

FreeBSD: towards portsv2

Trimming the biggest bonsai

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The ports tree

As of 2014-01-31

- ▶ 24576 Ports
- ▶ 118 Broken ports
- ▶ 160 Deprecated ports
- ▶ 23261 packages for FreeBSD 8-9 amd64 updated weekly
- ▶ 22211 packages for FreeBSD 10-11 amd64 updated weekly
- ▶ 20925 packages for DragonFly
- ▶ Quarterly packages for FreeBSD 10 soon to be extended to 8 and 9

Problems

- ▶ Lots of deprecated code
- ▶ Inefficient make(1) code
 - ▶ Too many targets defined
 - ▶ Too many files to parse
 - ▶ Badly mixed targets definitions and variable definitions
 - ▶ PHONY targets not marked as PHONY
- ▶ Old badly maintained ports
- ▶ Arbitrary limitations
- ▶ Complex code
- ▶ Lack of policy enforcement
- ▶ Lots of inconsistencies
- ▶ Inefficient operations

Trimming dead code

- ▶ Remove any code handling pre FreeBSD 5 version of make(1)
- ▶ Remove catpages support
- ▶ Remove obsolete macros
- ▶ Remove ftp(1) fallback if fetch(1) is absent
- ▶ Remove old options code
- ▶ Remove lots of old and/or unnecessary USE_*

Improve make(1) usage

- ▶ Rework targets definitions and ordering
 - ▶ -80 targets on a basic port
 - ▶ Only defined when needed
 - ▶ no more fallback on `DO_NADA`
- ▶ Reduce number of `sh(1)` invocations
- ▶ Split out code into `USES` loadable on demand
- ▶ reorganize to clarify the code
- ▶ massive usage of `xargs(1)`

Cleaning the ports tree

- ▶ 4500+ ports removed since 2010
- ▶ Gnome1 removed
- ▶ kde3 removed
- ▶ We still have xmms :)
- ▶ Reduce ports duplication (one single icu port for example)

Reduce code complexity

- ▶ Factorize build and install Using an abstract `${MAKE_CMD}` variable
- ▶ Automate tasks using STAGEDIR (DESTDIR)
 - ▶ Simplifies manpages handling
 - ▶ Simplify info pages handling
 - ▶ Avoid duplication post installation tasks
- ▶ Share tricks though via USES:
 - ▶ desthack
 - ▶ pathfix
 - ▶ charsetfix
 - ▶ uidfix
 - ▶ shebangfix
- ▶ Fix LIB_DEPENDS
- ▶ Fix libtool

Improved Q/A

- ▶ stage-qa (DEVELOPER=yes)
 - ▶ Check for shebang of scripts
 - ▶ Check for bad symlinks
 - ▶ Check for bad hardcoded path
 - ▶ Check for non-stripped binaries
 - ▶ Recommend for good practice (.desktop and mime types handling)
 - ▶ Check suid binaries
 - ▶ More to come
- ▶ Stage support with quick conversion: 62% converted in 4 month (aka 15k conversions)
- ▶ bsd.sanity.mk
 - ▶ Check for unsupported macros
 - ▶ Check for deprecated macros
 - ▶ Check for deprecated user side macro usage
- ▶ Packaging as non root
- ▶ New targets: makeplist and check-orphans



Improve consistency

- ▶ Introduce new options framework
 - ▶ Consistency
 - ▶ Single options
 - ▶ Group options
 - ▶ Radio options
 - ▶ Multi options
 - ▶ Shared descriptions
 - ▶ Options helpers
 - ▶ pkg-help
- ▶ Deprecating KNOBS
- ▶ Promote USES (uniform syntax)
- ▶ Introduce DEFAULT_VERSIONS

Options helpers

```
1 # $FreeBSD$
2
3 PORTNAME= foo
4 PORTVERSION= 0.1
5 CATEGORIES= devel
6
7 MAINTAINER= foo@bar
8 COMMENT= Superb foo
9
10 OPTIONS_DEFINE= OPT
11
12 .include <bsd.port.options.mk>
13
14 .if ${PORT_OPTIONS:MOPT}
15 CONFIGURE_ARGS= --enable-opt
16 PLIST_SUB= OPT=""
17 .else
18 CONFIGURE_ARGS= --disable-opt
19 PLIST_SUB= OPT="@comment "
20 .endif
21
22 .include <bsd.port.mk>
```

