

1. 正则表达式

这里主要是指POSIX Basic Vs. Extended Regular Expressions，不是指perl用的那一套正则表达式。

POSIX basic 正则表达式一般叫做BRE -- grep使用的。

POSIX Basic Vs. Extended Regular Expressions叫做ERE -- egrep使用的, grep -E也是一样。

1.1 BRE

ERE和BRE都支持以下符号：

```
^ $ . [ ] *
```

上面这几个符号默认当特殊功能符号，如果需要匹配这些符号，需要在前面加\转义。

1.1.1 正常匹配

```
$ echo "haha [i889]" | grep "\[i" # 使用\[来匹配[符号
```

```
haha [i889
```

```
$ echo "haha [i889^]" | grep "\^" # 匹配^字符
```

```
haha [i889^
```

```
$ echo "haha [i889]" | grep "\[i8*" # 匹配到两个8
```

```
haha [i889
```

```
$ echo "hahai" | grep "\(ha\)i" # 使用括号的时候需要在前面加一个\,
```

```
hahai
```

```
$ echo "hahai" | grep "\(ha\)\\+i" # 使用+的时候也要在前面加一个\
```

```
hahai
```

```
$ echo "(hahai" | grep "(ha"
```

```
(hahai
```

ERE和BRE不支持\d类似表达数字的用法，一般建议直接使用[0-9]的方式实现匹配数字，用[a-zA-Z]匹配字母

```
# 匹配数字
```

```
$ echo "hahai89" | grep "hai[0-9]"
```

```
hahai89
```

```
$ echo "hahai89" | grep "hai[0-9]\\+"
```

```
hahai89
```

```
$ echo "haha i889" | grep "8*"
haha i889

# 匹配字符
$ echo "haha i89" | grep "[a-zA-Z]\+ i89"
haha i89

# 匹配边界, 使用<和>
$ echo "haha i89" | grep "\<i89\>"
haha i89
```

1.1.2 匹配非

```
$ echo "haha [i8899]" | grep -E "[^89]" # 匹配除8和9之外的所有字符
haha [i8899]
```

1.2 ERE增强

ERE支持BRE的所有规则，另外ERE比BRE多添加了对以下符号的支持：

```
( ) { } ? + |
```

注意:ERE多的这几个符号默认是当做特殊功能字符，如要其要被当前普通字符被匹配，需要在其前面加\进行转义。

```
$ echo "haha [i889]" | grep -E "(88)" # 匹配88, ()只起限定范围的使用
haha [i889]
$ echo "haha [i889]" | grep -E "89\>" # 匹配边界
haha [i889]
$ echo "haha [i889]" | grep -E "8+" # 匹配到两个8
haha [i889]

$ echo "haha [i8899]" | grep -E "88|99" # 匹配88或者99
haha [i8899]

$ echo "haha) [i889]" | grep -E "haha\)" # 匹配)符号
haha) [i889]
```

```
{n} Match the preceding element if it occurs exactly n times.
{n,m} Match the preceding element if it occurs at least n times, but no
more than m times.
{n,} Match the preceding element if it occurs n or more times.
{,m} Match the preceding element if it occurs no more than m times.
```

