

! " # \$ % & ' () * + , % FreeBSD

<!-- vale FreeBSD.Pronouns = NO -->

! " # \$ % & ' (

) * \$ # + , \$ % \$ - . # / ' , % " O 1 % 2 3 ' 4 " O . , / # , # 5 O , , / # 6 # 7 - 8 9 # \$ # 1 O : # \$; . 3 - " O + 4 . 3 # < . 9 ' 3 ' # 1 = % " ' 2 % & ' (6 # => \$ < " . , \$ ' < 9 3 % ; < / 1 # . 9 \$ FreeBSD.

L + 1 ' * H # . & '

- 1. O \$ # " . # 5 : # ; ' 6 # 2
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? \$ % 9 , < O : # \$ ' \$. < " . , \$ ' , < # + < 9 3 % ; < FreeBSD? @ \$ # 2 % 6 . 4 % \$. 3 - " # ! FreeBSD ! " # \$ % \$ & ' () " % < 9 3 % ; , < # ' : / # 3 - 2 # < % \$. 3 . + ; 3 (, > 7 . , \$ < # < % " ' (.) % A ' > , ' 3 ' (" . \$ # 3 - 9 # & . " (\$, (, # " ' B ' 2 " . " " # < % B " O ; 3 (; % 3 - " . + A . = # 1 % 2 < ' \$ ' (FreeBSD.

FreeBSD 1 % 2 1 % 5 % \$ O < % . \$ 5 # 3 - A # . ' / # , \$ # (" " # 1 % , \$ > 7 . . 9 # 3 ' 4 . , \$ < # > 4 % , \$ " ' 9 # < ' 2 1 % 2 " O : , \$ 1 % " , , % 6 # = # 1 % 2 " # = # < # 2 1 % , \$ % ' > 1 # < (\$. : " ' 4 . , 9 # + * 9 , / . 1 \$ ' 2 O . C % 5 # \$ O < , . = ; % 5 # 3 - A . , 4 . 6 ; # , \$ > / " O : 3 8 ; . + , ' 3 8 5 % (/ # 6 # 7 - < , . = ; % / 1 ' < . \$, \$ < > . \$, (.

) 9 % 4 . , \$ < . < # 3 # " \$ D 1 % < O # = 1 % " ' 4 . " O \$ # 3 - 9 # \$. 6 , 4 . 6 : # \$ ' \$. 2 % " ' 6 % \$ - , (. E ; " % 9 # 6 O / 1 # , ' 6 < % , > 4 ' \$ O < % \$ - # B ' ; % " ' (; 1 > = ' : > 4 % , \$ " ' 9 # < , ## 5 7 . , \$ < % FreeBSD .) # 2 6 # B " # , < % 6 , # # ' \$ / 1 ' " (\$ - * \$ # < # < " ' 6 % " ' . , / 1 . B ; . 4 . 6 1 . A ' \$ - , \$ % \$ - < # 3 # " \$ D 1 # 6 .

F 1 # . 9 \$ FreeBSD # \$ < . 4 % . \$ 2 % & . 3 # , \$ " > 8 # / . 1 % & ' # " " > 8 , 1 . ; > , % " . \$ # 3 - 9 # 2 % (; 1 # ' 3 ' " . , 9 # 3 - 9 # 1 % 2 1 # 2 " . " " O : > \$ ' 3 ' \$. G % 9 ' 6 # 5 1 % 2 # 6 , " % A ' , / ' , 9 ' TODO # : < % \$ O < % 8 \$ # 4 . " - A ' 1 # 9 ' + , / . 9 \$ 1 2 % ; % 4 : # \$; # 9 > 6 . " \$ % & ' ' , 5 . \$ % \$ - , \$ ' 1 # < % " ' (' / 1 . 2 . " \$ % & ' + ; # > , \$ % " # < 7 ' 9 % , ' , \$. 6 O ' < O , # 9 # , / . & ' % 3 ' 2 ' 1 # < % " " O : < ' ; # < 1 % 2 1 % 5 # \$ 9 ' (; 1 % . H 8 ; ' , 3 8 5 0 6 > 1 # < " . 6 " % < O 9 # < , / 1 % 9 \$ ' 4 . , 9 ' < 3 8 5 # + # 5 3 % , \$ ' , / # 4 \$ ' " % < . 1 " (9 % 6 # => \$ / # 6 # 4 - / 1 # . 9 \$ > .

I # 6 6 . 1 4 . , 9 ' . # 1 = % " ' 2 % & ' ' , 2 % " (\$ O . < , J . 1 % : , , < (2 % " " O : , FreeBSD , \$ % 9 B . / 1 ' = 3 % A % 8 \$, (9 , # \$ 1 > ; " ' 4 . , \$ < > .) % 6 " > B " # , / . & ' % 3 - " # . 1 % , A ' 1 . " ' . , 4 \$ # 5 O < % A / 1 # ; > 9 \$ 1 % 5 # \$ % 3 ?) O > < ' ; ' \$. , 4 \$ # 6 O # \$ < . 4 % . 6 " % < % A ' 2 % / 1 # , O , . , 3 ' # " ' " . , 3 ' A 9 # 6 * 9 , \$ 1 % < % = % " \$ " O .) O 1 % 5 # \$ % . \$. " % ; / 1 # ; > 9 \$ # 6 , ; # 5 % < 3 (8 7 ' 6 & . " " # , \$ - , ' , \$. 6 . ? F # B % 3 > + , \$ % , ; % + \$. " % 6 2 " % \$ - !) # 2 6 # B " # , 6 O , 6 # B . 6 , # \$ 1 > ; " ' 4 % \$ - < 9 % 9 ' : - # % , / . 9 \$ % : . K < # 5 # ; " # . / 1 # = 1 % 6 6 " # . # 5 . , / . 4 . " ' . 5 1 # , % . \$ < O 2 # < 6 " # = ' 6 > , \$ # (< A ' 6 , (/ 1 . ; , \$ % < 3 . " ' (6 # \$ # 6 , 9 % 9 1 % 2 1 % 5 % \$ O < % . \$, (/ 1 # ; % D \$, (' / # ; ; . 1 B ' < % . \$, (/ 1 # = 1 % 6 6 " # . # 5 . , / . 4 . " ' . , ' 6 O / 1 ' 2 O < % . 6 < % , : # \$ (5 O < 2 = 3 (" > \$ - " % " . = # . 7 D 1 % 2 .

1. - % + . ' + / 0 + 1 & 2 +

K3.; >87' + , / ' , #9 2%; %4 ' / #; / 1#. 9\$#< / 1.; , \$%<3(.\$, #5#+ , <#. =# 1#; % #5L.; ' " . ' ' . 1%23' 4" O: , / ' , 9#< TODO ' 2%/1# , #< / #3-2#<%\$. 3. +.

1.1. 3' , 45 & ' 6#1#" & 178 . ') * +9* #22&\$%+(

M" #=' . 38; ' , >4% , \$<>87' . < FreeBSD , " . (<3(8\$, (/ 1#=#1%66' , %\$6' . F1#. 9\$ <9384%. \$ < , . 5(%<\$#1#< ; #9>6. " \$%&' ' , <. 5-; ' 2%+' . 1#< ' , / . &' %3' , \$#< / #; ; . 1B9' .) , D, 4\$# " >B" # *\$' 6 38; (6 ; 3(>4% , \$' (, Ñ *\$# <3#B. " ' . <1. 6. " ' ' =#\$#<" # , \$- >4' \$- , (.

1. F. 1' #; ' 4. , 9' / . 1. 4' \$O<%+\$. FAQ ' C>9#<#; , \$<#. N, 3' 4\$#-\$# #5L(, " . " # " . ; # , %\$#4" # (, " # , " . #; " #2" %4" # , > , %\$1. 3# ' 3' " . <. 1" # , ; %+\$. " %6 2" %\$- . N7D 3>4A. Ñ / 1' A3' \$. " %6 ' , / 1%<3. " ' . (AsciiDoc " . , 3#B" # ' 2>4' \$- , " # 6#B" # / 1' , O3\$- ' #5O4" O+ \$. 9, \$).
2. F#6#=' \$. / . 1. <. , \$' ; #9>6. " \$%&' 8 FreeBSD " % <%A 1#; " #+ (2O9. N, 3' ; #9>6. " \$%&' (>B. , >7. , \$<>. \$ " % <%A. 6 (2O9. , <O 6#B. \$. / #6#4- / . 1. <. , \$' ; # / #3" ' \$. 3- " O . ; #9>6. " \$O ' 3' / 1#<. 1' \$- , 4\$# / . 1. <#; O %9\$>%3- " O ' 9#11. 9\$" O . K" %4%3% #2" %9#6- \$. , - , FAQ / # / . 1. <#; %6 < C>9#<#; , \$<. / 1#. 9\$% ; #9>6. " \$%&' ' FreeBSD.) O " . #5(2% " O / . 1. <#; ' \$- 9%B; O+ ; #9>6. " \$ FreeBSD Ñ 9%9 <#3#" \$. 1, <O 6#B. \$. / . 1. <#; ' \$- , \$#3-9# , 9#3-9# / #B. 3%. \$. I %9 \$#3-9# 9\$#-\$# "%4" % . \$ / . 1. <#; ' \$- , 9 *\$#6> / 1#&. , , > / #4\$' < , . =; % / 1' , #. ; ' " (8\$, (; 1>= ' .. N, 3' > <% , .. \$- <1. 6(' , ' 3O / . 1. <. , \$' \$#3-9# 4%, \$- ; #9>6. " \$%&' ' , / #B%3>+ , %\$, / . 1. <. ; ' \$. ' " , \$1>9&' ' / #> , %\$ " #<9. .
3. O' \$%+\$. K / ' , #9 1% , O39' , / # , <(7D" " O+ <# / 1# , %6 ' # \$<. %\$6 / #3-2#<%\$. 3. + FreeBSD <1. 6(# \$ <1. 6. " ' (' 3' ; %B. 1. =>3(1" #). M#B. \$ 5O\$- #4. " - / 1' (\$" # ; . 3' \$- , (, <# ' 6' 2" %" ' (6' ' / #6#=%\$- 38; (6 1. A#\$- ' : / 1#53. 6O; ' " # =; %<O ; %B. 6#B. \$. >2" %\$- 4\$#-\$# " #<#. ; 3(, . 5(!@\$' J#1>6O %\$9B. 6#=# \$ 5O\$- ' , \$#4" ' 9#6 ' ; . + ; 3(>3>4A. " ' +.

1.2. 3' , 45 & ' 6#1#" &) * +9* #22&\$%+(

P#3-A' " , \$<# / . 1. 4' , 3. " " O: 2; , - 2%; %4 6#B. \$ / # \$1. 5#<%\$- 2" %4' \$. 3- " O: <1. 6. " " O: 2%\$1%\$, =3>5#9' : 2" %" ' + # (; 1. FreeBSD ' 3' \$#=# ' ; 1>=#=#. E; "%9# , .. \$- %\$9B. 6" #B. , \$<# / #3. 2" O: 2%; %4, / #; : #; (7' : ; 3(" : %9. 1#< <O: #; " #=# ; " (.

