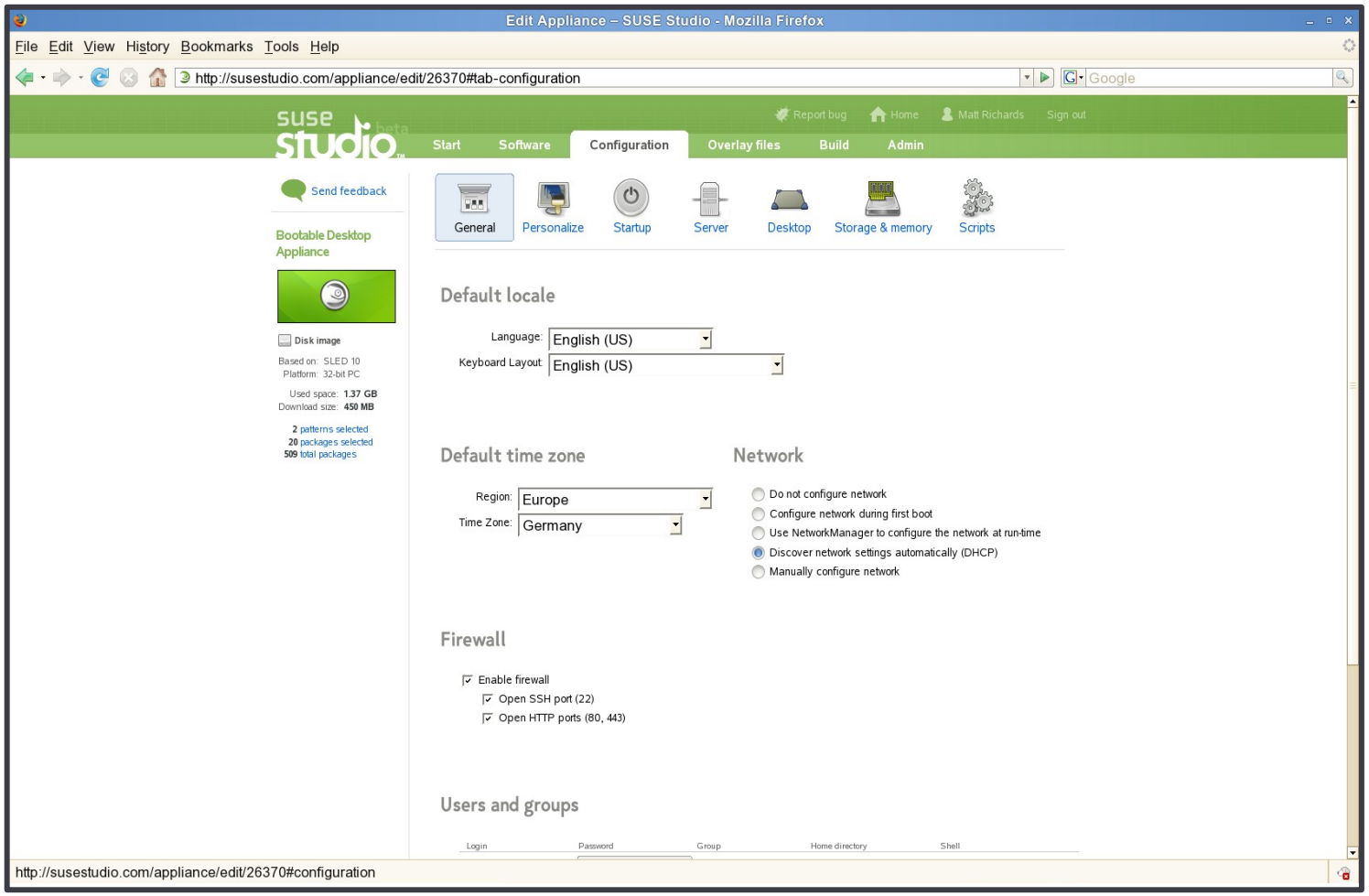
3. SUSE® Studio
– Configure



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