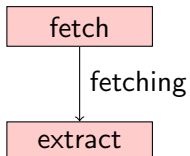
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5 CATEGORIES= devel
6
7 MAINTAINER= foo@bar
8 COMMENT= Superb foo
9
10 OPTIONS_DEFINE= OPT
11 OPTIONS_SUB= yes
12 OPT_CONFIGURE_ENABLE= opt
13
14 .include <bsd.port.mk>
```



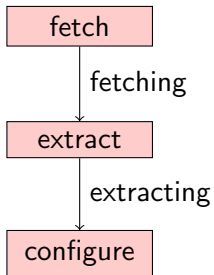
Sequence before and after staging

fetch

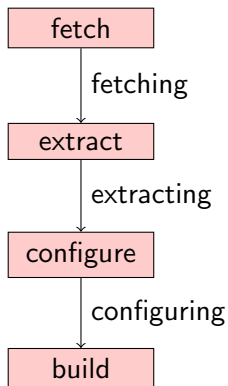
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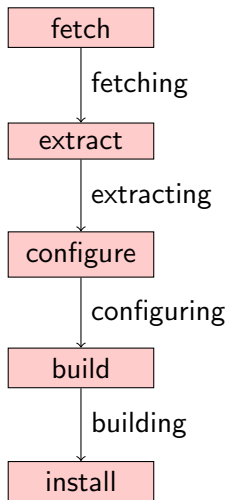
Sequence before and after staging



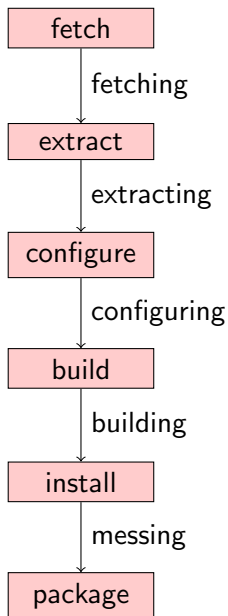
Sequence before and after staging



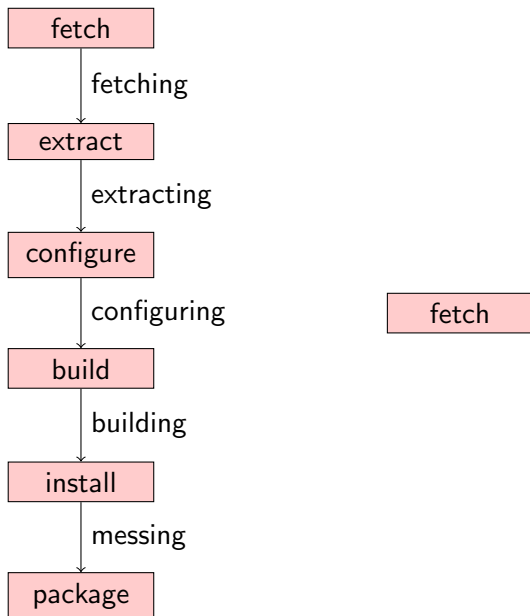
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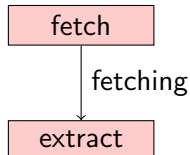
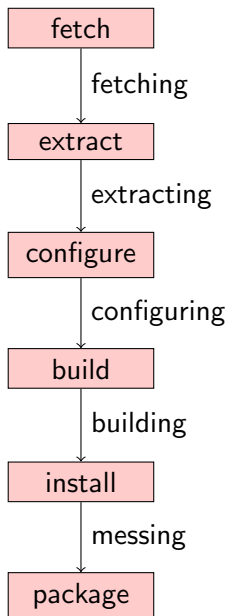
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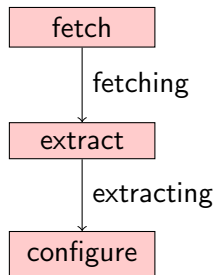
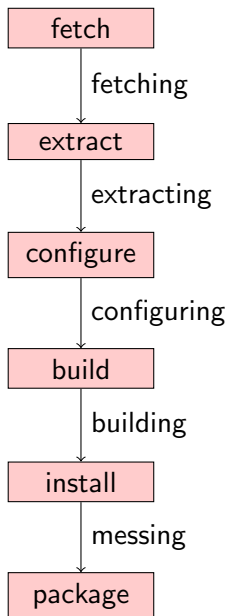
Sequence before and after staging