1. N, 3' <O ' , / #3-2>. \$. FreeBSD-CURRENT ' ' 6. . \$. : #1#A. . / #; 9384. " ' . 9 ' " \$. 1" . \$> , , >7. , \$<>. \$ 6%A' " % current.FreeBSD.org , 9#\$#1%(. B. ; " . <" # , #5' 1%. \$ / #3" O+ 1. 3' 2 Ñ <1. 6(# \$ <1. 6. " ' / 1#5>+\$. > , %\$ " #<' \$- / #, 3. ; " ' + 1. 3' 2 , " . D ' , ##57%+\$. # 385O: , 5#(: < / 1#&. , , , .
2. C%25. 1' \$. , - , 9%9' . ' 26. " . " ' (5O3' / 1. ; 3#B. " O ' 3' # 9%9' : / 1#53. 6%: 5O3# , ##57. " #.) #26#B" # , \$%6 . , \$- / 1#53. 6% , / # 9#\$#1#+ <O 6#B. \$. 9#" , \$1>9\$' <" # <O, 9%2%\$- , (, ' 3' / %\$4' , 9#\$#10. <O 6#B. \$. / 1#\$. , \$' 1#<%\$- . ?3' <O ; %B. 6#B. \$. / # / O\$%\$- , (' , / 1%<' \$- #; " >' 2 / 1#53. 6 , %6# , \$#(\$. 3- " #.
3. E; ' " ' 2 , / # , #5#< Ñ / 1#4' %\$-\$ K / ' , #9 1% , O39' FreeBSD , / # , <(7D" " O+ , ##57. " ' (6 # / 1#53. 6%: (; 3(/ 1#53. 6 , # \$ / 1%<3. " " O: , / #6#7- 8 Bugzilla).
4. N, 3' <%6 ' 2<. , \$" O ' , / 1%<3. " ' (#A' 5#9, 9#\$#10. 5O3' > , / . A" # / 1' 6. " . " O < -CURRENT, " # " . 5O3' / . 1. " . . " O < -STABLE < \$. 4. " ' . 1%2>6" #=# , 1#9% (#5O4" # / %1O

":; . 3-), #\$/1%<-\$. 9#66' \$\$. 1><. B3' <#. "%/#6' "%' ' ..

5. F. 1. 6. , \$' \$. , \$#1#" " .. /1#=1%66" #. #5. , / . 4. " ' . < src/contrib < ; . 1. < . ' , : #; " O: 9#; #< .
6. Q5. ; ' \$. , - , 4\$# 9#; < src/contrib %9\$>%3. " .
7. K#5. 1' \$. ; . 1. <# ' , : #; " ' 9#< (' 3' \$#3- 9# . =# 4% , \$-) , <9384. " " O6' ; #/#3" ' \$. 3- " O6' /1. ; >/1. B; . " ' (6' ' ' > , \$1%" ' \$. *\$' /1. ; >/1. B; . " ' (. K/ ' , #9 /1. ; >/1. B; . " ' + /1' , 5#19. \$%9B. 6#B" # "%+\$' < "%A. 6 CI , <O51%< , 5#19> ' # \$6. \$' < "LLVM/Clang Warnings".
8. ? , /1%<3. " ' . /1. ; >/1. B; . " ' + ; 3(/#1\$#< , 9# \$#1O. ' , /#3- 2>8\$ > , \$%1. <A' . J>" 9&' ' , \$%9' . 9%9 gets() ' 3' <9384%8\$ malloc.h.
9. N, 3' <O <" . , 3' , <#+ <93%; < 9%9' . -3' 5# /#1\$O ' <%6 /1' A3# , - <" . , \$' ' 26. " . " ' (, / . &' J' 4" O. ; 3(FreeBSD , #\$/1%<-\$. , <# ' ' , /1%<3. " ' (#1' = " %3- " O6 %<\$#1%6 (*\$# #53. =4' \$ <%A> B' 2" - , 9#=# , % # " ' <O/> , \$(\$, 3. ; >87>8 < . 1 , ' 8).
10. F#3>4' \$. 9#/' ' ' #J' &' %3- " O: , \$%" ; %1\$#< , \$%9' : 9%9 POSIX" . K1%<" ' \$. /#<. ; . " ' . FreeBSD , \$1. 5#<% " ' (6' , \$%" ; %1\$% . N, 3' /#<. ; . " ' . # \$3' 4% . \$, (, # , #5. " " # < , 3#B" O: ' 3' 6%3# ' 2>4. " " O: % , / . 9\$%: , / . &' J' 9%&' ' , #\$/1%<-\$. PR #5 *\$#6. N, 3' <O 6#B. \$. , /1. ; 3#B' \$. ' , /1%<3. " ' . ' <9384' \$. /%\$4 < PR. N, 3' <O , 4' \$% . \$. , 4\$# , \$%" ; %1\$ #A' 5#4. " , #51%\$' \$. , - <#1=%" /# , \$%" ; %1\$' 2%&' ' , /1# , -5#+ 1% , 6# \$1. \$- *\$#\$ <#/#1# , .
11. F1. ; 3#B' \$. ; #/#3" ' \$. 3- " O. 2% ; %4' ; 3(*\$#=# , / ' , 9%!

1.3. : *+; 1&% ' \$<) + /#6' 1# . . = 0 +% " >%+ (+) * + /7' 2#0 Bugzilla

K/ ' , #9 # \$4D\$#< # /1#53. 6%: FreeBSD # \$51%B% . \$ < , . \$. 9>7' . %9\$' <" O. # \$4D\$O # /1#53. 6%: ' 2%/1# , O " % >3>4A. " ' . , #\$/1%<3. " " O. /#3- 2#<%\$. 3(6' FreeBSD 4. 1. 2 Bugzilla. P%2% ; % " " O: # \$4D\$#< # /1#53. 6%: <9384% . \$ 9%9 2% ; %4' ; 3(/1#=1%66' , \$#< , \$%9 ' ; 3(" . /1#=1%66' , \$#<. F1# , 6# \$1' \$. # \$91O\$O. PR ' /# , 6# \$1' \$. , , \$- 3' , 1. ; ' " ' : 4\$#-\$# , 4\$# <% , 2%' " \$. 1. , > . \$. R. 9# \$#1O. ' 2 " ' : 6#=>\$ 5O\$- #4. " - /1# , \$O6' 2% ; %4%6' , 9# \$#1O6 /1# , \$# ">B. " , <. B' + <2=3(; , 4\$#5O /1#<. 1' \$- ' /# ; \$<. 1 ; ' \$- , 4\$# ' , /1%<3. " ' . (<3(. \$, (: #1#A' 6. S1>=' . 6#=>\$ 5O\$- =#1%2 ; # , 3#B" .. ' 3' ; %B. " . , # ; . 1B%\$- ' , /1%<3. " ' (<#< , ..

R%4" ' \$. , PR, 9# \$#1O. " ' 9#6> " . "%2"%4. " O. N, 3' PR "%2"%4. " 9#6>-\$# ; 1>=#6> , " # <%6 9%B. \$, (, 4\$# <O 6#B. \$. , " ' 6 , /1%<' \$- , (, "%/' A' \$. *\$#6> 4. 3#<. 9> "% /#4\$> ' , /1# , ' \$. , 6#B" # 3' <%6 " %; " ' 6 /#1%5#\$%\$- Ñ <#26#B" # , > " . =# >B. . , \$- =#\$#<O+ /%\$4 ; 3(\$. , \$' 1#<% " ' (' 3' ; #/#3" ' \$. 3- " O. ' ; . ' , 9# \$#1O. 6#B" # #5 , > ; ' \$- .

1.4. 3' , 45 &' 6#1#" &) +*%+(

I #33. 9&' (/#1\$#< Ñ *\$# /# , \$#(" " O+ /1#&. , . MO , \$1. 6' 6 , (/1. ; # , \$%<' \$- " %A' 6 /#3- 2#<%\$. 3(6 > ; #5" O+ , , #<1. 6. " " O+ ' 9%4. , \$<. " " O+ 1. /#2' \$#1' + , \$#1#" " . =# /1#=1%66" #=# #5. , / . 4. " ' (. R%6 " >B" O 38 ; ' , =#\$#<O. /#B. 1\$<#<%\$- , <# ' 6 <1. 6. " . 6 ' > , ' 3' (6' , 4\$#5O /#6#4- "%6 ; # , \$' 4- *\$#+ & . 3' .

) #<3. 4- , (6#B. \$ 385#+ , ' , /# , #5#< ; 3(*\$#=# 6" #B. , \$<#. Q4% , \$' . < 1%21%5#\$9. /#1\$#< Ñ # \$3' 4" O+ , /# , #5 " # \$; %\$- ; #3=" /1# . 9\$> . P> ; - \$# /# ' , 9 /# , \$#(" " #+ 1#3' ' 3' ' " \$. 1. , " O+ <O2#< " % ; #B; 3' <O+ ; . " - Ñ 6O 5> ; . 6 1% ; O <%A. + /#6#7' !

N, \$- " . , 9#3-9# /1#, \$O: , /#, #5#< /#6#4- /#; ; . 1B' <%\$- ; . 1.<# /#1\$#< < %9\$>%3- "#6
, #, \$#(" ' ' ' < : #1#A. 6 1%5#4. 6 /#1(; 9. :

¥ R%+; ' \$. ' " \$. 1. , " # . ' 3' /#3.2" # . /1#=#1%66" # . #5. , / . 4. " ' . ' , #2; %+\$. /#1\$; 3(" . =#.

¥ K>7. , \$<>. \$ 6" #B. , \$<# /#1\$#< , > 9#\$#10: " . \$, #/1#<#B; %87. =#. K\$%" - \$.
, #/1#<#B; %87' 6') #2-6' \$. "% , #/1#<#B; . " ' . " . /#; ; . 1B' <% . 6O+ /#1\$.

¥ N, 3' <O , #2; %3' ' 3' %; %/\$' 1#<%3' /#1\$, #51%\$' \$. <" ' 6%" ' . " % 1%2; . 3 T%; %4% ; 3(
, #/1#<#B; %87' : /#1\$#< .

¥ N, 3' <O ' 7. \$. 5O, \$1O+ <O2#<, <O 6#B. \$. R%+\$' ' ' , /1%<' \$- , 3#6%" " O+ /#1\$.

1.5. ?= /' * &% ' +1& . &6) 4. , %+(\$+ \$%* #. &@= A1' &

K/' , #9 /1#. 9\$#< ' ' ; . + FreeBSD ; 3(<#3#" \$D1#< \$%9B. ; #, \$>/. " ; 3(\$. : , 9\$# : #4. \$ <" . , \$'
, <#+ <93%; < /1#. 9\$ FreeBSD. K/' , #9 1. =>3(1" # #5" #<3(. \$, (' , #; . 1B' \$ />" 9\$O 9%9 ; 3(
/1#=#1%66' , \$#<, \$%9' ; 3(" . -/1#=#1%66' , \$#<, , ' " J#16%&' . + # 9%B; #6 /1#. 9\$. .

2. B#, (. ' \$%& \$ (+; (, 7#1

) 93%; O < , ' , \$. 6> #5O4" # # \$" # , (\$, (9 #; " #+ ' 3' " . , 9#3-9' 6' 2 , 3. ; >87' : 5 9%\$. =#1' +:

2.1. C%" >% = +/ +D&/ , #0 & +/5 &' , +22' . % # * &&

?; . (' 3' /1. ; 3#B. " ' . , /1. ; , \$%<3(87' . " *+ , - \$. : " ' 4. , 9' + ' " \$. 1. , , ; #3B" O 5O\$-
#\$/1%<3. " O " % K/' , #9 1% , , O39' FreeBSD, /# , <(7D" " O+ \$. : " ' 4. , 9' 6 #5 , >B; . " ' (6.
! " %3#=' 4" # , 38; ' , 2% ' " \$. 1. , #<" " O. < /#; #5" O: < . 7%: (' =#\$#<O. \$. 1/ . \$- *"# . /"- #5LD6
/#4\$O!), 6#=>\$ /#; /' , \$%- , (" % K/' , #9 1% , , O39' FreeBSD, /# , <(7D" " O+ \$. : " ' 4. , 9' 6
#5 , >B; . " ' (6. S#/#3" ' \$. 3- ">8' " J#16%&' 8 #5 *\$#6' ; 1>=: : , /' , 9%: 1% , , O39' , 6. < The
FreeBSD Handbook.