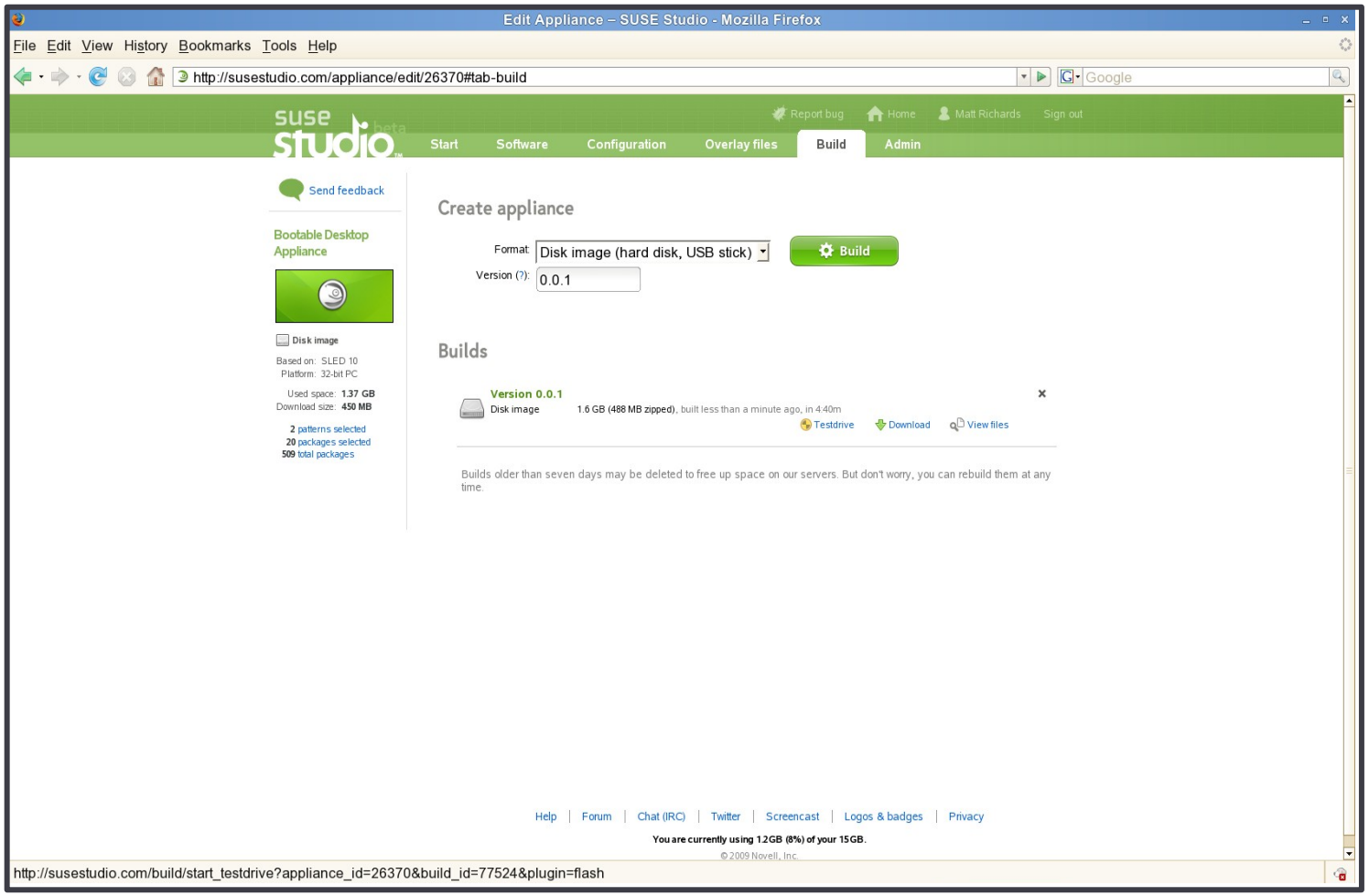
4. SUSE® Studio
– Build and Test Drive



