

## The pairing behaviour of the South-East Vietnamese Mussel



---

C A T A L Y S T

---

## What is Catalyst?

- Catalyst is the tool used by the release-engineering team to create all parts needed for an official Gentoo release
- This includes: a Portage-snapshot, stage-archives, installation-media and GRP-sets (binary packages)
- The arches currently supported by Catalyst are: x86, amd64, sparc, ppc, alpha, mips (some better and some worse)

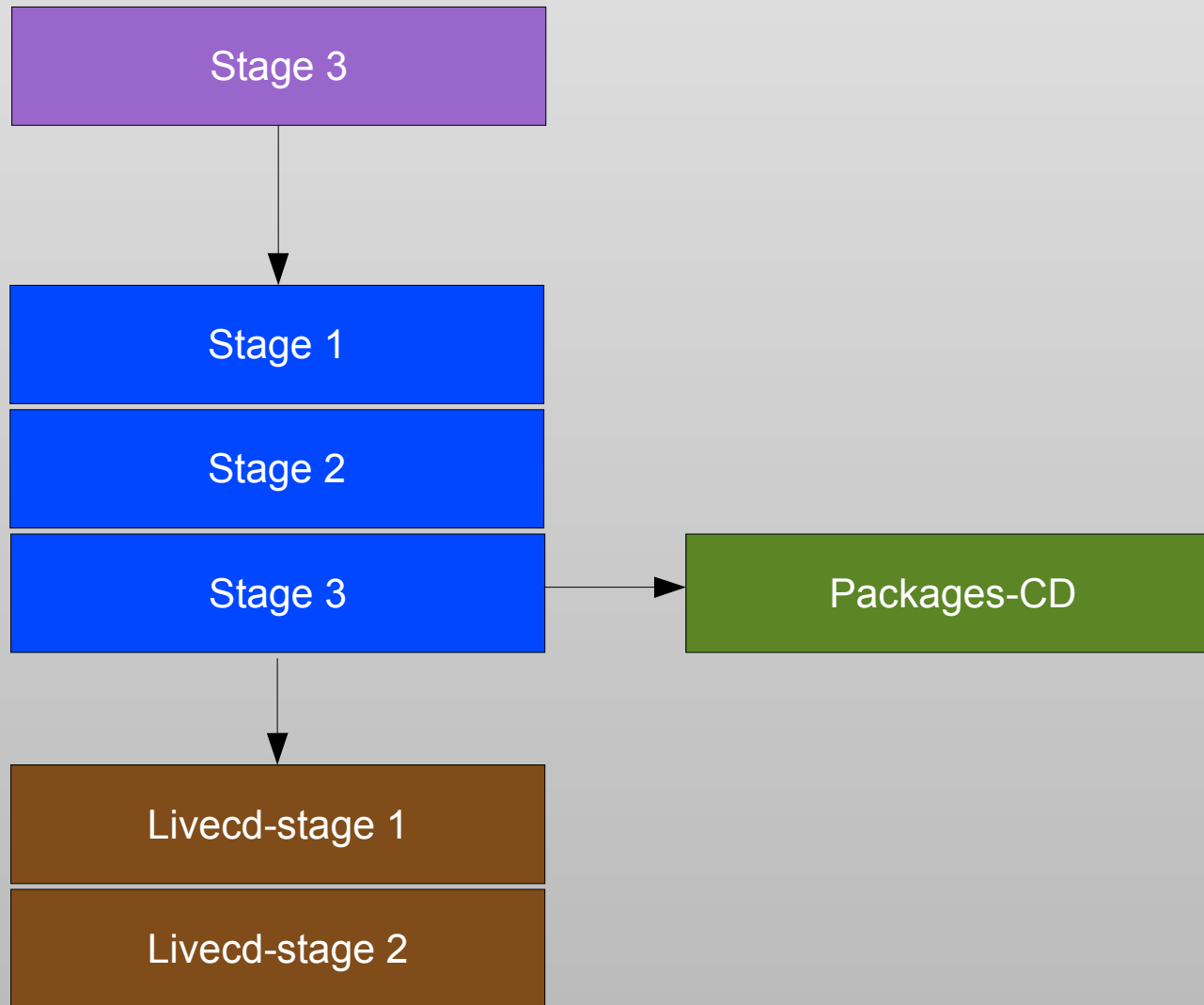
## Development:

- Development on catalyst began in the fall of 2003. The aim was to offer an easy way for users to build personalized installation medias.
- It turned out, that the result was very easy to use (however it didn't have many features in the early stages of development).

## How does catalyst work?

- In general, catalyst bundles manual calls to external tools into “Targets”.
- Every target is built in a chroot which is set up using a “seed stage”
- A Portage snapshot is then extracted into this chroot. This allows to use a frozen image of the Portage-tree with manual changes in it

# Seed hierarchy



# Stages

- Stage 1:
  - Seed: Stage 2 or Stage 3
  - Seed gets extracted, catalyst chroots, updates every necessary toolchain package, removes unnecessary packages from the chroot and packs the result as a stage 1 archive.

# Stages

- Stage 2:
  - Seed: Stage 1
  - Catalyst extracts the seed-stage, chroots into it, runs `bootstrap.sh`, packs the result as a stage 2 archive.



# Stages

- Stage 3:
  - Seed: Stage 2
  - Catalyst extracts the seed-stage, chroots into it, runs `emerge -e system`, packs the result as a stage 3 archive.

