

ABF as a Development Framework with ARM-powered Build Nodes

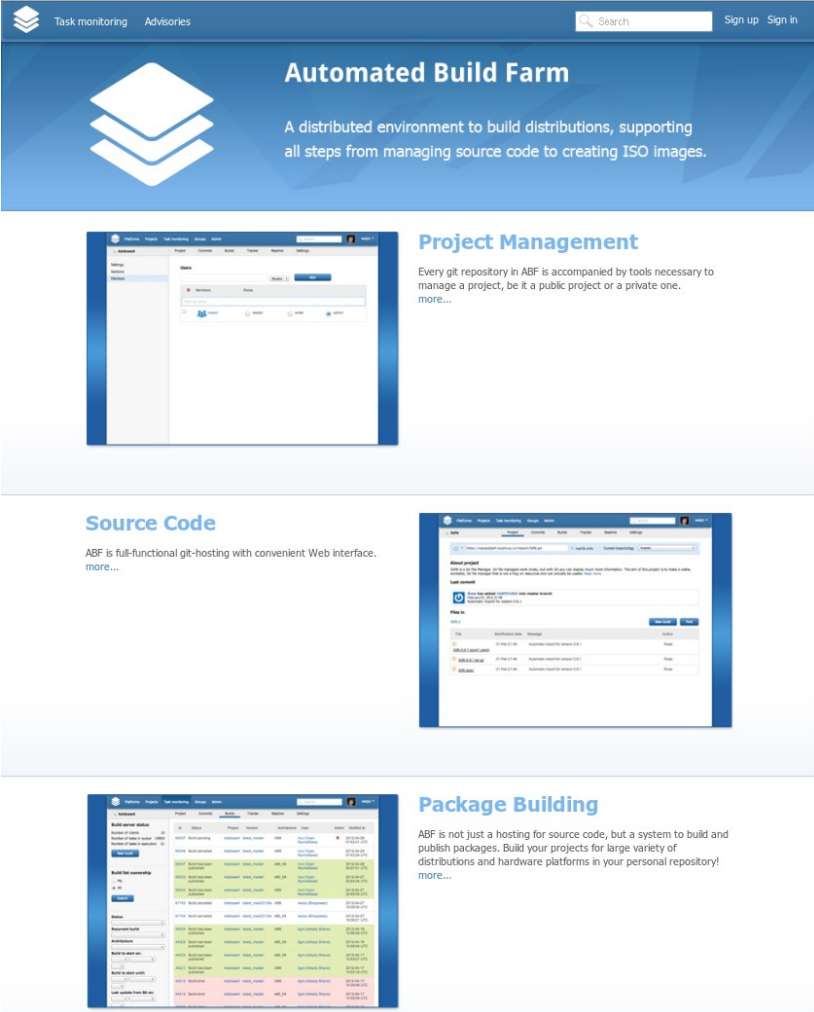
by the example of
OpenMandriva 2014.0 / Cooker armv7hl

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ABF - Automated Build Farm

Main purposes:

- Build packages and ISO images for various Linux distributions and HW platforms
 - *ROSA, OpenMandriva, Connectiva*
 - *i586, x86_64, ARM, ARM64*
- Support for full cycle of software development
 - *Git, issue tracker, project wiki, online source code editor*