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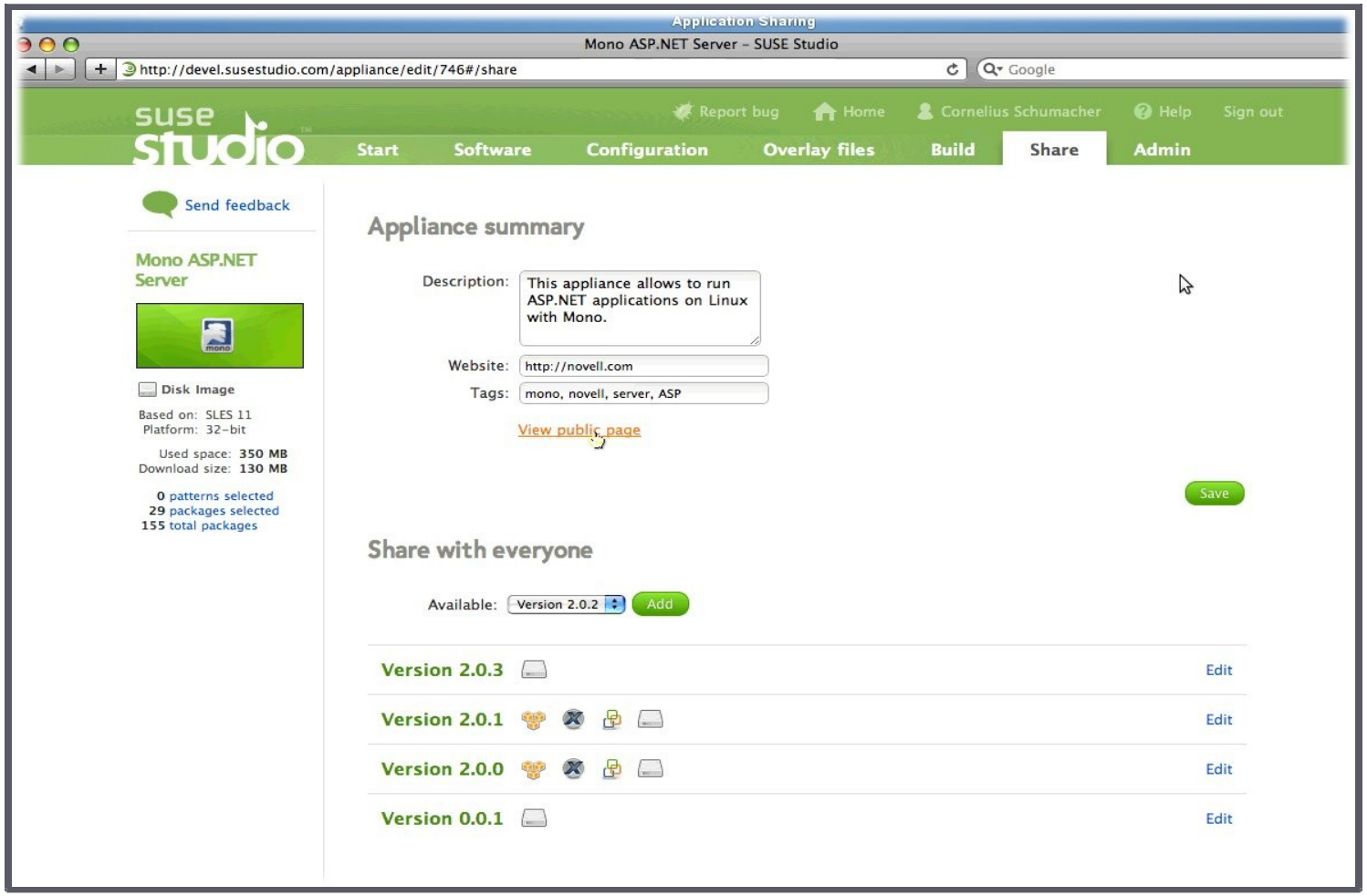
5. SUSE® Studio
– Publish to Gallery



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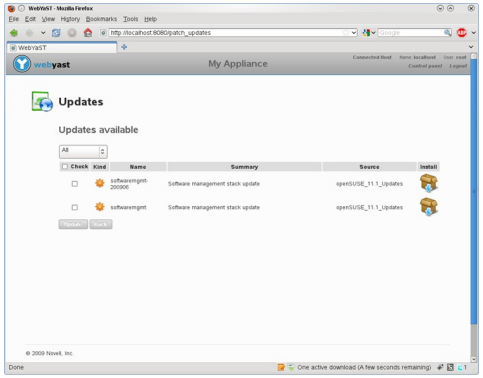
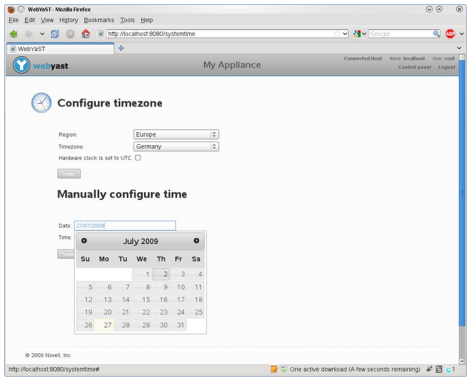
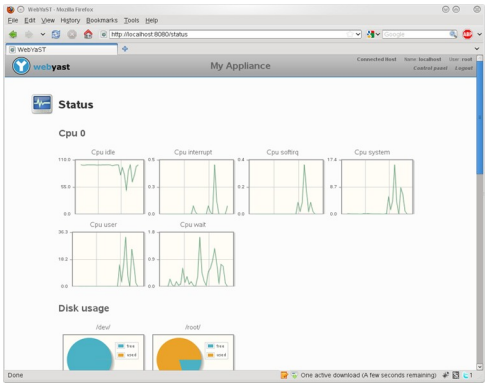
Manage With WebYaST

Simplify the configuration and **gain control** over deployed software appliances from any web browser around the world

Robust, **web-based** management interface for full visibility into the configuration, health and performance of your SUSE Linux Enterprise







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New!