N, 3' <O #\$/1%<3(. \$. /1#, \$#+ /%\$4 < 1. /#2' \$#1' + src, 1% , , 6#\$1' \$. <#26#B" # , \$- #\$/1%<' \$-
. =# < 2. 19%3# /1#. 9\$% " % GitHub 9%9 2%/1#, " % <9384. " ' . F#; : #; (7' . #\$/1%<9' ; #3B" O:

¥ U#\$#<# ' 3' /#4\$' =#\$#<# ; 3(<9384. " ' (. I#66' \$\$. 1 ; #3B. " 5O\$- < , #, \$#(" ' ' ' /1' 6. " ' \$- *\$#\$ /%\$4 , 6. " . . 4. 6 10 6' " >\$%6' ; #/#3" ' \$. 3- " #+ 1%5#SO.

¥ E" /1#: #; ' \$ < , . 2%; %" ' (GitHub CI.

¥) O 6#B. \$. 5O, \$1# 1. %= ' 1#<%\$- " % #51%\$ " >8 , <(2- .

¥ E" 2%\$1%=' <% . \$ 6. " . . 10 J%+3#<, % ' 26. " . " ' (, #, \$%<3(8\$ 6. " . . 200 , \$1#9. ?26. " . " ' (5#3- A. =# 1%26. 1% 6#=>\$ 5O\$- ; #/>, \$' 6O, ' 3' <%, 6#=>\$ /# /1#, ' \$- #\$/1%<' \$- " . , 9#3-9# 2%/1#, #< " % <9384. " ' . 5#3. . > ; #5" #=# 1%26. 1%.

¥ I %B; #. 3#=' 4. , 9#. ' 26. " . " ' . Ñ *\$# # \$; . 3- " O+ 9#66' \$ < 1%69%: pull request. K##57. " ' (9#66' \$#< ; 3(9%B; #=# ' 26. " . " ' (; #3B" O , ##\$<. \$, \$<#<%\$- 1>9#<#; , \$<> /# #J#163. " ' 8 3#=#< 9#66' \$#<.

¥) , . 9#66' \$O , #; . 1B%\$ <%A. ' 6(' ; . +, \$<' \$. 3- " O+ %; 1. , *3. 9\$1#" " #+ /#4\$O, 9#\$#1O. <O : # \$' \$. <' ; . \$- < 1. /#2' \$#1' ' FreeBSD < 9%4. , \$<. %<\$#1%. F#; ; . 3- " O. %; 1. , %

github.com ' , /#3-2#<%\$- " . 3-2(.

¥ E5LD6 pull request " . ;#3B. " 6. " (\$-, (< /1#&. ,. /1#<. 19' . N, 3' < :#; . /1#<. 19' /1. ;#3B. " O' 26. " . "' (, 1%, A' 1(87' . #5LD6, , #2; %+\$. #S; . 3- " O+ pull request.

¥ ? , /1#<3(87' . 9#66' \$O ;#3B" O 5O\$- #5L. ;' " . " O (squash) , 9#66' \$#6, 9#5\$10+ #' ' , /1#<3(8\$. I %B; O+ 9#66' \$ < <%A. + <. \$9. ;#3B. " 5O\$- /1' =#; . " ;3(1. /#2' \$#1' (FreeBSD.

¥ I #66' \$O ;#3B" O <9384%\$- #; ">' 3' " . , 9#3-9# , \$1#9 Signed-off-by: , /#3" O6' 6. " . 6 ' %; 1. , #6 *3.9\$1#" "#+ /#4\$O, /#; \$<. 1B; %87' 6' K. 1\$' J' 9%\$ /1#' , :#B; . "' (1%21%5#\$4' 9%.

F1' #5" #<3. "' ' 2%/1#, % " % <9384. "' . ' 26. " . "' +, /#B%3>+, \$%, <O/#3" (+\$. / . 1.5%2' 1#<%"' . , /1' " >; '\$. 3- "#+ #\$/1%<9#+ (forced push), % " . , 3' (" ' . 6 4. 1. 2 9#66' \$ (merge commit). P#3. . , #3B" O. ' 26. " . "' (6#=>\$ 5O\$- #\$/1%<3. " O 9%9 2%/1#, O " % <9384. "' . (pull request), "# #"' 6#=>\$ 5O\$- #93#" . " O ' 2%91O\$O, . , 3' #' ' , 3' A9#6 5#3- A' . , , 3' A9#6 =1#6#2; 9' . , , %" #<(\$, (" . %9\$' <" O6' , \$1.5>8\$;#/#3"' \$. 3- "#=# #5, >B; . "' (< , ##57. , \$<. ' 3' ">B; %8\$, (< 2" %4' \$. 3- "#+ ;#1%5#\$9. . F#B%3>+, \$%, ' 25. =%+\$. , #2; %"' (5#3- A' : , A' 1#9#6%, A\$%5" O: /%\$4. + ;3(#4' , \$9' : #' ' , 3' A9#6 <. 3' 9' ' " . #53%; %8\$ " . #5: #; ' 6#+ J#9>, ' 1#<9#+ ;3(9%4. , \$<. " " #=# 1. &. " 2' 1#<%"' (. F#\$4' , #\$/1%<3. " " O. " . /# %; 1. , >, 6#=>\$ 5O\$- / . 1. " %/1%<3. " O < 5#3. . /#; : #; (7' + J#1>6 ;3(' : ;#1%5#\$9' .

T%/1#, O " % <9384. "' . ' 26. " . "' +, #\$/1%<3. " " O. < 1. /#2' \$#1' + /#1\$#<, 6#=>\$ 5O\$- #51%5#\$% " O ' 3' /1#' = " #1' 1#<% " O, < 2%<' , ' 6#, \$' #S " % , \$1#. "' (1%21%5#\$4' 9#<. R% ;% " " O+ 6#6. " \$, <%6 5>; . \$ /1#7. , . , 3' <O 5>; . \$. , 3. ;#<%\$- /1#&. , , > #\$/1%<9' /#1\$#<) 93%; < /#1\$O.

I #6%" ; % ; #9>6. " \$%&' ' \$%9B. /1' " ' 6%. \$ pull requests 4. 1. 2 GitHub, " # /#9% " . >, \$% " #<' 3% ;3("' : "' 9%9#+ /#3' \$' 9' .

N, 3' <O #5" %1>B' 3' #A' 59> ' 3' :#S' \$. #\$/1%<' \$- 9#" 91. \$" #. ' 26. " . "' . , /#B%3>+, \$%, , ##57' \$. #5 *\$#6, ' , /#3-2>(J#16> Bugzilla #\$/1%<9' #54D\$% #5 #A' 59%: . F#, \$%1%+\$. , - 2%/#3"' \$- 9%B; #. /#3. #54D\$%. N, 3' /%\$4' " . /1. <OA%8\$ 65 IP, <9384' \$. ' : " . /# , 1. ; , \$<. " " # < #54D\$. N, 3' /%\$4' /#; : #; ' \$;3(/1' 6. " . "' (9' , :#; " #6>; . 1. <>, >9%B' \$. [PATCH] < 91%\$9#6 #/' , %"' ' ' #54D\$%. F1' <9384. "' ' /%\$4. + O&' , /#3-2>+\$. 9#/' 1#<%"' . ' <, \$%<9>, \$%9 9%9 *\$# /1. <1%7%. \$ \$%5>3(&' ' < /1#5. 3O ' ; . 3%. \$ ' : " . /1' =#; " O6' . N, 3' /%\$4' 2" %4' \$. 3- "# /1. <OA%8\$ 20 IP, 1%, , 6#51' \$. <#26#B" #, \$- ' : , B#\$' ((" /1' 6. 1. , /#6#7-8 gzip(1) ' 3' bzip2(1)) / . 1. ; 2%=1>29#+.

F#, 3. /#; %4' #54D\$% <O ;#3B" O /#3>4' \$- /#; \$<. 1B; . "' . <6. , \$. , " #6. 1#6 ;3(#S, 3. B' <%"' (. K#: 1%" " \$. *\$#\$ " #6. 1, 4\$#5O <O 6#=#3' , ##57' \$- " %6 ;#/#3"' \$. 3- " O. , <. ; . "' (# /1#53. 6. .

K6. \$%9B. *\$> , \$%\$- 8 # #6, 9%9 /' , %\$- : #1#A' . #54D\$O # /1#53. 6%: .

2.2. A62' . ' . &8 (1+, 42' . %#@&&

?26. " . "' (< ; #9>6. " \$%&' ' 9#" \$1#3' 1>8\$, (K/' , #9 1%, , O39' F1#. 9\$% S#9>6. " \$%&' ' FreeBSD. F#B%3>+, \$%, #2" %9#6- \$. , - , 1>9#<#; , \$<#6 F1#. 9\$; #9>6. " \$%&' ' FreeBSD:

<<. " ' . ; 3("#<O: >4%, \$" ' 9#< ; 3(/#3>4. " ' (/#3" O: ' ", \$1>9&' +. E\$/1%<3(+\$. ' , /1%<3. " ' (' ' 26. " . " ' ((; %B. " . 5#3- A' . /1%<9' /1' <. \$, \$<>8\$, (!) \$. 6 B. , /#, #5#6, 4\$# ' ; 1>= ' . # \$4D\$O #5 #A' 59%: .

2.3. A62' . ' . &8 (\$45 ' \$(4E 5 ' 2 &\$0+1. +2 , +1'

S#5#<3. " ' . ' 3' ' 26. " . " ' . , >7. , \$<>87. =# ' , : #; "#=# 9#; % Ñ *\$# " . , 9#3- 9# 5#3. . , 3#B" % (2%; %4%, 9# \$#1% (<# 6" #=#6 2%<' , ' \$ # \$ #=#, "%, 9#3- 9# , ' 3- " # <O # \$, \$%3' # \$ \$. 9>7. =# , #, \$# (" ' (1%21%5#\$9' FreeBSD. K>7. , \$<>. \$, / . &' %3- "% (/#, \$# (" " # 5" #<3 (. 6% (<. 1, ' (FreeBSD, ' 2<. , \$" % (9%9 "FreeBSD-CURRENT", 9# \$#1% (; #, \$>/" % 1%23' 4" O6' , /#, #5%6' ; 3(>; #5, \$<% 1%21%5#\$4' 9#<, %9\$' <" # 1%5#\$87' : "%; , ' , \$. 6#+. F#; 1#5" . . # /#3>4. " ' ' ' ' , /#3- 2#<" ' ' FreeBSD-CURRENT 6#B" #>2" %\$- < C>9#<#; , \$<. FreeBSD.

C%5#\$% , >, \$%1. <A' 6' ' , : #; " ' 9%6' , 9 , #B%3. " ' 8, #2" %4%. \$, 4\$# <%A' ' 26. " . " ' (' ' #=#; % 6#=>\$ 5O\$- , 3' A9#6 >, \$%1. <A' 6' ' 3' , 3' A9#6 1%, : #; (7' 6' , (; 3(3D=9#=# /#<\$#1" #=# <9384. " ' (<FreeBSD. V" , O " % *\$# 6#B" # " . , 9#3- 9#>6. " - A' \$- , /#; /' , %<A' , - "%, /' , 9' 1%, , O39' K/' , #9 1%, , O39' %" # " , #< FreeBSD ' K/' , #9 1%, , O39' , /#, <(7D" " O+ #5, >B; . " ' 8 FreeBSD-CURRENT, =; . #5, >B; % . \$, (\$. 9>7. . , #, \$# (" ' . , ' , \$. 6O.

F1. ; /#3#=% (, 4\$# <%6 >; %3#, - /#3>4' \$- ; #, \$%\$#4" # %9\$>%3- " O. ' , : #; " O. 9#; O ; 3(<" . . " ' (' 26. " . " ' +, , 3. ; >87' + A%= Ñ , #2; %\$- "%5#1 1%23' 4' + (diff) ; 3(#\$/1%<9' , #/1#<#B; %87' 6 FreeBSD. @\$# ; . 3%. \$, (, /#6#7- 8 9#6%" ; O diff(1).

