

.1

:system

:Level1

:/system script

:

:

•

:

- **prefix -** ICE;
:put **:path** **/ping 10.0.0.1**

- **path -**

- **path_args -**

/ip firewall rule < name >

- **action** -

- **action_args** -

/ping < ip address >

- **params[=values]** -

action_args, **prefix**, **path**, **action**, **params**, **path_args**
 :put (1 + 2), ":pu" . "t") 3

/ping 10.0.0.1 count=5

prefix	/
action	ping
action_args	10.0.0.1
params[=values]	count=5

..ip firewall rule input

path	..ip firewall rule
path_args	input

```
:for i from=1 to=10 do={:put $i}
```

prefix	:
action	for
action_args	i
params[=values]	from=1 to=10 do={:put \$i}

```
/interface monitor-traffic ether1,ether2,ipip1
```

prefix	/
path	interface
action	monitor-traffic
action_args	ether1,ether2,ipip1

'[]'.

[Tab].

'{}'

```
admin@MikroTik] ip address> /user {  
{... /ip route
```

```
{... print
{... }
Flags: X - disabled
0 ;;; system default user
name="admin" group=full address=0.0.0.0/0

1 name="x" group=write address=0.0.0.0/0

2 name="y" group=read address=0.0.0.0/0

[admin@MikroTik] ip route>
```

**/ip route
print**

/user print.

('\$') (.)
'-'

- **global** **global,**

- **local** **local,**

- **loop index variables** **do** **for** **foreach,**

- **monitor action**
do.

action.

unset.

" " ().

```
[admin@MikroTik] ip route> /  
[admin@MikroTik] > :global g1  
[admin@MikroTik] > :set g1 "this is global variable"  
[admin@MikroTik] > :put $g1  
this is global variable
```

```
[admin@MikroTik] >
```

```
    , incr   decr      "    ", time -      , add -  
    : find, /ping -
```

find

```
[admin@MikroTik] > /interface  
[admin@MikroTik] interface> find type=ether  
[admin@MikroTik] interface>  
[admin@MikroTik] interface> :put [find type=ether]  
*1,*2  
[admin@MikroTik] interface>
```

```
[admin@MikroTik] interface> enable [find type=ether]
```

```
[admin@MikroTik] interface>
```

```
, ip  
,  
'(and)'.  
.  
-- .  
-- . , ip ip  
.- NOT.  
/- .  
.- .  
^ - XOR. ip  
~ - ip  
* -  
& - AND. ip
```

&& - **AND.**
 + -
 < -
 ip
 << -
 ip
 ip
 ip
 <= -
 ip
 >> -
 ip
 ip
 ip
 | - **OR.**
 || - **OR.**

```

[admin@MikroTik] ip firewall rule forward> :put (10+1 -6*2=11-12=2+(-3)=-1)
false
[admin@MikroTik] ip firewall rule forward> :put (10+1 -6*2=11-12=(2+(-3)=-1))
true
[admin@MikroTik] ip firewall rule forward

```

(NOT)


```
[admin@MikroTik] interface> :put (!true)
false
[admin@MikroTik] interface> :put (!(2>3))
true
[admin@MikroTik] interface>
```

```
[admin@MikroTik] interface> :put (-1<0)
true
[admin@MikroTik] > :put (--1)
1
```

```
[admin@MikroTik] interface> :put (~255.255.0.0)
0.0.255.255
[admin@MikroTik] interface>
```

```
[admin@MikroTik] interface> :put (3s + 5s)
```

8s

```
[admin@MikroTik] interface> :put (10.0.0.15 + 0.0.10.0)
```

ERROR: cannot add ip address to ip address

```
[admin@MikroTik] interface> :put (10.0.0.15 + 10)
```

10.0.0.25

```
[admin@MikroTik] interface>
```

```
[admin@MikroTik] interface> :put (15 - 10)
```

5

```
[admin@MikroTik] interface> :put (10.0.0.15 - 10.0.0.3)
```

12

```
[admin@MikroTik] interface> :put (10.0.0.15 - 12)
```

10.0.0.3

```
[admin@MikroTik] interface> :put (15h - 2s)
```

14h59m58s

```
[admin@MikroTik] interface>
```

```
[admin@MikroTik] interface> :put (12s * 4)
```

48s

```
[admin@MikroTik] interface> :put (-5 * -2)
10
[admin@MikroTik] interface>
```

```
[admin@MikroTik] interface> :put (10s / 3)
3s333.333ms
[admin@MikroTik] interface> :put (5 / 2)
2
[admin@MikroTik] interface>
```

```
[admin@MikroTik] interface> :put (10.0.2.3<=2.0.3.10)
false
[admin@MikroTik] interface> :put (100000s>27h)
true
[admin@MikroTik] interface> :put (60s,1d!=1m,3600s)
false
[admin@MikroTik] interface> :put (bridge=routing)
false
[admin@MikroTik] interface> :put (yes=false)
false
```

```
[admin@MikroTik] interface> :put (true=aye)
ERROR: cannot compare if truth value is equal to string
[admin@MikroTik] interface>
```

