

## 2

**Bandwidth Control**

Active

Port	Ingress Rate				Egress Rate	
	Active	Commit Rate	Active	Peak Rate	Active	Egress Rate
*	<input type="checkbox"/>		Kbps	<input type="checkbox"/>		Kbps
1	<input type="checkbox"/>	1	Kbps	<input type="checkbox"/>	1000	Kbps
2	<input type="checkbox"/>	1	Kbps	<input type="checkbox"/>	1000	Kbps
3	<input type="checkbox"/>	1	Kbps	<input type="checkbox"/>	1000	Kbps
4	<input type="checkbox"/>	1	Kbps	<input type="checkbox"/>	1000	Kbps
5	<input type="checkbox"/>	1	Kbps	<input type="checkbox"/>	1000	Kbps
6	<input type="checkbox"/>	1	Kbps	<input type="checkbox"/>	1000	Kbps
7	<input type="checkbox"/>	1	Kbps	<input type="checkbox"/>	1000	Kbps

1 –

WEB

Advanced Application -> Bandwidth Control.

(Ingress Rate) :

Commit Rate Peak Rate, Peak Rate,

Egress Rate.

Commit Rate.

### CLI

bandwidth-control <cr>

interface port-channel <port-list> bandwidth-limit cir <Kbps>

```

interface port-channel <port-list> bandwidth-limit cir <cr>
interface port-channel <port-list> bandwidth-limit pir <Kbps>
interface port-channel <port-list> bandwidth-limit pir <cr>
interface port-channel <port-list> bandwidth-limit egress <Kbps>
interface port-channel <port-list> bandwidth-limit egress <cr>

```

## Diffserv 802.1p

Diffserv
2-rate 3 Color Marker
DSCP Setting

Active

Port	Active
*	<input type="checkbox"/>
1	<input checked="" type="checkbox"/>
2	<input checked="" type="checkbox"/>

DSCP Setting
Diffserv

DSCP to 802.1p Mapping

0	0	1	0	2	0	3	0	4	0	5	0	6	0	7	0
8	1	9	1	10	1	11	1	12	1	13	1	14	1	15	1
16	2	17	2	18	2	19	2	20	2	21	2	22	2	23	2
24	3	25	3	26	3	27	3	28	3	29	3	30	3	31	3
32	4	33	4	34	4	35	4	36	4	37	4	38	4	39	4
40	5	41	5	42	5	43	5	44	5	45	5	46	5	47	5
48	6	49	6	50	6	51	6	52	6	53	6	54	6	55	6
56	7	57	7	58	7	59	7	60	7	61	7	62	7	63	7

2 – Diffserv 802.1p

## ZyXEL

DSCP (Differentiated Services Code Point).

DSCP 802.1p.

DSCP, 802.1p,

802.1p

## CLI

```
diffserv <cr>  
interface port-channel <port-list>  
diffserv diffserv dscp <0-63> priority <0-7>
```

### 2-rate-3color

```
2-rate-3-color marker -  
DSCP 802.1p.
```

2-rate-3-color marker:

Color-Blind mode

-

DSCP

Color-Aware mode

-

DSCP

2-rate-3-color

Bandwidth Control

ZyXEL

,

«2-rate-3-color».

2-rate-3-color: Color-blind

mode Color-aware mode.

2-rate-3-color

:

- CIR (Commit Ingress Rate) -

.

- PIR (Peak Ingress Rate) -

.

CIR PIR

2-rate-3-color

Commit

Rate Peak Rate

Bandwidth Control

,

2-rate-3-color

Bandwidth Control

.

, Bandwidth Control -

2-rate-3-color,

DSCP

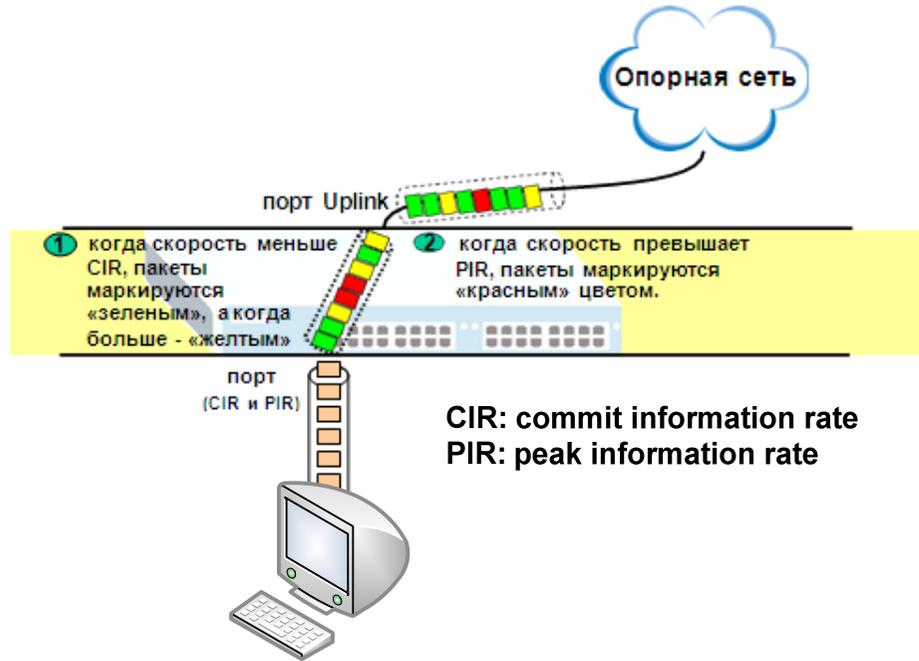
IP.