F1. ; /#4\$' \$. 3- " O6 J#16%\$#6 diff(1) ; 3(#\$/1%<9' ' , /1%<3. " ' + (<3(. \$, (>" ' J' &' 1#<% " " O+ J#16%\$ <O<#; % , #2; %<% . 6O+ 9#6%" ; #+ diff -u.

```
% diff -u oldfile newfile
```

' 3'

```
% diff -u -r -N olddir newdir
```

, =. " . 1' 1>. \$ "%5#1 >" ' J' &' 1#<% " " O: diff-J%+3#< ; 3(>9%2%" " #=# ' , : #; "#=# J%+3% ' 3' ' . 1%1: ' ' 9%\$%3#=#<.

K6. diff(1) ; 3(/#3>4. " ' (; #/#3" ' \$. 3- " #+ ' " J#16%&' ' .

F#, 3. \$#=# 9%9 > <%, . , \$- "%5#1 ' 26. " . " ' + (9#\$#10. <O 6#B. \$. /1#<. 1' \$- , /#6#7- 8 9#6%" ; O patch(1), <O 6#B. \$. #\$/1%<' \$- ' : ; 3(<9384. " ' (<FreeBSD < <' ; . # \$4D\$% #5 #A' 59. < Bugzilla. 1& " ' !2\$3#) - ' &' 26. " . " ' (/1#, \$# "% K/' , #9 1%, , O39' FreeBSD, /#, <(7D" " O+ \$.: " ' 4. , 9' 6 #5, >B; . " ' (6, ' "%4. # " ' 6#=>\$ /#\$. 1(\$-, (! MO #4. " - &. " ' 6 <%A' /1. ; 3#B. " ' ((*\$# ; #51#<#3- " O+ /1#. 9\$!) ; /#, 9#3- 9#> 6O 2%" (\$O, 6O " . <. =; % 6#B. 6 #51%5#\$%\$- ' : , 1%2>, " # # " ' #, \$%" >\$, (< 5%2. ; % " " O: PR, /#9% 6O " . ; #+; . 6 ; # " ' : . Q9%B' \$. , 4\$# *\$# /1. ; 3#B. " ' . ' 26. " . " ' +, ; #5%<' < [PATCH] < 2%#3#<#9 # \$4D\$%.

N, 3' <O , 4' \$%. \$. *\$# >6. , \$" O6 (" %/1' 6. 1, <O ; #5%<' 3' , >; %3' 3' ' 3' / . 1. ' 6. " #<%3' J%+3O), >/%9>+\$. , <# ' ' 26. " . " ' (<J%+3 tar.

N, 3' <%A. ' 26. ". "' . "#, ' \$ /#\$. " &' %3- "# 4><, \$<' \$. 3- " O+ : %1%9\$. 1, "%/1' 6. 1, ., 3' <O
". ><. 1. " O < <# /1#, %: %<\$#1, 9#=# /1%<%, 1. =>3' 1>87' : .=# ;%3- ". +A.. 1%, /1#, \$1% ". "' . ,
\$# <%6 , 3. ;>. \$ \$#/1%<' \$- .=# "%/1(6>8 /#% ; 1. , > core@FreeBSD.org, % ". /#; %<%\$- 9%9 #S4D\$
#5 #A' 59. . F' , -6# "% core@FreeBSD.org ; #, \$' =%. \$ =#1%2; # 6. " -A. +=1>/O 38; . +, 9#\$#1O.
<O/#3" (8\$ 5#3-A>8 4%, \$- /#<, . ; ". <" #+ 1%5#SO "%; FreeBSD. E51%\$' \$. <" ' 6%" ' . , 4\$# *\$%
=1>/% \$%9B. "4&O. 5\$O)' \$, /#*\$#6> <%6 , 3. ;>. \$ /', %\$- ' 6 \$#3-9# < , 3>4%.
; . +, \$<' \$. 3- "#+ ". #5; #; ' 6#, \$' .

F#B%3>+, \$%, #51%\$' \$. , - 9 intro(9) ' style(9) ; 3(/#3>4. "' (' " J#16%&' ' # , \$' 3. "%/' , %" (9#; % . MO 5> ; . 6 /1' 2" %\$. 3- " O, ., 3' <O : #\$(5O #2" %9#6' \$. , - , *\$#+ ' " J#16%&' . + / . 1. ; #\$/1%<9#+ 9#; %.

2.4. F+(= ; , +1 &7& +\$. +(. = ') #, ' %= \$ 1+/#(7' . . +; \$%+&2+\$%<E

) , 3>4%. 2" %4' \$. 3- "#=# <93%; % < <' ; . 5#3-A#=# #5LD6% 1%5#SO ' 3' ; #5%<3. "' (<%B" #+ "#<#+ J>" 9&' ' < FreeBSD, /#4\$' <, . =; % ". #5; #; ' 6# 3' 5# #\$/1%<' \$- ' 26. ". "' (< <' ; . tar-J%+3#<, 3' 5# 2%=1>2' \$- ' : "% <. 5- ' 3' FTP-, %+\$; 3(; #, \$>/% ; 1>=: 38; . +. N, 3' ><%, " . \$; #, \$>/% 9 <. 5- ' 3' FTP-, %+\$>, 2%/1#, ' \$. "% , ##\$<. \$, \$<>87. 6 , /' , 9. 1%, . O39' FreeBSD, 4\$#5O 9\$#-\$# 1%26. , \$' 3' 26. ". "' (; 3(<%, .

F1' 1%5#\$. , 5#3-A' 6' #5LD6%6' 9#; % ". ' 25. B" # <#2" ' 9%. \$; . 3' 9%\$" % (\$. 6% %<\$#1, 9' : /1%<. FreeBSD /1. ; /#4' \$%. \$, <#5#; " O. 3' &. " 2' ' , \$%9' . 9%9 BSD ' 3' ISC. I#/3. J\$" O. 3' &. " 2' ' , "%/1' 6. 1 GPLv2, ' " #=#; #/>, 9%8\$, (. F#3" O+ , /' , #9 6#B" # "%+\$' "% , \$1%" ' & . /#3' \$' 9' 3' &. " 2' 1#<%" ' (#, "#<" #+ 9#6%" ; O.

2.5. G' . <9& &7& +/+*41+(#. &'

MO <, . =; % 1%; O /#B. 1\$<#<%" ' (6 ; 3(/#; ; . 1B9' /1#. 9\$% FreeBSD, ' < ; #51#<#3-4. , 9' : >, ' 3' (: , /#; #5" O: "%A' 6, ; %B. " . 5#3-A%(/#6#7- 6#B. \$ ' 6. \$- 5#3-A#. 2" %4. "' . ! F#B. 1\$<#<%" ' (#5#1>; #<%" ' (\$%9B. #4. "- <%B" O ; 3(1%, A' 1. "' (, /' , 9% /#; ; . 1B' <. 6O: /. 1' J. 1' +" O: >, \$1#+, \$<, /#, 9#3-9> > "%, #5O4" # ". \$, 1. ; , \$< "% ' : /1' #51. \$. "' ..

2.5.1. : +H' *%+((#. &' \$*' 1\$(

W#"; FreeBSD (FreeBSD Foundation) Ñ *\$# " . 9#66. 14. , 9' +, #, <#5#B; . " " O+ # \$ "%3#=#< J#"; , , #2; % " O+ ; 3(/#; ; . 1B9' &. 3. + /1#. 9\$% FreeBSD. I#9 #1=%" ' 2%&' (501(c)3, W#"; , 9%9 /1%<' 3#, #, <#5#B; . " # \$ J. ; . 1%3- "#=# /#; #; #; "#=# "%3#=% KV! , % \$%9B. # \$ /#; #; #; "#=# "%3#=% A\$%\$ I #3#1%; #. F#B. 1\$<#<%" ' (#, <#5#B; . " " O6 # \$ "%3#=#< #1=%" ' 2%&' (6 4%, # \$ <O4' \$%8\$, (' 2" %3#=#53%=. 6#=# J. ; . 1%3- "#=# ; #; #; %.

F#B. 1\$<#<%" ' (6#B" # #\$/1%<' \$- < <' ; . 4. 9% /#% ; 1. , >:

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W#"; FreeBSD \$%9B. /1' "' 6%. \$ # " 3%+" -/#B. 1\$<#<%" ' (4. 1. 2 1%23' 4" O. <%1' %" \$O #/3%\$O.

S#/#3' '\$. 3- "%(' " J#16%&' (# W#";. FreeBSD ;#, \$>/"% /# , , O39. W#"; FreeBSD Ñ
<<. ;. "' .. OS#5O , <(2%\$-, (, W#";#6 /# *3.9\$1#" "#+ /#4\$. , "%/' A' \$. "%
info@FreeBSDFoundation.org.

2.5.2. : +H' *%(+(#. &' +/+*41+(#. &8

F1#. 9\$ FreeBSD , 53%=#; %1" #, \$- 8 /1' "' 6%. \$ /#B. 1\$<#<%" ' (<<' ;. #5#1>; #<%" ' (, 9#\$#1#. 6#B. \$ 5O\$- /#3.2' # ; 3(/1#. 9%\$. N, 3' <O : #'\$ \$. /#B. 1\$<#<%" \$- #5#1>; #<%" ' . , /#B%3>+, \$%, <(B' \$, - , EJ' , #6 /# , <(2(6 , /#B. 1\$<#<%" ' (6' .

3. ?, 7#1 () + *% =

3.1. : * &. 8%&' \$+) * +(+H1' . &8 . ') +11' *H&(#' 2+9+) + *%#

3.1.1. ? = /+* . ') +11' *H&(#' 2+9+) + *%#

F1' " (\$. "% .. 5(, #/1#<#B; . "' (". #5, 3>B' <% . 6O: /#1\$#< Ñ *\$# # \$3' 4" O+ , /# , #5 /1' " (\$- >4%, \$' .. R. #5, 3>B' <% . 6O. /#1\$O #5" #<3(8\$, (' ' , /1%<3(8\$, (\$#3-9# \$#=#, % 9#=#; % 9\$#-\$# ; #51#<#3- "# 5. 1. \$, (2% 1%5#\$> "%; "' 6' . K>7. , \$< . \$ 5#3- A#. 9#3' 4. , \$<# ". #5, 3>B' <% . 6O: /#1\$#<. X#1#A. + ' ; .. + 5>; . \$ "%4%\$- , /#1\$, 9#\$#1O+ <O ' , /#3-2>. \$. =>3(1" #.

R. /#; ; . 1B' <% . 6O. /#1\$O ' 6. 8\$ /%1%6. \$1 MAINTAINER, >, \$" #<3. " " O+ < ports@FreeBSD.org. M" #=' . "/#; ; . 1B' <% . 6O. /#1\$O 6#=>\$ ' 6. \$- #B' ; %87' . #5" #<3. "' (, *\$# 6#B" # ><' ; . \$- "% , 9% . 1. ; ' , \$1' 5>\$' <" O: J#+3#< /#1\$#< FreeBSD.

R% [PortsFallout](#) 6#B" # ><' ; . \$- , /' , #9 " . /#; ; . 1B' <% . 6O: /#1\$#< , #A' 59%6' .

R. 9#\$#1O. /#1\$O <3' (8\$ "% 5#3- A#. 9#3' 4. , \$<# ; 1>=' : ' 2-2% 2%<' , ' 6#, \$. + ' <\$#1' 4" O: , <(2. + 6. B; > /#1\$%6' . E5O4" # 6O : #'\$ 6, 4\$#5O > 38; . + 5O3 " . 9#\$#1O+ #/O\$, /1. B; . 4. 6 #"' "%4" >\$, #/1#<#B; %\$- \$%9' . /#1\$O.