Novell Now Offers SUSE Linux Enterprise Server 10 and 11 on Amazon Web Services

Customers and independent software vendors of all sizes will have the ability to run SUSE Linux Enterprise Server 10 and 11 on Amazon Elastic Compute Cloud, paying only for the hours they use. +

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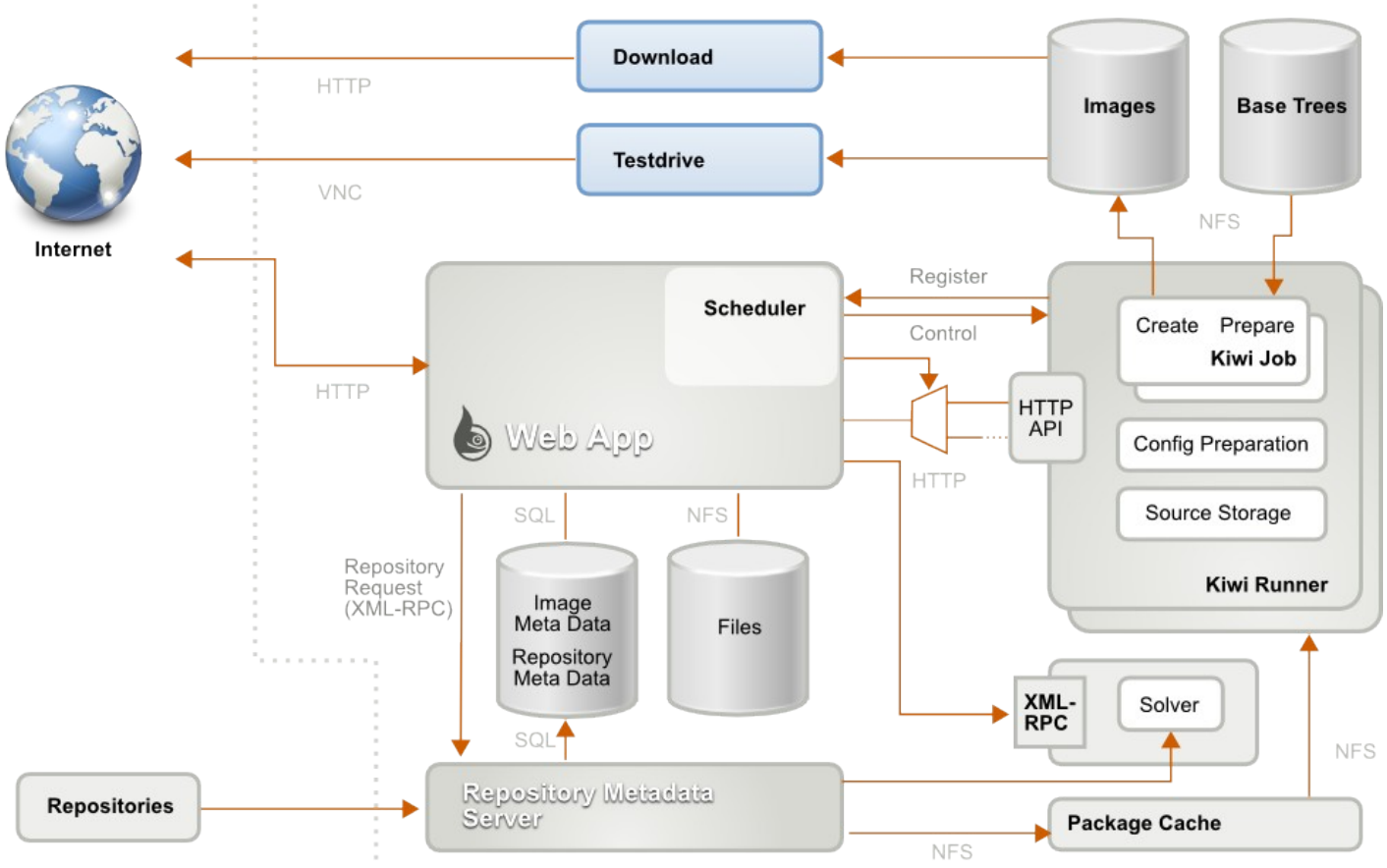
SUSE Studio Architektur



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Implementation

- SUSE JeOS
- Kiwi
- Rails
- KVM
- libsatsolver
- OpenID

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Anwender

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Resources

http://susestudio.com

Mailing list: studio-users@listx.novell.com

IRC: #susestudio on freenode

Twitter: @susestudio

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SUSE Studio Onsite 1.1
Enterprise Customers

SUSE Studio Onsite 1.1 (1/5)

- Behind the firewall, **on-premise**, installable and fully supported version of SUSE Studio
- Studio Onsite has similar core functionalities as Studio Online, web service version
- Delivered as software appliance and requires a bare metal server to install
- Shipped as image in two variants - a raw disk image and a bootable CD containing the raw disk image. We suggest using the CD image as it's easier to deploy.