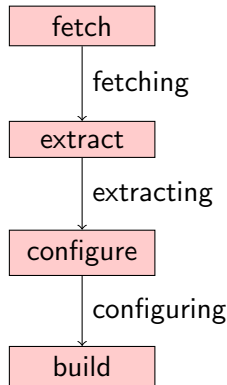
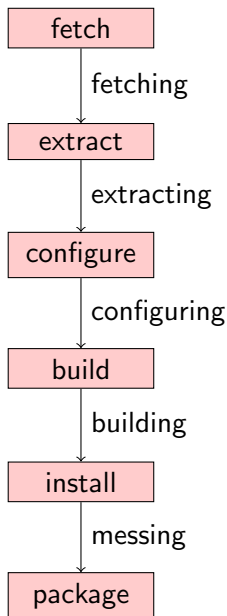
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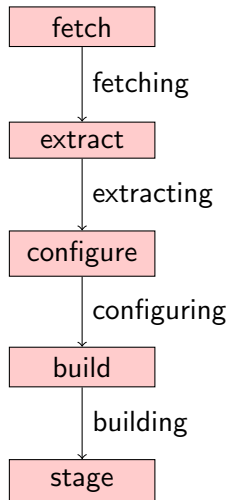
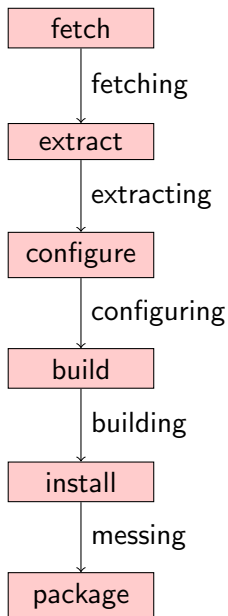
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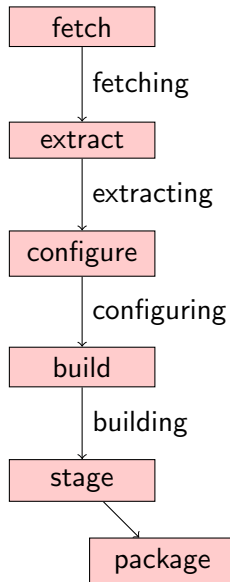
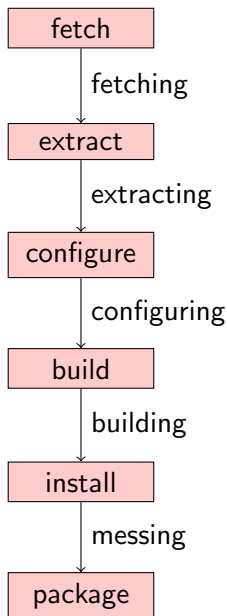
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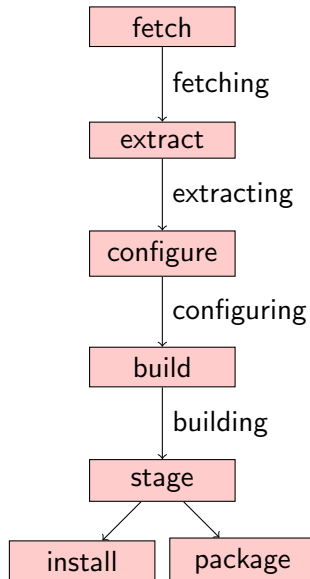
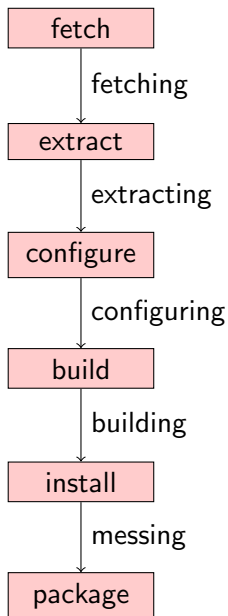
Sequence before and after staging



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Sequence before and after staging



What next?

- ▶ EOL of pkg_install
- ▶ Sub packages
- ▶ Provide/Requires
- ▶ Autoplist
- ▶ Cross compilation

Cross Compilation

1. X_TARGET_ARCH
2. X_TARGET_DESTDIR
3. X_BUILD_DUPLICATE Native and target binaries should be installed
4. X_BUILD_SAFE Be built via the native toolchain
5. X_BUILD_UNSAFE Be built via the user emulation (qemu-user)

Questions?