) O 6#B. \$. >2" %\$- , . , \$- 3' > /#1\$% 2%<' , ' 6#, \$' ' 3' <\$#1' 4" O. /#1\$O, /# , 6# \$1. < < #, "#<" #+ "' ; . 9, /#1\$#< /#; "%2<%" ' . 6 INDEX. (?6(J#+3% 6#B. \$ 1%23' 4%\$-, (< 2%<' , ' 6#, \$' # \$ <. 1, ' ' FreeBSD; "%/1' 6. 1, INDEX-13.) R. 9#\$#1O. /#1\$O ' 6. 8\$ >, 3#<" O. 2%<' , ' 6#, \$' , 9#\$#1O. " . <9384. " O < , \$" ; %1\$" >8 , 5#19> INDEX. MO #B' ; % . 6, 4\$# <O , 6#B. \$. 1%, /#2" %\$- \$%9' . /#1\$O, /1#, 6# \$1. < Makefile ; 1>=' : /#1\$#<.

3.1.2. B#,) * &. 8%< \$+) * +(+H1' . &') +*%#

Q5.; ' \$., -, 4\$# <O /# ' 6%. \$. 1%2; .3 T%; %4% ; 3(, #/1#<#B; %87' : /#1\$#<. G%9B. /1#4' \$%+\$. C>9#<#; , \$<# FreeBSD /# , #2; %'' 8 /#1\$#<. 6"7\$#8- (' \$, O& * &2, ' & OS (&*) *"#. /& 4&9 3\$9 : "9; "2' 0" 3<! "#0)' ..

) O 6#B. \$. 2%/1#, ' \$- , \$%\$>, , #/1#<#B; %87. =# ; 3(385#=# " . /#; ; . 1B' <% . 6#=# /#1\$%, 9%9 \$#3-9# /#B. 3%. \$. F1#, \$# >, \$%" #<' \$. MAINTAINER "% <%A , #5, \$<. " " O+ %; 1. , *3. 9\$1#" "# + /#4\$O ' #\$/1%<- \$. PR (#\$4D\$ # /1#53. 6.) , *\$' 6 ' 26. " . " . 6. N, 3' /#1\$ ' 6. \$ #A' 59' , 5#19' ' 3' ">B; % . \$, (< #5" #<3. " ' ' , <O 6#B. \$. <9384' \$- ; 1>=' . ' 26. " . " ' (< \$#\$ B. PR. @\$# /#6#B. \$, /#, 9#3-9> 6" #=' . 9#66' \$\$. 1O 6. " . . , 93#" " O "%2"%4\$- , #/1#<#B; %87. =# \$#6>, > 9#=# " . \$ ' 2<. , \$" #+ ' , \$#1' ' 1%5#SO , FreeBSD. ES/1%<9% PR, ' , /1%<3(87' : #A' 59' , 5#19' ' 3' #5" #<3(87' : /#1\$O, Ñ 3>4A' + , /#, #5 . D >, \$%" #<' \$- .

F#; %+\$. <%A PR < 9%\$. =#1' 8 !"#\$\$ & ' () *\$%. I #66' \$\$. 1 /1#<. 1' \$ <%A PR, 2%9#66' \$' \$ ' 26. " . " ' (' < 9#" &. 2%91OS PR. ?" #=; % *\$#\$ /1#&. , , 6#B. \$ 2%" (\$- " . 9#\$#1#. <1. 6((9#66' \$\$. 1O \$#B. <#3#" \$. 1O :).

3.2. I #1#" # 178 \$+) * +(+H1#E 5 &0) +*%+(

) *\$#6 1%2; .3. <O >2" % . \$, 2%4. 6 ">B" # /#; ; . 1B' <%\$- /#1\$O, % \$%9B. #2" %9#6' \$. , - , #5(2%" " #, \$(6' , #/1#<#B; %87. =# /#1\$#<.

3.2.1. : + " ' 24) +*% = %* ' /4E% +/\$74H&(#. &8

K#2; %'' . /#1\$% Ñ *\$# 1%2#<(2%; %4%. E5. , / . 4. " ' . %9\$>%3- " #, \$' /#1\$%, . =# , 5#19' ' 1%5#SO \$1. 5>. \$ /#, \$#(" " O: >, ' 3' + /# /#; ; . 1B9.. F#; ; . 1B' <%87' . (maintainers) Ñ *\$# 38; ' , 9#\$#1O. /#, <(7%8\$ 4%, \$- , <#. =# <1. 6. " ' ; #, \$' B. " ' 8 *\$' : &. 3. +.

E, "#<"%(/1' 4' "%, /# 9#\$#1#+ /#1\$O \$1.5>8\$ #5, 3>B' <"' (, Ñ *\$# /1. ; #, \$%<3. " ' . "#<. +A' : ' 3>4A' : , \$#1#" " : /1#1%66" O: 1. A. " ' + , ##57. , \$<> FreeBSD. S#/#3" ' \$. 3- "%(2%; %4% Ñ #5. , / . 4. " ' . 1%5#\$\$, /#, #5" #, \$' #\$. ; 3- " O: /#1\$#< < 1%69%: 9#33. 9&' ' Ports /# 6. 1. . D 1%2<' \$' (.

I %9, #/1#<#B; %87. 6>, <%6 /#1. 5>. \$, (>/1%<3(\$- , 3. ; >87' 6' 2%; %4%6' :

¥ F+(= ' (' *\$&&) *+9*#22. +9+ +/' \$) ' " ' . &8 & +/. +(7' . &8. R#<O. <. 1, ' ' ' #5" #<3. " ' (, >7. , \$<>87. =# /#1\$' 1#<" " #=# /1#1%66" #=# #5. , / . 4. " ' (/#(<3(8\$, (/#, \$#(" " #, ' ' : " . #5: #; ' 6# <9384%\$- < I #33. 9&' 8 /#1\$#<, 4\$#5O #5. , / . 4' \$- %9\$>%3- " #. FE.

¥ A62' . ' . &8 (6#(&\$&2+\$%80. N, 3' < 2%<' , ' 6#, \$(: <%A. =# /#1\$% 5O3' <" . . " O 2" %4' \$. 3- " O. ' 26. " . " ' (, <#26#B" #, . =# /#1. 5>. \$, (#5" #<' \$- , 4\$#5O # " /1#; #3B%3 1%5#\$\$- 9#11. 9\$" #.

¥ A62' . ' . &8, 6#%*#9&(#E 5 &' 6#(&\$&2= ') +*%= . N, 3' ; 1>=' . /#1\$O 2%<' , (\$ # \$ /#1\$%, 9#\$#1O+ <O /#; ; . 1B' <% . \$. , ' 26. " . " ' (< <%A. 6 /#1\$. 6#=>\$ /#1. 5#<%\$- , #=3%, #<" ' (, ; 1>=' 6' , #/1#<#B; %87' 6' .

¥ ?6#&2+1' ; \$(&' \$ 1*49&2&) +7<6+(#%' 782&, \$+) *+(+H1#E 5 &2& & *#6*# /+% " &, #2&. O%, \$- #5(2%" " #, \$. + , #/1#<#B; %87. =# <9384%. \$ < , . 5(/#; ; . 1B9>. ES <%, " . #B' ; %8\$ /1. ; #, \$%<3. " ' (#57. + /#; ; . 1B9' (" # 6O /1' <. \$, \$<>. 6 *\$#, . , 3' <O 1. A' \$. . D

#9%2O<%\$-).)%A% 2%;%4% Ñ 5O\$- \$#49##+ 9##1; ' "%&' ' /# <#/1#, %6, , <(2%" " O6 , <%A' 6' /#1\$%6' , , / . &' J' 4" O6 ; 3(FreeBSD.

¥ : +&\$, +D&/+, . F#1\$ 6#B. \$ 5O\$- /#; <. 1B. " #A' 59%6, , / . &' J' 4" O6 ; 3(FreeBSD.) %6 /# \$1.5>. \$, (' , , 3. ; #<%\$- , "%: #; ' \$- ' ' , /1%<3(\$- *\$' #A' 59' /1' ' : /# , \$>/3. " ' ' . N7D 3>4A. \$7%\$. 3- " # \$, \$' 1#<%\$- /#1\$; 3(<O(<3. " ' (/1#53. 6 ; # ' : /#/%; %" ' (< I#33.9&' 8 /#1\$#<.

¥ A62' . ' . &8 (& . J *#\$%*4, %4*' &) +7&%&, ') +*%+(. ?" #=: % #5" #<3(8\$, (, ' , \$. 6O, ' , /#3-2>. 6O. ; 3(, 5#19' /#1\$#< ' /#9. \$#<, ' 3' /#(<3(8\$, (" #<O. 1.9#6. " ; %&' ' , <3' (87' . " %" " J1%, \$1>9\$>1>.) %6 , 3. ; >. \$ >4' \$O<%\$- *\$' ' 26. " . " ' (, , 3' <%A' /#1\$O 2%\$1# ">\$O' \$1.5>8\$ #5" #<3. " ' (.

¥ A62' . ' . &8 (/#6+(+; \$&\$%' 2' . FreeBSD "%: #; ' \$, (< /# , \$#(" " #+ 1%21%5#\$9. . ?26. " . " ' (< /1# =1%66" #6 #5. , / . 4. " ' ' , 5' 53' #\$. 9%; , (; 1. ' 3' ; %B. ' 26. " . " ' (/#3' \$' 9' 6#=>\$ <O2<%\$- 9%, 9%; " O. \$1.5#<" ' (9' 26. " . " ' (6 < /#1\$%: .

3.2.2. C/86#. . +\$%& \$+) *+(+H1#E 5 ' 9+

3.2.2.1. : +11' *H&(#; %' \$(+&) +*%= (#, %4#7<. +2 \$+\$%+8. &&

) *\$#6 1%2; . 3. #/' , %" O A%= ' , 9#\$#1O. " . #5: #; ' 6# <O/#3" ' \$-, 4\$#5O /#; ; . 1B' <%\$- <%A' /#1\$O <%9\$>%3- " #6 , #, \$#(" ' ' .

@\$# #57' + #52#1. S#/#3" ' \$. 3- "%(' " J#16%&' (#5 #5" #<3. " ' ' /#1\$% ; #, \$>/" % < C>9#<#; , \$<. FreeBSD /# , #2; %" ' 8 /#1\$#<.

1. K3. ; ' \$. 2% #5" #<3. " ' (6'

ES, 3. B' <%+\$. > <OA. , \$#(7. =# /# , \$%<7' 9% /#(<3. " ' . " #<O: <. 1, ' +, #5" #<3. " ' + ' ' , /1%<3. " ' + 5. 2#/%, " #, \$' ; 3(/1# =1%66" #=# #5. , / . 4. " ' (. S3(*\$#=# /#3. 2" O , /' , 9' 1%, , O39' #5L(<3. " ' + ' 3' " #<# , \$" O. <. 5-, \$1%" ' &O. ?" #=: % /#3-2#<%\$. 3' 6#=>\$, <(2%\$- , (, <%6' ' , /1#, ' \$- , 9#=: % <%A' /#1\$ 5>; . \$ #5" #<3. " . N, 3' <O 2%" (\$O ; 1>=' 6' ; . 3%6' ' 3' /# 9%9##+-3' 5# /1' 4' " . /1#, \$# " . 6#B. \$. #5" #<' \$- . =# < ; %" " O+ 6#6. " \$, /1#, ' \$. , 6#=>\$ 3' # " ' /#6#4- <%6, /1. ; #, \$%<' < #5" #<3. " ' ..

) O \$%9B. 6#B. \$. /#3>4%\$- %<\$#6%\$' 4. , 9' . /' , -6% # \$ FreeBSD Ports Version Check, ><. ; #63(87' . # ; #, \$>/" #, \$' " #<#+ <. 1, ' ' ; ' , \$1' 5>\$' <" #=# J#+3% <%A. =# /#1\$%.) , ##57. " ' ' 5>; . \$ /1. ; #, \$%<3. " % ; #/#3" ' \$. 3- "%(' " J#16%&' (#5 *\$##+ , ' , \$. 6. (<9384%(' " , \$1>9&' ' /# #, \$%" #<9. 5>; >7' : /' , . 6).