AND, OR

```
[admin@MikroTik] interface> :put ((yes && yes) || (yes && no))
true
[admin@MikroTik] interface> :put ((no || no) && (no || yes))
false
[admin@MikroTik] interface>
```

AND, OR, XOR

```
[admin@MikroTik] interface> :put (10.16.0.134 & ~255.255.255.0)
0.0.0.134
[admin@MikroTik] interface>
```

c

```
[admin@MikroTik] interface> :put (~(0.0.0.1 << 7) - 1))
```

```
255.255.255.128
```

```
[admin@MikroTik] interface>
```

```
[admin@MikroTik] interface> :put (1 . 3)
```

```
13
```

```
[admin@MikroTik] interface> :put (1,2 . 3)
```

```
1,2,3
```

```
[admin@MikroTik] interface> :put (1 . 3,4)
```

```
13,4
```

```
[admin@MikroTik] interface> :put (1,2 . 3,4)
```

```
1,2,3,4
```

```
[admin@MikroTik] interface> :put ((1 . 3) + 1)
```

```
ERROR: cannot add string to integer number
```

```
[admin@MikroTik] interface>
```

- list
- internal number
- number
- IP address
- time
- boolean
- string

9223372036854775807.
 0x. 64
 -9223372036854775808

false. true false. yes true no *

HH:MM:SS.

- d, day, days - 24
- h, hour, hours-
- m, min -
- s -
- ms - 0.001

, ICE

ICE

beep -

length() c frequency() .

```
[admin@MikroTik] > :beep length=2s frequency=10000  
[admin@MikroTik] >
```

delay() -

do -

```
while if. do  
while do  
do  
if  
else if false
```

```
[admin@MikroTik] > {:global i; :set i 10; :do{:put $i; :decr i;}  
... while (($i < 10) && ($i > 0)); :unset i;}  
10  
9  
8  
7  
6  
5  
4
```

```
3
2
1
[admin@MikroTik] >
```

environment print

Global Variables.

:for **:foreach** (

:local
:global, ,
)

Local Variables.

```
[admin@MikroTik] > :environment print
Global Variables
g1=this is global variable
Local Variables
g1=this is global variable
l1=this is local variable
counter=2
[admin@MikroTik] >
```

for

from, to, step do.

do


```
[admin@MikroTik] > :for i from=1 to=100 step=37 do={:put ($i . " - " . 1000/$i)}
1 - 1000
38 - 26
75 - 13
[admin@MikroTik] >
```

```
foreach -
    in do.
    in do
    in do
    find,
    ip
```

```
[admin@MikroTik] > :foreach i in=[/interface find type=ether ] do={
{... :put [/interface get $i name]
{... :foreach j in=[/ip address find interface=$i] do={
{{... :put [/ip address get $j address]
{{... }
{... }
ether1
ether2
10.0.0.65/24
[admin@MikroTik] >
```

```
if
true
do else.
```


time -

time.

```
[admin@MikroTik] > :put [:time {:delay}]  
1s34.31ms  
[admin@MikroTik] >
```

while -

do.

```
[admin@MikroTik] > {:global i; :set i=0; :while ($i < 10)  
... do={:put $i; :incr i;}; :unset i;}  
0  
1  
2  
3  
4  
5  
6  
7  
8  
9  
[admin@MikroTik] >
```

Monitor

```
monitor  
( . /system script) do monitor
```

Get

```
print, print, get  
get  
,  
.  
.  
.
```

```
monitor do  
.  
.  
( get print,  
get. [tab] ).
```

```
monitor  
,
```

```
[admin@MikroTik] interface> monitor-traffic ether2 once do={:environment print}

received-packets-per-second: 0

received-bits-per-second: 0bps

sent-packets-per-second: 0

sent-bits-per-second: 0bps

Global Variables

i=1

Local Variables

sent-bits-per-second=0

received-packets-per-second=0

received-bits-per-second=0

sent-packets-per-second=0

[admin@MikroTik] interface>
```

a bell (alarm), character code 7()
b backspace, character code 8()
f form feed, character code 12()
n newline, character code 10()
r carriage return, character code 13
t tabulation, character code 9()
v vertical tabulation, character code 11()
_ space, character code 32()

" (, ,)
,

: /system script

RouterOS

-
- ping , (netwatch tool)
-

last-started(time).

run-count!=0

owner(; : admin) -

**policy(: ftp | local | policy | read | reboot | ssh | telnet | test | web | write;
: reboot,read,write,policy,test) :**

ftp - ftp

local -

policy - ,

read -

reboot -

ssh - secure shell

<::;b>telnet - telnet

test - ping, traceroute

web - http

write -

run-count(; 0) -

(; : "") -

run() -

/user group

ssh,local,telnet,read,write,policy,test,web

```
[admin@MikroTik] system script> add name=log -test source={:log
... message="Hello World!" }

[admin@MikroTik] system script> print

0 name="log-test" source=":log message="Hello World!"" owner="admin"
policy=reboot,read,write,policy,test last -started=dec/06/1999 20:07:37
run-count=1

[admin@MikroTik] system script>
```