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SUSE Studio Onsite 1.1 (2/5)

- SUSE Studio Onsite is a **proprietary** software and delivered based on software licensing model
- SUSE Studio Onsite 1.1 will be installed in a single server. User will need to ensure that the hardware platform can meet their performance needs
- Initial version of the software requires that a user create a user account and a password. User requests an invitation and administrator approves and sends an invitation to the user
- Separate administrative and user management console is available for provision and de-provision users and to administrate Studio

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SUSE Studio Onsite 1.1 (3/5)

- SUSE Studio Onsite must be activated during the first boot of the system. The activation is done as part of the registration process
- Updates to SUSE Studio Onsite are provided through separate update channels
- SUSE Studio Onsite needs access to the following types of **repositories** used to build the appliance:
  - **Installation repositories** : For installation repositories, use the YaST Installation Server module.
  - **Update repositories:** You can use Subscription Management Tool (SMT) for SUSE Linux Enteprise 11 SP1 to mirror the update repositories from Novell Customer Center.
  - Studio Onsite 1.1 also have support to mirror repositories directly from **NCC**

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SUSE Studio Onsite 1.1 (4/5)

- SUSE Studio Onsite 1.1 can create appliances using the following base **Operating Systems**:
  - SUSE Linux Enterprise Server 11 SP1 x86 and x86_64
  - SUSE Linux Enterprise Desktop 11 SP1 x86 and x86_64
  - SUSE Linux Enterprise Server 10 SP3 x86 and x86_64
  - SUSE Linux Enterprise Desktop 10 SP3 x86 and x86_64
- SUSE Studio Onsite can create virtual appliances for the following **hypervisors**:
  - XEN
  - VMware ESX
  - KVM

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SUSE Studio Onsite 1.1 (5/5)

Hardware requirements:

- **CPU**: x86_64 only, must be VT enabled (full virtualization). Building and testdrive won't work without VT or in virtual machine
- **Memory**: at least 8GB of RAM, the more the better. Recommended RAM is 2GB per every configured testdrive / build user
- **Disk space**: at least 100GB free space recommended

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SUSE Studio Onsite 1.1 – What's New

Some of the key functionalities are

- Share appliances and templates
- Create appliances using SLES11 SP1
- OVF1.0 support
- LVM Support
- Bootable media appliances (ISO format)
- Import Kiwi scripts / AutoYaST scripts
- Support for multiple build targets for appliances
- Support Netboot / PXE boot of appliances
- Create virtual appliances to run on KVM hosts
- Support for Internet Explorer 8 and above
- Build an exact previous version of a given appliance
- Create Amazon EC2 images – Technical Preview

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SUSE Studio Onsite 1.1 - Build Your Appliance

After you sign in to Studio, you can build your appliance in 5 easy steps, simply following the tabs to navigate in appliance editor in Studio

- **Step 1:** Select your OS, desktop preference, architecture (Template selector offers you a set of base templates to choose and start)
- **Step 2:** Select and add software packages (Add / Remove packages and repositories or upload your own RPMs)
- Step 3: Select configuration options (for network, database, etc) -Configure locale settings, startup options, database use, storage management and other things like the look and feel via logo and wallpaper
- **Step 4:** Add custom overlay files, if needed (Add "overlay files" to fine tune the application and system configuration)
- **Step 5:** Build your appliance (and test it too!) (Start the build run to create appliance in one of the following output image formats Disk / USB Image, LiveCD/DVD, VMware Image, or KVM, OVF or XEN Image

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SUSE Studio Onsite 1.1 - Test Your Appliance

- Test drive allows you to run the appliance you have built and verify before download
  - Testdrive: If the build is finished, launch and interact with your appliance in a virtual machine in your browser window, make changes and commit those changes to the appliance. To do this, use the Modified files tab in the testdrive.
  - Then implement your changes via a new build run and download the resulting image via the Build tab.
- Administration and Management
  - The SUSE Studio Onsite Web UI runs on **port 80** of the server. To access the administration user interface, click “user configuration” link
  - Also the appliance runs **Nagios and Munin**

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