2.) " #, ' \$. ' 26. " . " ' (

I #=: % # " ' , \$%" >\$; #, \$>/" O, <9384' \$. ' 26. " . " ' (< /#1\$.) %6 " >B" # >6. \$- , #2; %<%\$- /%\$4 6. B; > #1' = ' "%3- " O6 /#1\$#6 ' <%A' 6 #5" #<3D" " O6 /#1\$#6.

3. F1#<. 1(+\$. ' \$. , \$' 1>+\$.

G7%\$. 3- " # /1#<. 1- \$. ' /1#\$. , \$' 1>+\$. , <# ' ' 26. " . " ' (:

Y K#5. 1' \$. , >, \$%" #<' \$. ' /1#\$. , \$' 1>+\$. <%A' /#1\$ " % 6%9, ' 6%3- " # <#26#B" #6

9#3' 4., \$<. /3%\$J#16 ' %1: ' \$.9\$>1. 0%, \$# 50<% . \$, 4\$# /#1\$ 1%5#\$\$. \$ < #; "#+ <. \$9. ' 3' " % #; "#+ /3%\$J#16., " # ". 1%5#\$\$. \$ < ; 1>=#+.

Y Q5.; ' \$., -, 4\$# 2%<' , ' 6#,\$' <%A.=# /#1\$% /#3" O.. C.9#6." ;>. 6O+ , /#, #5 , ; . 3%\$- *\$# Ñ >, \$%" #<' \$- , #5, \$<. " " O+ tinderbox ; 3(/#1\$#<. S#/#3" ' \$. 3- ">8 ' " J#16%&' 8 , 6. < C., >1, O ; 3(, #/1#<#B; %87' : ' >4%, \$" ' 9#< 1%21%5#\$9' /#1\$#<.

Y F1#<. 1-\$. , 4\$# , /' , #9 >/%9#<9' %9\$>%3. ". @\$# <9384%. \$; #5%<3. " ' . "#<O: J%+3#<' 9%\$%3#=#<' >; %3. " ' . " ' , /#3-2>. 6O: 2%/ ' , . +.

Y F1#<. 1-\$. <%A /#1\$, ' , /#3-2>(portlint(1) <9%4. , \$<. /#6#7" ' 9%. K6. C., >1, O ; 3(, #/1#<#B; %87' : ' >4%, \$" ' 9#< /#1\$#< ; 3(<%B" #+ ' " J#16%&' ' #5 ' , /#3-2#<% " ' ' portlint.

Y F#; >6%+\$. , 6#=>\$ 3' ' 26. " . " ' (< <%A. 6 /#1\$> /1' <. , \$' 9 /1#53. 6%6 < ; 1>=: /#1\$%: . N, 3' *\$# \$%9, , #=3%, >+\$. ' 26. " . " ' (, ' : , #/1#<#B; %87' 6' . @\$# #, #5. " " # <%B" #, . , 3' <%A. #5" #<3. " ' . ' 26. " (\$ <. 1, ' 8 1%2; . 3(. 6#+ 5' 53' #\$. 9' ; < *\$#6 , 3>4%. , 9%9 6' " ' 6>6, 2%<' , ' 6O. /#1\$O ; #3B" O /#3>4' \$-><. 3' 4. " ' . **PORTREVISION**, 4\$#50 %<\$#6#\$' 2' 1#<% " " O. ' " , \$1>6. " \$O, \$%9' . 9%9 **ports-mgmt/poudriere**, 6#=#3' ' : #5" #<' \$-.

4. F1.; , \$%<3(+\$. ' 26. " . " ' (

ES/1%<-\$. <%A. #5" #<3. " ' . , , #2; %< #4. \$ # /1#53. 6. , #/ ' , %" ' . 6 ' 26. " . " ' + ' /%\$4. 6. , #; . 1B%7' 6 1%23' 4' (6. B; > ' , : #; " O6 /#1\$#6 ' #5" #<3D" " O6. E51%\$' \$. , - 9, \$%\$-. **K#**, \$%<3. " ' . , #57. " ' + # /1#53. 6. <**FreeBSD** ; 3(/#3>4. " ' (' " J#16%&' ' # \$#6, 9%9 /1%<' 3- " # #J#16' \$- PR.

!

F#B%3>+, \$%, " . #\$/1%<3(+\$. %1: ' < **shar(1)** <, .=# /#1\$%; <6. , \$# *\$#=# ' , /#3-2>+\$. **git-format-patch(1)** ' 3' **diff(1)** -ruN. G%9' 6 #51%2#6, 9#66' \$\$. 10 , 6#=>\$ =#1%2; # /1#7. ><' ; . \$-, 9%9' . ' 6. " " # ' 26. " . " ' (5O3' <" . . . " O. C%2; . 3 **E5**" #<3. " ' . < C>9#<#; , \$<. FreeBSD /# , #2; %" ' 8 /#1\$#< , #; . 1B' \$; #/#3" ' \$. 3- ">8 ' " J#16%&' 8.

5. Z; ' \$.

R% 9%9#6-\$# *\$%/ . 9#66' \$\$. 1 1%, , 6#51' \$ <%A PR. @\$# 6#B. \$ 2%" (\$- 6' " >SO, % 6#B. \$ ' #; ">; <. " . ; . 3' Ñ \$%9 4\$# /1#(<' \$. \$. 1/ . " ' . . N, 3' *\$# 2%+6D\$ 5#3-A. <1. 6. " ' , #51%\$' \$. , - 2% /#6#7-8 < /#4\$#<O. 1%, , O39' (**K/ ' , #9 1% , , O39' , /# , <(7D**" " O+ **F#1\$%6 FreeBSD**), IRC: #bsdports "% EFNets ' 3' #freebsd-ports "% Libera, "%/1' 6. 1.

6. F1.; #, \$%<3(+\$. #51%\$" >8 , <(2-

N, 3' >4%, \$" ' 9 /1#. 9\$% #5" %1>B' \$ /1#53. 6> < <%A' : ' 26. " . " ' (: , # , , 9#1. . <, . =#, <. 1" D\$ ' : <%6 " % ; #1%5#\$9>. PO, \$1O+ #5\$. \$ /#6#B. \$ >, 9#1' \$- /1' " (\$' . <%A. =# PR, % \$%9B. >/1#, \$' \$ /#; ; . 1B%" ' . /#, 3. ; #<%\$. 3- " #, \$' #5, >B; . " ' (/1' /#/O\$9. 1%21. A' \$- <#2" ' 9A' . /1#53. 6O.

7. ? "%9#" . &

)%A' ' 26. " . ' ' (5>; >\$ 2%J' 9, ' 1#<% " O, ' <%A /#1\$ 5>; . \$ #5" #<3. " . T%\$. 6 PR 5>; . \$ 2%91O\$ 9#66' \$\$. 1#6.) # \$ ' <, . !

3.2.2.2. ! /' 1&% ' \$<, "%+ (#D&) +*%=) *+1+7H#E% \$+/&*#%<\$8 , +**' , % . +

@#\$ \$ 1%2; . 3 /#, <(7D" #5" %1>B. " ' 8 ' ' , /1%<3. " ' 8 /1#53. 6, 9# \$ #10. 6. A%8\$ /1%<' 3- " #+ , 5#19. /#1\$#<.

FreeBSD =%1%" \$' 1>. \$ 1%5#\$#, /#, #5" #, \$- I #33. 9&' ' /#1\$#< \$#3- 9# < <. \$9%: -STABLE. G. #1. \$' 4. , 9' 6#B" # #5#+\$' , - ' , /#3- 2#<% " ' . 6 /#, 3. ; " ' : <O/>, 9#< 9%B; #+ , \$%5' 3- " #+ <. \$9' (/#, 9#3- 9> ABI " . ; #3B" O 6. " (\$- , () , " # . , 3' . , \$- <#26#B" #, \$- ' , /#3- 2#<%\$- , %6> <. \$9>, *\$# . 7D 3>4A. .

F#, 9#3- 9> 5#3- A' " , \$<# >, \$% " #<#9 FreeBSD 1%5#\$%8\$ " % PC-, #<6. , \$' 6O: 6%A' "%: (\$%9 " %2O<% . 6% (%1: ' \$. 9\$>1% i386), 6O #B' ; % . 6, 4\$# /#1\$ 5>; . \$ 1%5#\$%\$- " % *\$#+ %1: ' \$. 9\$>1. . MO /1. ; /#4' \$% . 6, 4\$#5O /#1\$O \$%9B. 1%5#\$%3' " % %1: ' \$. 9\$>1. amd64 < " %\$' <" #6 1. B' 6. . K#<. 1A. " " # ; #/>, \$' 6# /# /1#, ' \$- # /#6#7' , . , 3' ><%, " . \$ # ; " #+ ' 2 \$%9' : 6%A' " .

!

E5O4" O. 1. B' 6O , 5#(; 3(6%A' " " . " % %1: ' \$. 9\$>1. x86 , <(2%" O , /1. ; /#3#B. " ' (6' #1' = " %3- " O: /1# = 1%66' , \$#<, "% /1' 6. 1, 4\$# >9%2%\$. 3' (<3(8\$, (int-%6' , ' 3' 4\$# ' , /#3- 2>. \$, (# \$ " #, ' \$. 3- " # , \$%1O+ ' 6. " . . , \$1# = ' + 9#6 /' 3(\$#1 gcc.) , . 4%7. %<\$#1O /1' 3#B. " ' + / . 1. 1%5%\$O<%8\$, <#+ 9#; , 4\$#5O >, \$1%" ' \$- *\$' /1. ; /#3#B. " ' (Ñ " # . , 3' %<\$#1 " . 2%" ' 6% . \$, (%9\$' <" #+ /#; ; . 1B9#+ , <# . =# 9#; % , <%6, <#26#B" #, /1' ; . \$, (, ; . 3%\$- *\$# , %6# , \$#(\$. 3- " #.

)#\$ 2%; %4' , 9# \$ #10. " . #5: #; ' 6# <O /#3" ' \$- , 4\$#5O >5. ; ' \$- , (, 4\$# <%A /#1\$ 6#B. \$ 5O\$- , #51%" :

1. K3. ; ' \$. 2% #A' 59%6' , 5#19'

F1#<. 1- \$. , <#8 /#4\$> " % " %3' 4' . /' , . 6 # \$ pkg-fallout@FreeBSD.org ' , 9%" . 1% distfiles, 4\$#5O >2" %\$- , " . >, \$%1. 3' 3' 9%9' . -3' 5# /#1\$O, 9# \$ #10. " . , #5' 1%8\$, (.

2. K#51%\$- ' " J#16%&' 8

I %9 \$#3- 9# <O #5" %1>B' 3' /1#53. 6> , #5. 1' \$. " " J#16%&' 8, 9# \$ #1(/#6#B. \$. D ' , /1%<' \$- . EA' 59' , 5#19' , # 9# \$ #10: , ##57%. \$ pkg-fallout , # /1#<#B; %8\$, (B>1" %3%6' , /#9%2O<%87' 6' , =; . /1# 2#AD3 , 5#+. N, 3' # /1#53. 6. , ##57' 3 /#3- 2#<%\$. 3- , /# /1#, ' \$. . =# /1. ; #, \$%<' \$- ; % " " O. , 9# \$ #10. 6# => \$ /#6#4- < ; ' % = " #, \$' 9. , "% /1' 6. 1:

Y H# = ' , 5#19'

Y I #6%" ; O ' /%1%6. \$1O, ' , /#3- 2>. 6O. ; 3(, 5#19' /#1\$% (<9384% (/%1%6. \$1O, >, \$% " #<3. " " O. </etc/make.conf)

Y K /' , #9 /%9. \$#<, >, \$% " #<3. " " O: < , ' , \$. 6. , 9%9 /#9%2%" # < pkg-info(8)

Y) . 1, ' (FreeBSD, 9# \$ #1>8 # " ' ' , /#3- 2>8\$, 9%9 /#9%2%" # < uname(1) -a

Y I #=: % ' : 9#33.9&' (/#1\$#< 5O3% /# , 3. ; "' + 1%2 #5" #<3. "%

Y I #=: % ' : ; . 1. <# /#1\$#< ' J%+3 INDEX 5O3' /# , 3. ; "' + 1%2 #5" #<3. " O

3. ?2>4' \$- ' "%+\$' 1. A. "' .