2-rate-3-color

Color-aware

Ethernet

IP-



3 –

Color-Blind mode

Color-blind

DSCP

- DSCP

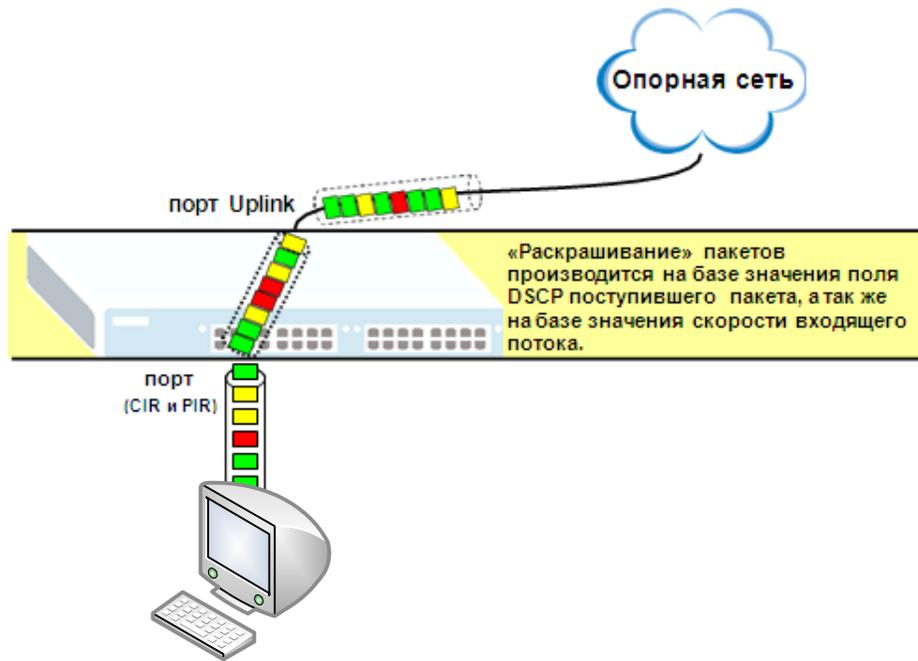
- Peak Rate, «

»; , Commit Rate, «

».

- « », DSCP,

802.1p, , 802.1p,



4 – Color-Aware mode

Color-blind, Color-aware DSCP

« » « » .

« » « »,

« », , Peak Rate .

« »

Color-blind, . . Peak Rate,

« », Commit Rate – « »,

« ».

ZyXEL Protected Color-

aware mode, . . Color-aware,

« » ,

Unprotected Color-aware mode,

« » .

Unprotected ZyXEL .

2-Rate 3 Color Marker Diffserv

Active

Mode  color-blind  color-aware

Port	Active	Commit Rate		Peak Rate		DSCP		
			Kbps		Kbps	green	yellow	red
*	<input type="checkbox"/>		Kbps		Kbps			
1	<input type="checkbox"/>	1	Kbps	1	Kbps	0	0	0
2	<input type="checkbox"/>	1	Kbps	1	Kbps	0	0	0
3	<input type="checkbox"/>	1	Kbps	1	Kbps	0	0	0
4	<input type="checkbox"/>	1	Kbps	1	Kbps	0	0	0
5	<input type="checkbox"/>	1	Kbps	1	Kbps	0	0	0
6	<input type="checkbox"/>	1	Kbps	1	Kbps	0	0	0
7	<input type="checkbox"/>	1	Kbps	1	Kbps	0	0	0
8	<input type="checkbox"/>	1	Kbps	1	Kbps	0	0	0
9	<input type="checkbox"/>	1	Kbps	1	Kbps	0	0	0
10	<input type="checkbox"/>	1	Kbps	1	Kbps	0	0	0
11	<input type="checkbox"/>	1	Kbps	1	Kbps	0	0	0
12	<input type="checkbox"/>	1	Kbps	1	Kbps	0	0	0

Apply Cancel

5 – CR PR 2-rate-3-color

## CLI

trtcm <cr>

trtcm mode <color-aware|color-blind>

interface port-channel <port-list> trtcm <cr>

interface port-channel <port-list> trtcm cir <Kbps>

interface port-channel <port-list> trtcm pir <Kbps>

interface port-channel <port-list> trtcm dscp green <0-63>

interface port-channel <port-list> trtcm dscp yellow <0-63>

interface port-channel <port-list> trtcm dscp red <0-63>

**Classifier**

Active

Name

Packet Format **All** ▼

Layer 2

VLAN  Any

Priority  Any

Ethernet Type  All ▼  (Hex)

Source

MAC Address  Any  :  :  :  :  :

Port  Any

Destination

MAC Address  Any  :  :  :  :  :

Layer 3

DSCP  Any

IP Protocol  All ▼  Establish Only

Others  (Dec)

Source

IP Address / Address Prefix  /

Socket Number  Any

Destination

IP Address / Address Prefix  /

Socket Number  Any



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Ethernet, Ethernet+TCP/IP. 3000

3-

3- 4000-

2+.