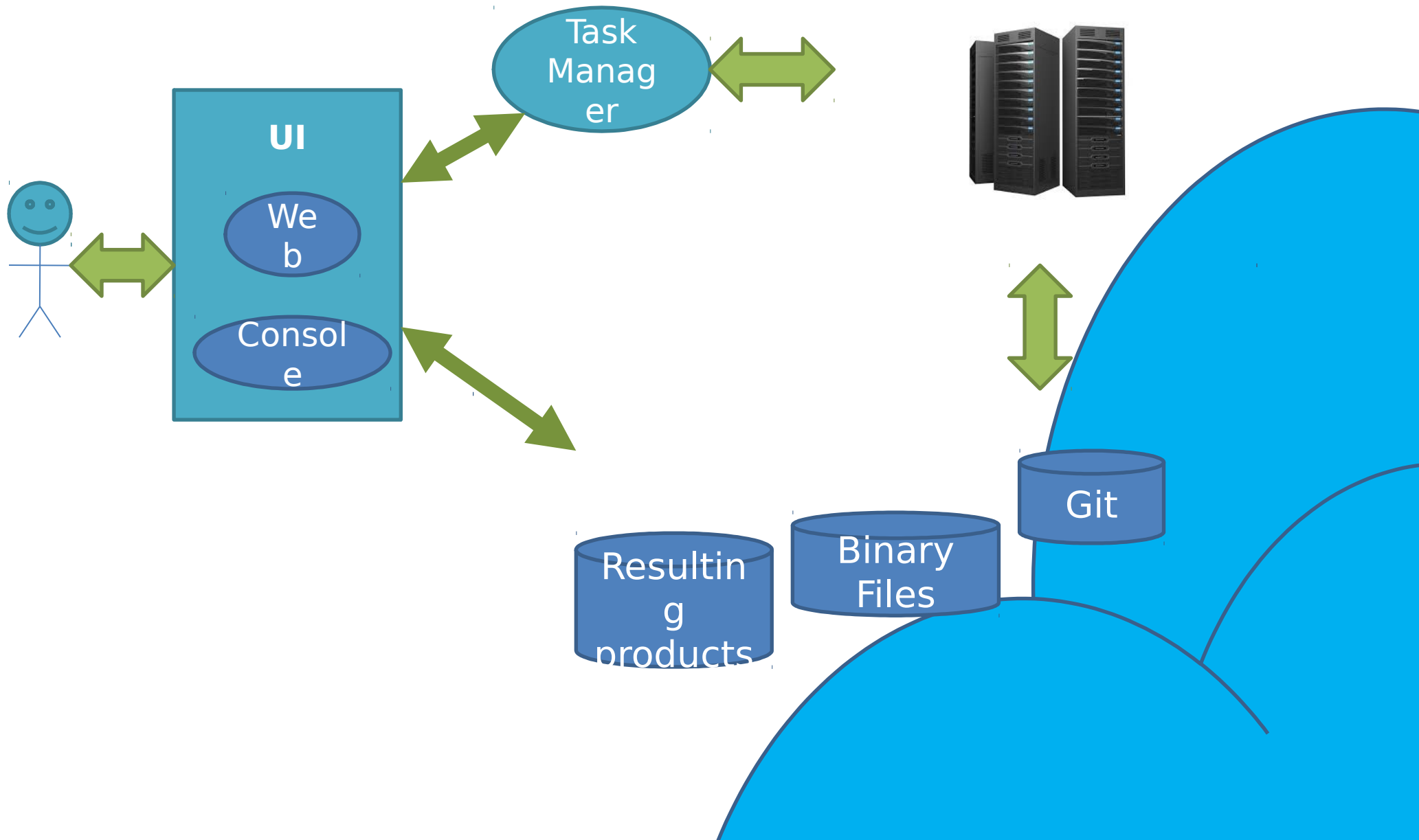


The screenshot displays the Automated Build Farm (ABF) web interface. At the top, there is a navigation bar with 'Task monitoring' and 'Advisories' links, a search box, and 'Sign up' / 'Sign in' options. The main header features the ABF logo and the text: 'Automated Build Farm. A distributed environment to build distributions, supporting all steps from managing source code to creating ISO images.'

The interface is divided into several sections:

- Project Management:** A section titled 'Project Management' with a sub-header 'Every git repository in ABF is accompanied by tools necessary to manage a project, be it a public project or a private one. more...'. It includes a screenshot of a project management interface.
- Source Code:** A section titled 'Source Code' with a sub-header 'ABF is full-functional git-hosting with convenient Web interface. more...'. It includes a screenshot of a source code management interface.
- Package Building:** A section titled 'Package Building' with a sub-header 'ABF is not just a hosting for source code, but a system to build and publish packages. Build your projects for large variety of distributions and hardware platforms in your personal repository! more...'. It includes a screenshot of a package building interface.