I , #B#3. "' 8, " . , >7. , \$<>. \$ /1(6#=# /1#&. , , % , 9#\$#1#6> 6#B" # , 3. ; #<%\$- ; 3(*\$#=#. E; "%9# /#6" ' \$.: . , 3' <O 2%, \$1(3' , /#/1# , ' \$. /#6#7' ! I #33.9&' (/#1\$#< K/' , #9 1% , , O39' , /# , <(7D" " O+ F#1\$%6 FreeBSD Ñ : #1#A.. 6. , \$# ; 3("%4%3% , ' 1%21%5#\$4' 9' <O A. , \$#(7' : /1#. 9\$#< 4% , \$# #4. " - #S2O<4' <O.

4. F1. ; , \$%<3(+\$. ' 26. " . "' (

I %9 ' /1' #5" #<3. "' ' /#1\$% , \$. / . 1- <%6 , 3. ; >. \$ <" . , \$' ' 26. " . "' (, /1#<. 1' \$- ' /1#\$. , \$' 1#<%\$- ' : , #S/1%<' \$- ' 26. " . "' (< PR ' , . , 3' \$1.5>. \$, (, /1. ; # , \$%<' \$- #51%\$ " >8 , <(2-

5. ES/1%<3(+\$. ' , /1%<3. "' (%<\$#1%6 <O A. , \$#(7' : /1#. 9\$#<

) " . 9#\$#1O: , 3>4%(: /#\$1.5>. \$, (<" . , \$' ' 26. " . "' (< /#1\$, 4\$#5O # " 2%1%5#\$%3 "% FreeBSD. R. 9#\$#1O. (" # " . <.) 1%21%5#\$4' 9' ' , ; # ; "#=# /1#. 9\$% /1' 6>\$ \$%9' . ' 26. " . "' (< , <#+ 9# ; ; 3(, 3. ; >87. =# <O/> , 9%. N, 3' *\$# /1# 2#+ ; . \$, *\$# 6#B. \$ /#6#4- ' : /#3- 2#<%\$. 3(6' " % ; 1>=: BSD- , ' , \$. 6% : , % \$%9B. , <#26#B" # , *9#" #6' \$; >53' 1>87' . > , ' 3' (.) 9%4. , \$<. B. , \$% <. B3' <# , \$' , /#B%3>+ , \$% , 1% , , 6#\$1' \$. <#26#B" # , \$- #S/1%<9' , ##\$<. \$, \$<>87' : ' , /1%<3. "' + %<\$#1%6.

3.2.2.3. A64" #%< +% ">%= +/ +D&/ , #0 & +% "' %= +) *+/7' 2#0 Bugzilla, \$(86#. . = ' \$ (#D&2) +*%+2

@\$# \$ 1%2; . 3 /# , <(7D" /# ' , 9>' ' , /1%<3. "' 8 #A' 5#9.

EA' 59' , , / . &' J' 4" O . ; 3(FreeBSD, #5O4" # <O2<% " O /1. ; /#3#B. "' (6' # , 1. ; . , 5#19' ' <O/#3" . "' (, 9#\$#1O. " . /1' 6. "' 6O 9 FreeBSD.) . 1#(\$" # , \$- , \$39" >\$- , (, \$%9#+ /1#53. 6#+ 6. " - A. , " # #" % 6#B. \$ 5O\$- 5#3. . \$#" 9#+ ' , 3#B" #+ ; 3(; ' %= " # , \$' 9' .

)#\$ 2%; %4' , 9#\$#1O. " . #5: # ; ' 6# <O/#3"' \$- , 4\$#5O <%A /#1\$ /1# ; #3B%3 1%5#\$%\$- ; #3B" O6 #51%2#6:

1. ES<. 4%\$- "% #S4D\$O #5 #A' 59%:

EA' 59' 6#=>\$ 5O\$- , ##57. " O <%6 /# *3. 9\$1#" " #+ /#4\$. 4. 1. 2 5%2> ; % " O: #S4D\$#< # /1#53. 6%: Bugzilla. G%9B. /#3- 2#<%\$. 3' 6#=>\$, ##57%\$- #5 #A' 59%: "%/1(6>8 <%6.

) O ; #3B" O #S<. 4%\$- "% PR ' ; 1>= ' . , ##57. "' (< \$. 4. "' . 14 ; " . + , " # /# , \$%1%+\$. , - " . 2%\$(= ' <%\$- \$%9 ; #3=#. K\$%1%+\$. , - #S<. 4%\$- 9%9 6#B" # , 9#1. . , ; #B. . , 3' *\$# /1# , \$# , ##57. "' . # \$#6, 4\$# <%6 ">B" # . 7D " . 6" #=# <1. 6. "' , /1. B ; . 4. 6 <O , 6#B. \$. 2% (\$- , (PR.

N, 3' <O " . #S<. \$' 3' < \$. 4. "' . 14 ; " . + , 385#+ 9#66' \$\$. 1 6#B. \$ <O/#3"' \$-

9#66' \$ ' 2 PR, "% 9#\$#10+ <O ". #S<. \$' 3' , ' ,/#3-2>(maintainer-timeout.

2. K#51%\$- ' " J#16%&' 8

N, 3' 4. 3#<. 9, ,##57' <A' + #5 #A' 59., \$%9B. " . /1.; #, \$%<' 3' , /1%<3. "' ., <%6
". #5: #; ' 6# , #51%\$- ' " J#16%&' 8, 9#\$#1%(/#2<#3' \$ <%6 , #2; %\$- ' , /1%<3. "' ..

N, 3' #A' 59% <# , /1#' 2<#; ' 6%, <O 6#B. \$. , #51%\$- 5#3-A>8 4%, \$- ". #5: #; ' 6#+
' " J#16%&' ' , %6#, \$#(\$. 3- "#. N, 3' ". \$, /# /1#, ' \$. 4. 3#<. 9%, ,##57' <A. =# #5
#A' 59. , , #51%\$- ' " J#16%&' 8 ; 3(<%, , "% /1' 6. 1:

Y F#; 1#5" #. #/ ' , %"' . ' : ; . +, \$<' +, #B' ; % . 6#=# /#<. ; . "' (/1#=1%66O '
J%9S' 4. , 9#=# /#<. ; . "' (

Y I #/ ' ' <: #; " O: ; % " O: , ' , /#3-2#<% " O: ; 3(<O(<3. "' (#A' 59'

Y ? " J#16%&' (# , 1. ; . , 5#19' ' <O/#3" . "' (Ñ "% /1' 6. 1. , / ' , #9 > , \$% " #<3. " " O:
/ %9. \$#<' <O<#; 9#6%"; O env(1)

Y W%+3O ; %6/#< (; 1%

Y K\$. 9' <O2#<#< J>" 9&' +

3. Q, \$1%" ' \$. " . 9#11. 9\$" O. #S4DSO

R. 9#\$#10. #S4DSO #5 #A' 59%: 6#=>\$ 50\$- ". 9#11. 9\$" O6' . R%/1' 6. 1,
/ #3- 2#<%\$. 3- 6# = /1#, \$# " . /1%<' 3- "# ' , /#3- 2#<%\$- /1#=1%66>; ' 3'
> , \$% " #<3. " " O. /%9. \$O 6#=>\$ 50\$- > , \$%1. <A' 6' ' \$1. 5#<%\$- #5" #<3. "' (. ? " # = ; %
, ##57%. 6% (#A' 59% " . , / . &' J' 4" % ; 3(FreeBSD.) *\$#6 , 3>4% . , 3. ; > . \$, ##57' \$- #5
#A' 59. 1%21%5#\$4' 9%6 <O A. , \$#(7. =# /1#. 9\$%. N, 3' #A' 59% "%: #; ' \$, (< /1. ; . 3%:
<%A' : <#26#B" #, \$. + ; 3(' , /1%<3. "' (, <O \$%9B. 6#B. \$. ' , /1%<' \$- /#1\$, 4\$#5O
' , /1%<3. "' . 5O3# /1' 6. " . " # ; # , 3. ; >87. =# 1. 3' 2% <O A. , \$#(7. =# /1#. 9\$%.

4. R%+; ' \$. 1. A. " ' .

I %9' , #A' 59%6' , 5#19' , <%6 /#\$1. 5>. \$, ("%+\$' 1. A. " ' . /1#53. 6O. ? , " #<%, " .
2%5O<%+\$. , /1#, ' \$- , . , 3' 2%, \$1(3' !

5. F1. ; , \$%<' \$- ' 3' >\$<. 1; ' \$- ' 26. " . " ' (

I %9' /1' #5" #<3. "' ' /#1\$%, \$. /1- <%6 , 3. ; > . \$ <" . , \$' ' 26. " . " ' (, /1#<. 1' \$- '
/1#\$. , \$' 1#<%\$- ' : , % 2%\$. 6 #\$/1%<' \$- ' 26. " . " ' (< PR < Bugzilla (' 3' #\$/1%<' \$-
; #/#3" . " ' . , , 3' PR ; 3(; % " #+ /1#53. 6O >B. , >7. , \$<>. \$). N, 3' ; 1>=#+
/ #3- 2#<%\$. 3- #\$/1%<' 3' 26. " . " ' (< PR, <O \$%9B. 6#B. \$. #\$/1%<' \$- ; #/#3" . " ' . ,
>9%2%<, #; #51(. \$. 3' <O *\$' ' 26. " . " ' (' 3' " . \$.

3.2.2.4. : *' 1+\$%#(7' . &') +11' *H, &

O%, \$- #5(2% " " #, \$. + , #/1#<#B; %87. =# 2%9384%. \$, (< /1. ; #, \$%<3. "' ' /#; ; . 1B9' Ñ " . ; 3(
/1#=1%66" #=# #5. , / . 4. " ' (< &. 3#6, % ; 3(/#1\$% ' 385O: #, #5. " " #, \$. + ' /1#53. 6,
, / . &' J' 4" O: ; 3(FreeBSD. F#3- 2#<%\$. 3' 6#=>\$ #51%7%\$- , (9 <%6 , <# /1#, %6' ,
/1. ; 3#B. " ' (6' , /1#53. 6%6' ' /%\$4%6' .) 5#3-A' " , \$<. , 3>4%. < ' : #51%7. " ' . 5>; . \$

9%, %\$-, (' 6. " " # FreeBSD.

) 1. 6(# \$ <1. 6. " ' <%6 6#B. \$ /#" %; #5' \$-, (/1#(<' \$- ; ' /3#6%' 4. , 9' . "%<O9' ' <. B3' <# "%/1%<' \$- /#3-2#<%\$. 3. +, ' 7>7' : #57>8 /#; ; . 1B9>, 9 , ##\$<. \$, \$<>87' 6 1. , >1, %6. C. B. <O , \$#39" D\$. , - , 38; - 6' , , /1%A' <%87' 6' , /#4. 6> RPMS ". #5" #<3. " O ' 3' 9%9 2%/>, \$' \$- /1#<1%66" #. #5. , / . 4. " ' . /#; Foo Linux.) #, /#3-2>+\$. , - <#26#B" #, \$- 8 , ##57' \$- ' 6, 4\$# <%A /#1\$ %9\$>%3. " (. , 3' *\$# \$%9, 9#" . 4" #!), ' /1. ; 3#B' \$. /# /1#5#<%\$- FreeBSD.