Ethernet (**Packet Format**), VLAN 802.1q, 802.1p

(**Priority**), Ethernet (**Ethernet Type**), MAC-

(**Source, Destination**)

IP- :

DCSP,

(IP Protocol), IP-

192.168.1.0/24.

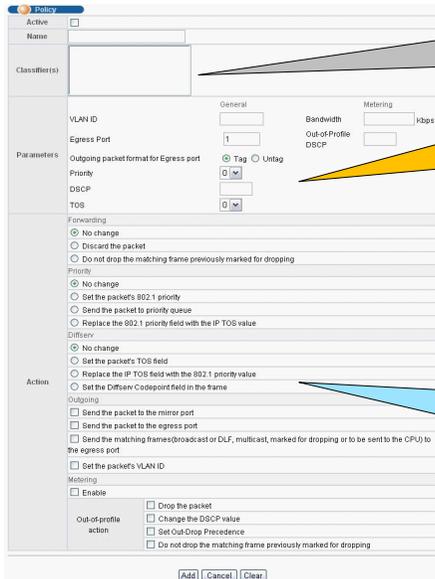
TCP UDP  
(Socket Number),

SYN TCP ( Establish only).

### CLI

classifier <name> [vlan<vlan-id>][..]

classifier help



Выбор классификатора из списка

Параметры, относящиеся к действиям:  
Идентификатор VLAN, выходной порт, скорость, DSCP для пакетов (превышающих ограничение по скорости), новый приоритет 802.1p, TOS, DSCP

#### Действия:

- удалить пакет;
- не удалять пакет, ранее подготовленный к удалению;
- изменить приоритет 802.1p, поместить в очередь согласно приоритету, скопировать поле IP TOS в приоритет 802.1p;
- изменить поле TOS, скопировать приоритет 802.1p в TOS, установить DSCP (DiffservCodepoint);
- отправить пакет в порт-«зеркало», отправить в выходной порт, установить VLAN ID;
- при превышении скорости: удалить пакет; изменить DSCP; отбросить в случае перегрузки выходного канала; не удалять пакет, ранее подготовленный к удалению

7 –

### Actions,

### Parameters.

MAC- IP- ;

```

-          MAC- IP-          ;
-          ;
-          ( TCP/UDP);
-          802.1p, TOS
DSCP;
-          ;
-          VLAN,          802.1p,          DSCP;
-

```

### CLI

policy <name> policy help

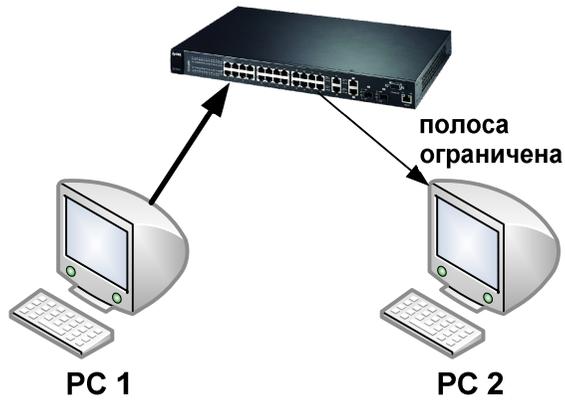
Metering	
<input type="checkbox"/> Enable	
Out-of-profile action	<input type="checkbox"/> Drop the packet
	<input type="checkbox"/> Change the DSCP value
	<input checked="" type="checkbox"/> Set Out-Drop Precedence
	<input type="checkbox"/> Do not drop the matching frame previously marked for dropping

```

-          Bandwidth
-          Out-of-profile:
-
-          DSCP
-
-          ,

```

Metering	
Bandwidth	<input type="text" value="512"/> Kbps
Out-of-Profile	<input type="text"/>
DSCP	<input type="text"/>



6 –

1. PC1 PC2 – 9  
10 ( 6).

2. IP- :

PC1 – 192.168.1.101

PC2 – 192.168.1.102

3. , PC1 «Ixia Performance Endpoint»  
( -> -> -> -  
> ).

4. Chariot. PC2 NetIQ Chariot  
Console.

5. «New». Edit -> Add Pair.  
«Endpoint 1» IP- PC1, «Endpoint 2»  
PC2. «Select Script»,  
«Throughput.scr», «Open».



7. , ping .
8. , PC2 « » PC1,  
> ...  
IP- PC2: \\192.168.2.3