ABF Architecture



Integration with Distributions

We not only build packages and ISO

- **FBA** — reports about repository «health»
 - *Conflicting packages*
 - *Missing dependencies*
 - ...
- Maintainers DB
- Integration with Bugzillas (WIP)
- ... whatever distribution developers want and ready to help to implement

FBA

Home Dependency Tests ▼ RPMLint ▼ Platform Analysis ▼ ABF Autotest

Welcome to FBA - Frontend Brother of Abf

This is a central place where we are going to collect statistics about ROSA distributions, that is needed to maintain pa

Platform	Arch	Repository	Reposlosure	File Conflicts	Repomanage	Obsoleted	ELF Closure
ROSA Desktop Fresh R1	i586	main	6	162	150	21	61
		contrib	87	473	11	29	132
		non-free	0	173	6		66
		restricted	3	164	0		63
	x86_64	main	6	158	151	21	62
		contrib	112	464	9	29	126
		non-free	0	168	5		69
		restricted	0	160	0		62
ROSA Enterprise Desktop X1	i586	main	7	115	709	21	34
		contrib	793	455	91	28	208
		non-free	4	127	0		41
		restricted	6	118	0		47
	x86_64	main	7	116	709	20	34
		contrib	741	514	89	33	189
		non-free	8	127	0		39
		restricted	0	119	0		45
RELS 2012	x86_64	base	0	107	46	16	62
		contrib	0	112	0	0	63
	i686	extra	0	109	0	0	62
		base	0	112	37	17	64
		contrib	0	125	0	0	68
		extra	0	113	0	0	66
cooker	i586	main	315	94	52	14	129
		contrib	948	234	15	3	367
		non-free	2	104	0		137
		restricted	8	94	0		129
	x86_64	main	315	471	61	14	121
		contrib	959	189	19	3	337
		non-free	21	85	0		0
		restricted	8	77	0		0

OpenMandriva ARM



OpenMandriva ARM Requirements

```
Namespaces: enabled
Utsname namespace: enabled
Ipc namespace: enabled
Pid namespace: enabled
User namespace: enabled
Network namespace: enabled
Multiple /dev/pts instances: enabled

--- Control groups ---
Cgroup: enabled
Cgroup clone_children flag: enabled
Cgroup device: enabled
Cgroup sched: enabled
Cgroup cpu account: enabled
Cgroup memory controller: enabled
Cgroup cpuset: enabled

--- Misc ---
Veth pair device: enabled
Macvlan: enabled
Vlan: enabled
File capabilities: enabled

Note : Before booting a new kernel, you can check its configuration
usage : CONFIG=/path/to/config /usr/bin/lxc-checkconfig
```

Kernel Config for LXC > 3.9.x

- CONFIG_GROUP_SCHED=y
- CONFIG_FAIR_GROUP_SCHED=y
- CONFIG_RT_GROUP_SCHED=y
- CONFIG_CGROUP_SCHED=y
- CONFIG_CGROUPS=y
- CONFIG_CGROUP_NS=y
- CONFIG_CGROUP_FREEZER=y
- CONFIG_CGROUP_DEVICE=y
- CONFIG_CPUSETS=y
- CONFIG_PROC_PID_CPUSET=y
- CONFIG_CGROUP_CPUACCT=y
- CONFIG_RESOURCE_COUNTERS=y
- CONFIG_CGROUP_MEM_RES_CTLR=y
- CONFIG_CGROUP_MEM_RES_CTLR_SWAP=y
- CONFIG_MM_OWNER=y
- CONFIG_NAMESPACES=y
- CONFIG_UTS_NS=y
- CONFIG_IPC_NS=y
- CONFIG_USER_NS=y
- CONFIG_PID_NS=y
- CONFIG_NET_NS=y
- CONFIG_NET_CLS_CGROUP=y
- CONFIG_SECURITY_FILE_CAPABILITIES=y
- CONFIG_DEVPTS_MULTIPLE_INSTANCES=y



- main
- non-free
- cooker**
- main
- contrib
- non-free
- restricted
- openmandriva2013.0**
- main
- contrib
- non-free
- restricted
- openmandriva2014.0**
- main
- contrib
- non-free
- restricted
- red3**
- main
- non-free
- restricted
- rosa2012.1**
- main
- contrib
- non-free
- restricted
- rosa2012lts**
- main
- contrib
- non-free
- restricted
- RosaNPP**
- main
- contrib
- non-free
- rosa-server2012**
- base

Version

master

Architecture

- aarch64
- armv7hl
- armv7hl_tgr2
- armv7l
- armv7nhl_omp3
- i586
- x86_64

Update type

bugfix

Extra build lists

1000000 Add

Extra params

'urpmi_options' for *.cfg file

'urpm_options' for *.cfg file

Build src.rpm

Build rpm

Preferences

- Automated publishing
- Create container automatically
- Include 'testing' subrepository