? " #=: % /#3-2#<%\$. 3' ' 1%21%5#S4' 9' 1. A%8\$, 4\$# <O 2%" (\$#+ 4. 3#<. 9, 4-D <1. 6(& . " " #, ' <O/#3" (8\$ 4%, \$- 1%5#SO 2% <%, . R%/1' 6. 1, #" ' 6#=>\$:

¥ #\$/1%<' \$- PR < Bugzilla ' 3' /1' , 3#\$- , <# ' /%\$4' ; 3(#5" #<3. " ' (<%A. =# /#1\$%,

¥ ' , , 3. ; #<%\$- ' , <#26#B" #, /1. ; #, \$%<' \$- ' , /1%<3. " ' . ; 3(PR, ' 3'

¥ ' " %4. #\$/1%<' \$- ' 26. " . " ' (<%A /#1\$.

) *\$' : , 3>4%(: <%A% #, " #<" %(#5(2%" " #, \$- Ñ , <#. <1. 6. " " # # \$<. 4%\$- . R%/#6" "% . 6, 4\$# , 1#9 #B' ; %" ' (# \$<. \$% # \$, # /1#<#B; %87. =# , #, \$%<3(. \$ 14 ; " . +. F# ' , \$. 4. " ' ' *\$#=# / . 1' #; % ' 26. " . " ' (6#=>\$ 5O\$- 2%J' 9, ' 1#<% " O 5. 2 #; #51. " ' (. E" ' /#\$1>; ' 3' , - , ; . 3%\$- *\$# 2% <%, ; /#B%3>+, \$%, /#, \$%1%+\$. , - : #\$(5O # / . 1%\$' <" # # \$<. \$' \$- . T%\$. 6 9%9 6#B" # , 9#1. . /1#<. 1- \$. , #; #51' \$. , ' 26. " ' \$. ' 3' #5, >; ' \$. ' : ' 26. " . " ' (, " ' 6' .

N, 3' <O , 6#B. \$. ; %\$- ' 6 /#4><, \$<#<%\$-, 4\$# ' : <93%; & . " ' \$, ((% \$%9 ' ; #3B" # 5O\$-), > <%, 5>; . \$ 5#3- A. A" , #< >5. ; ' \$- ' : , ; . 3%\$- ; 3(<%, 5#3- A. <5>; >7. 6 :-).

3.3. : +&\$, & &\$) * # (7' . &' \$7+2# . . +9+) + *%#

N, \$- " . , 9#3-9# : #1#A' : 6. , \$, =; . 6#B" # "%+\$' /#1\$, \$1.5>87' + <" ' 6%" ' (.

) O 6#B. \$. ' , /#3-2#<%\$- <. 5- ' "\$. 1J. +, 5%2O ; %" " O : #S4D\$#< # /1#53. 6%: ; 3(/# ' , 9% ' /1#, 6#\$1% " . 1. A. " " O : PR < Bugzilla. P#3- A' " , \$<# PR ; 3(/#1\$#< Ñ *\$# #5" #<3. " ' (, " # , ". 5#3- A' 6 /# ' , 9#6 ' 5. =3O6 /1#, 6#\$1#6 #/' , %" ' + <O , 6#B. \$. "%+\$' 4\$#-\$# ' " \$. 1. , " # . ; 3(1%5#SO.

PortsFallout #S#51%B%. \$ /1#53. 6O , /#1\$%6' , , #51%" " O. /1' , 5#19. /%9. \$#< FreeBSD.

S#/>, \$' 6# #\$/1%<3(\$- ' 26. " . " ' (' ; 3(/#; ; . 1B' <% . 6#=# /#1\$%, " # " . 2%5>; - \$. >\$#4" ' \$- > , #/1#<#B; %87. =# , " . 1%5#\$%. \$ 3' #" >B. " %; *\$#+ /1#53. 6#+.

I%9 \$#3-9# <O #5" %1>B' 3' #A' 59> ' 3' /1#53. 6>, , #5. 1' \$. ' " J#16%&' 8, ' 2>4' \$. . D ' ' , /1%<- \$. ! N, 3' >B. , >7. , \$<>. \$ PR, /1#; #3B' \$. 1%5#\$>, " ' 6.) /1#\$' <" #6 , 3>4%. , #2; %+\$. " #<O+ PR.) %A' ' 26. " . " ' (5>; >\$ /1#<. 1. " O ' , , 3' <, D < /#1(; 9. , /1' " (\$O.

3.4. B#,) * ' , * # % & % < \$ +) * + (+ H 1' . &'

F# 6. 1. ' 26. " . " ' (<%A' : ' " \$. 1. , #< ' #5(2%\$. 3- , \$< <O 6#B. \$. #5" %1>B' \$- , 4\$# > <%, 5#3- A. " . \$ <1. 6. " ' /1#; #3B%\$- ". 9#\$#1O. (' 3' <, .) <%A' <93%; O < /#1\$O. @\$# " #16%3- " #! F#B%3>+, \$%, , ##57' \$. "%6, . , 3' <O 5#3- A. " . ' , /#3-2>. \$. /#1\$ ' 3' > <%, " . \$ <1. 6. " ' ' 3' ' " \$. 1. , % /1#; #3B%\$- 5O\$- . =# , # /1#<#B; %87' 6. G%9' 6 #51%2#6, 6O , 6#B. 6

/#2<#3' \$- ; 1>=# 6 38; (6 /#/O\$%\$-, (1. A' \$- ,>7., \$<>87' . /1#53.60 , /#1\$#6, ". ;#B' ;%(- <%A.=# #S<.\$%. F#6"' \$., FreeBSD Ñ *\$# ;#51#<#3-" O+ /1#. 9\$, /#*\$#6> ., 3' ,#/1#<#B; . "' . /#1\$% 5#3-A. ". /1' "#, ' \$ >;#<#3-, \$<' (, <. 1#(\$" #, /1' A3# <1.6(/#2<#3' \$- 9#6>-\$# ; 1>=#6> 2%" (\$-, (*\$' 6!

) 385#6 , 3>4%. , 9#6%" ; % >/1%<3. "' (/#1\$%6' (portmgr) #, \$%<3(.\$ 2% , #5#+ /1%<# , 51#, ' \$- <%A. /1%<# , #/1#<#B; . "' (, ., 3' <O ". /#; ;. 1B' <#3' , <#+ /#1\$ < \$. 4. "' . ". 9#5#1#=# <1.6. "' .) "%, \$#(7.. <1.6(*\$#\$, 1#9 >, \$%" #<3. " < 3 6., (&%) F#; *\$' 6 /#; 1%2>6. <%.\$, (4\$# ., \$- ". 1.A. " O. /1#53.60 ' 3' #B' ;%87' . #5" #<3. "' (, "%; 9#5#106' ". <. 3%, - 1%5#\$% < \$. 4. "' . *\$#=# <1.6. "' .

3.5. K' \$4*\$=\$= 178 \$+) *+(+H1#E 5 &0 & 4" #\$. &, +() +*%+(

C>9#<#; , \$<# FreeBSD /# , #2; %"' 8 /#1\$#< Ñ *\$# <%A />\$.<#; ' \$. 3- /# , ' , \$. 6. /#1\$#<. S. 1B' \$. .=# /#; 1>9#+!

KS%\$- (K#, \$%<3. "' . , ##57. "' + # /#1#53.6. <# FreeBSD #/' , O<%. \$, 9%9 3>4A. <, .=# , J#16>3' 1#<%\$- ' #\$/1%<' \$- PR. K3. ; #<%"' . *\$#+ , \$%\$- . 2"%4' \$. 3- "# /#6#B. \$ "%6 , #91%\$' \$- <1.6(, ". #5: #; ' 6#. ; 3(#51%5#9' <%A' : PR.

P%2% ; %" O: #54D\$#< # /#1#53.6%: Bugzilla.

K9%". 1 ; ' , \$1' 5>\$' <" O: J%+3#< /#1\$#< FreeBSD (portscout) FreeBSD Ports distfile scanner (portscout) 6#B. \$ /#9%2%\$- <%6 /#1\$O, ; 3(9#5#10: ; ' , \$1' 5>\$' <" O. J%+3O " . ; #, \$>/" O ; 3(2%=1>29' .) O 6#B. \$. /1#<. 1' \$- , <#', #5, \$<. " " O. /#1\$O ' 3' ' , /#3- 2#<%\$- .=# ; 3(/#', 9% /#1\$#<, 9#5#106 \$1.5>. \$, (#5" #<3. "' . MASTER_SITES.

ports-mgmt/poudriere Ñ *\$# "%' 5#3.. \$7%\$. 3- " O+ , /#, #5 /1#<. 1' \$- /#1\$ "% /1#\$(B. "' ' <, .=# &' 93% >, \$%" #<9' , >/%9#<9' ' >;%3. "' (S#9>6. " \$%&' ("%: #; ' \$, (< 1. /#2' \$#1' ' poudriere "% GitHub

portlint(1) Ñ *\$# /1' 3#B. "' . , 9#5#1#. 6#B" # ' , /#3- 2#<%\$- ; 3(/1#<. 19' , ##\$<.\$, \$<' (<%A.=# /#1\$% 6" #=' 6 <%B" O6 , \$' 3' , \$' 4., 9' 6 ' J>" 9&' #" %3- " O6 1.9#6. " ; %&' (6. portlint Ñ *\$# /1#, \$#. *<1' , \$' 4., 9#. /1' 3#B. "' . , /#*\$#6> .=# , 3. ; >.\$ ' , /#3- 2#<%\$- ' "#. : " 3 : \$4&' 3& "2, &O' , 2\$. N, 3' portlint /1. ; 3%=%.\$ ' 26. " . "' (, 9#5#10. 9%B>\$, (". #5#, "#<%" " O6' , #51%\$' \$. , - 9 C>9#<#; , \$<> /#1\$' 1#<7' 9% ' 3' /# /1#, ' \$. , #<.\$%.

K/' , #9 1%, , O39' , /#, <(7D" " O+ F#1\$%6 FreeBSD /1. ; "%2"%4. " ; 3(#57' : #5, >B; . "' + , <(2%" " O: , /#1\$%6' . @\$# : #1#A. . 6., \$# ; 3(/#', 9% /#6#7' .) O 6#B. \$. subscribe, 4' \$%\$- ' , 9%\$- <%1: ' <%: , /', 9%. G#9B. 6#B. \$ 5O\$- /#3. 2" # #2"%9#6' \$-, (, %1: ' <%6' K/' , #9 1%, , O39' , /#, <(7D" " O+ #A' 59%6 < /#1\$%: FreeBSD ' SVN commit messages for the ports tree for head/.

PortsFallout Ñ *\$# 6. , \$# ; 3(/#6#7' < /#', 9. /# %1: ' <> FreeBSD package-fallout.

4. F#" #7+ * #/+%= (1*49&0 +/7#\$%80

?7. \$. 4\$#-\$# ' "\$. 1., "#. ;3("%4%3% 1%5#SO, 4\$# ". >/#6' "%.\$, (< *\$#+, \$%\$-.? F1#. 9\$
FreeBSD ' 6..\$ "., 9#3-9# , \$1%"' & "% Wiki, ,#; .1B%7': #53%, \$', < 9#\$#1O: "#<O.
>4%, \$"' 9' 6#=>\$ "%+\$' ' ;. ' # \$#6, 9%9 "%4%\$-.

[KS1%"' &% Junior Jobs](#) ,#; .1B' \$,/' , #9 /1#. 9\$#<, 9#\$#1O. 6#=>\$ 5O\$- ' "\$. 1., " O \$. 6, 9\$#
\$#3-9# "%4' "%.\$ 1%5#\$%\$- , FreeBSD ' :#4. \$ /#/1#5#<%\$- ,<#', ' 3O<' "\$. 1., " O: 2%;%4%:.

[KS1%"' &% ' ;. + ,#; .1B' \\$ 1%23' 4" O. Ç/1' \(\\$" O.È ' 3' Ç' "\\$. 1., " O.È <. 7' ;3\(1%5#SO <
F1#. 9\\$..](#)