## Installation-/Live-CDs

- ISOs are created in two steps.
- Livecd-stage1 defines the contents of the live-filesystem (i.e. Available applications etc.)
- Livecd-stage2 defines the bootable part of the ISO-Image: What kernel? What loopback filesystem should be used? How should the bootmenu look?

# Installation-/Live-CDs

- Livecd-Stage1:
  - Setup a chroot using the provided seed-stage
  - Install all applications specified in the spec-file

## Livecd-Stage 2:

- Chroot back into the temporary livecd-stage 1.
- Install preferred Kernel + genkernel
- Build the kernel using genkernel with given configuration-file
- Uninstall unwanted applications, remove unnecessary files
- create loopback-filesystem
- Create the ISO-Image; use the preferred boot-block (there are various available)
- save the resulting ISO-image in the provided location

# Example: stage1

```
subarch: x86
target: stage1
version_stamp: 2005.0
rel_type: default
rel_version: 2005.0
profile: default-linux/x86/2005.0
snapshot: 20050121
source_subpath: default/stage2-x86-2004.3-r1
```

# Example: stage2/stage3

```
subarch: x86
target: stage2
version_stamp: 2005.0
rel_type: default
rel_version: 2005.0
profile: default-linux/x86/2005.0
snapshot: 20050121
source_subpath: default/stage1-x86-2005.0
```

# Example: Livecd-stage1

```
subarch: x86
version_stamp: 2005.0
target: livecd-stage1
rel_type: default
profile: default-linux/x86/2005.0
snapshot: 20050121
source_subpath: default/stage3-x86-2005.0
livecd/use:
  -*
  ipv6
  socks5
  livecd
  fbcon
  minimal
  ncurses
  readline
  ssl

livecd/packages:
  baselayout
  livecd-tools
  module-init-tools
  dhcpcd
  udev
  gentoo-sources
  kudzu-knoppix
  hotplug
  coldplug
  fxload
  irssi
  gpm
  syslog-ng
  parted
```

```
links
raidtools
nfs-utils
jfsutils
usbutils
pciutils
xfsprogs
e2fsprogs
reiserfsprogs
cryptsetup
pwgen
popt
dialog
rp-pppoe
screen
mirrorselect
penggy
iputils
hwdata-knoppix
hwsetup
device-mapper
lvm2
evms
vim
pptpclient
mdadm
ethtool
wireless-tools
ntfsprogs
dosfstools
prism54-firmware
```

# Example: Livecd-stage2

```
subarch: x86
version_stamp: 2005.0
target: livecd-stage2
rel_type: default
profile: default-linux/x86/2005.0
snapshot: 20050121
#distcc_hosts: localhost/3 gravity/3 orion/3
source_subpath: default/livecd-stage1-x86-2005.0

livecd/cdfstype: squashfs
livecd/archscript: /usr/lib/catalyst/livecd/runscript/x86-archscript.sh
livecd/runscript: /usr/lib/catalyst/livecd/runscript/default-runscript.sh
livecd/cdtar: /usr/lib/catalyst/livecd/cdtar/isolinux-2.11-memtest86+-cdtar.tar.bz2
livecd/fsscript: /home/beejay/2005.0/fsscript.sh
livecd/iso: /tmp/minimal-livecd.iso
livecd/splash_type: gensplash
livecd/splash_theme: livecd-2004.3
livecd/gk_mainargs:
livecd/type: gentoo-release-minimal
livecd/modblacklist:
    8139cp

livecd/devmanager: udev

livecd/rcadd:
    syslog-ng:default
    gpm:default

boot/kernel: gentoo
boot/kernel/gentoo/sources: gentoo-sources
boot/kernel/gentoo/config: /home/beejay/2005.0/2.6.10-smp.config

boot/kernel/gentoo/use: pcmcia usb -X
```



# Example: Livecd-stage2

```

boot/kernel/gentoo/postconf:
    splashutils
    splash-themes-livecd

boot/kernel/gentoo/packages:
    pcmcia-cs
    speedtouch
    slmodem
    globespan-adsl
    hostap-driver
    hostap-utils
    ipw2100
    acpid
    #fcdsl
    #fritzcapi
    #madwifi-driver

livecd/unmerge:
    acl
    attr
    autoconf
    automake
    bin86
    binutils
    libtool
    m4
    bison
    ld.so
    make
    perl
    patch
    linux-headers
    man-pages

```

```

sash
bison
flex
gettext
texinfo
ccache
distcc
addpatches
man
groff
lib-compat
miscfiles
rsync
sysklogd
bc
lcms
libmng
genkernel
diffutils
# file
libperl
gnuconfig
gcc-config
gcc
bin86
cpio
cronbase
ed
expat
grub
help2man
libtool

```

```

livecd/empty:
    /var/tmp
    /var/cache
    /var/db
    /var/empty
    /var/lock
    /var/log
    /var/run
    /var/spool
    /var/state
    /tmp
    /usr/portage
    /usr/share/man
    /usr/share/info
    /usr/share/unimaps
    /usr/include
    /usr/share/zoneinfo
    /usr/share/dict
    /usr/share/doc
    /usr/share/ss
    /usr/share/state
    /usr/share/texinfo
    /usr/lib/python2.2
    /usr/lib/portage
    /usr/share/gettext
    /usr/share/i18n
    /usr/share/rfc
    /usr/X11R6/man
    /usr/X11R6/include
    /usr/X11R6/lib/X11/config
    /usr/X11R6/lib/X11/etc
    /usr/X11R6/lib/X11/doc
    /usr/src

```