My External nodes

Start build


```

1 [|||||] 44.0%]
2 [|||||] 36.1%]
3 [|||||] 35.6%]
4 [|||||] 28.3%]
Mem [|||||] 310/2014MB]
Swp [|||||] 0/0MB]
Tasks: 30, 8 thr; 2 running
Load average: 0.64 0.93 0.78
Uptime: 1 day, 01:03:24

```

PID	USER	PRI	NI	VIRT	RES	SHR	S	CPU%	MEM%	TIME+	Command
611	root	20	0	1820	264	212	R	80.1	0.0	0:06.17	gzip -d
610	root	20	0	1644	524	452	S	48.6	0.0	0:02.97	tar xzf /home/omv/.vagrant.d/boxes/mdv-cooker-noarch/lxc/rootfs.tar.gz
27381	omv	20	0	3532	2196	956	R	1.6	0.1	0:13.29	htop
13593	root	20	0	1380	284	192	S	0.0	0.0	0:04.07	/sbin/iptables -I -b -i br0
14649	omv	20	0	259M	216M	2632	S	0.0	10.7	39:12.90	ruby /home/omv/.rvm/rubies/ruby-2.1.0/bin/rake abf_worker:start --trace
571	omv	20	0	259M	216M	2632	S	0.4	10.7	0:00.25	ruby /home/omv/.rvm/rubies/ruby-2.1.0/bin/rake abf_worker:start --trace
561	omv	20	0	259M	216M	2632	S	0.0	10.7	0:00.73	ruby /home/omv/.rvm/rubies/ruby-2.1.0/bin/rake abf_worker:start --trace
580	root	20	0	5476	1996	1456	S	0.0	0.1	0:00.04	/usr/bin/sudo lxc-create --template vagrant-tmp-vagrantfiles_mdv-cooker-noarch-0-1391010246 --name vagrantfiles_mdv-cooker-noarch-0-1391010246
583	root	20	0	2320	1048	876	S	0.0	0.1	0:00.02	/bin/sh /usr/bin/lxc-create --template vagrant-tmp-vagrantfiles_mdv-cooker-noarch-0-1391010246 --name vagrantfiles_mdv-cooker-noarch-0-1391010246
90	root	20	0	10988	1324	1016	S	0.0	0.1	0:08.00	/lib/systemd/systemd-journald
598	root	20	0	2316	1036	872	S	0.0	0.1	0:00.01	/bin/bash /usr/share/lxc/templates/lxc-vagrant-tmp-vagrantfiles_mdv-cooker-noarch-0-1391010246 --path=/var/lib/lxc/vagrant-tmp-vagrantfiles_mdv-cooker-noarch-0-1391010246
27259	omv	20	0	8192	1236	720	S	0.4	0.1	0:00.14	sshd: omv@pts/0
13669	root	20	0	1380	300	204	S	0.0	0.0	0:04.20	/sbin/iptables -I -b -i lxcbr0
304	messagebu	20	0	2952	784	504	S	0.0	0.0	0:11.57	/usr/bin/dbus-daemon --system --address=systemd: --nofork --nopidfile --systemd-activation
125	root	20	0	3048	1232	452	S	0.0	0.1	0:59.98	/lib/systemd/systemd-udev
1	root	20	0	4672	2528	1096	S	0.0	0.1	0:59.73	/sbin/init fixrtc
14633	omv	20	0	39916	21744	832	S	0.0	1.1	0:01.65	ruby /home/omv/abf-worker/shared/bundle/ruby/2.1.0/bin/god -c /home/omv/abf-worker/current/config/resque.god
299	root	20	0	2440	868	632	S	0.0	0.0	0:05.60	/lib/systemd/systemd-logind
5218	root	20	0	3852	1452	696	S	0.0	0.1	0:02.76	/lib/systemd/systemd --user
14172	nobody	20	0	2540	648	360	S	0.0	0.0	0:00.24	/usr/sbin/dnsmasq -k
324	chrony	20	0	2756	540	300	S	0.0	0.0	0:00.19	/usr/sbin/chronyd -u chrony
332	root	20	0	3692	176	64	S	0.0	0.0	0:00.01	/sbin/agetty --noclear tty1
2419	root	20	0	3560	560	88	S	0.0	0.0	0:00.13	login -- root
5224	root	20	0	3496	1228	92	S	0.0	0.1	0:00.71	-bash
5230	root	20	0	5076	916	0	S	0.0	0.0	0:00.00	(sd-pam)
5254	root	20	0	2952	264	44	S	0.0	0.0	0:00.01	/usr/bin/dbus-daemon --session --address=systemd: --nofork --nopidfile --systemd-activation
13750	root	20	0	5564	704	276	S	0.0	0.0	0:00.04	/usr/sbin/sshd -D
13804	root	20	0	6932	4824	440	S	0.0	0.2	0:00.06	/sbin/dhclient -1 -q -lf /var/lib/dhclient/dhclient--br0.lease -pf /var/run/dhclient-br0.pid br0
14637	omv	20	0	39916	21744	832	S	0.0	1.1	0:01.14	ruby /home/omv/abf-worker/shared/bundle/ruby/2.1.0/bin/god -c /home/omv/abf-worker/current/config/resque.god
14644	omv	20	0	39916	21744	832	S	0.0	1.1	0:00.00	ruby /home/omv/abf-worker/shared/bundle/ruby/2.1.0/bin/god -c /home/omv/abf-worker/current/config/resque.god
14645	omv	20	0	39916	21744	832	S	0.0	1.1	0:00.11	ruby /home/omv/abf-worker/shared/bundle/ruby/2.1.0/bin/god -c /home/omv/abf-worker/current/config/resque.god
14647	omv	20	0	39916	21744	832	S	0.0	1.1	0:00.00	ruby /home/omv/abf-worker/shared/bundle/ruby/2.1.0/bin/god -c /home/omv/abf-worker/current/config/resque.god
27257	root	20	0	8192	2292	1776	S	0.0	0.1	0:00.10	sshd: omv [priv]
27260	omv	20	0	4368	3160	1180	S	0.0	0.2	0:00.61	-bash
567	omv	20	0	259M	216M	2632	S	0.0	10.7	0:00.00	ruby /home/omv/.rvm/rubies/ruby-2.1.0/bin/rake abf_worker:start --trace
604	root	20	0	2320	676	504	S	0.0	0.0	0:00.00	/bin/bash /usr/share/lxc/templates/lxc-vagrant-tmp-vagrantfiles_mdv-cooker-noarch-0-1391010246 --path=/var/lib/lxc/vagrant-tmp-vagrantfiles_mdv-cooker-noarch-0-1391010246
608	root	20	0	2320	476	304	S	0.0	0.0	0:00.00	/bin/bash /usr/share/lxc/templates/lxc-vagrant-tmp-vagrantfiles_mdv-cooker-noarch-0-1391010246 --path=/var/lib/lxc/vagrant-tmp-vagrantfiles_mdv-cooker-noarch-0-1391010246
581	omv	20	0	259M	216M	2632	S	0.0	10.7	0:00.00	ruby /home/omv/.rvm/rubies/ruby-2.1.0/bin/rake abf_worker:start --trace

OpenMandriva ARM

```
[omv@wb0 abf-worker]$ sudo lxc-ls  
cooker-base omv0 omv3 vagrantfiles_mdv-cooker-noarch-0-1391010246  
[omv@wb0 abf-worker]$ █
```

ARM box with container unpackaged and ready to use
Let's wait few minutes until package is done

OpenMandriva ARM

Build items

htop #0

Name	Version	Status
htop	a3046	Build complete

Packages

Fullname	Name	Epoch	Version	Release
htop-1.0.2-5.src.rpm	htop		1.0.2	5
htop-1.0.2-5-omv2014.1.armv7hl.rpm	htop		1.0.2	5
htop-debuginfo-1.0.2-5-omv2014.1.armv7hl.rpm	htop-debuginfo		1.0.2	5

Package is ready and RPM's uploaded to repo

Analogues

- Koji, Launchpad, ...
 - *Highly tailored to certain Linux distributions*
- Open Build Service
 - *Good for package building, but not SW development*

ABF is developed by means of ABF itself

- *Not so easy to add new target distribution or HW platform*

Join Us!



<http://abf.io>

<http://openmandriva.org/>

<http://rosalab.ru>

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