



Introducing And Ideas In FastTrack Feature

MUM 2019 LEBANON-BEIRUT

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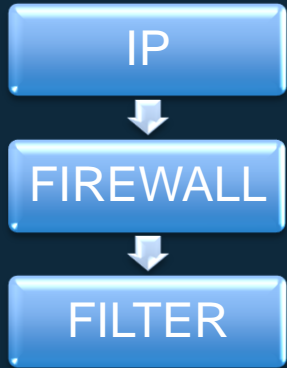
FASTTRACK

- ◇ هذه الميزة متوفرة من الإصدار 6.29
- ◇ يعمل FastTrack بشكل تلقائي مع Connections المميزة
- ◇ يعمل على تسريع البايت ل Connection معين او كل البايت الموجودة في الراوتر
- ◇ يعمل ضمن الفايروول في Filter , Mangle
- ◇ تطبق على ال Connection التي تستخدم بروتوكول TCP – UDP
- ◇ يعتمد FastTrack على NAT (SNAT, DNAT or Both)
- ◇ يزيد من الأداء حتى x5

نتيجة تجربة هذه الميزة على راوتر بورد 2011

FastTrack	
Without	With
360Mbps	890Mbps
CPU 100%	CPU 86%
44% CPU on firewall	6% CPU on firewall
* tested on RB2011 with single TCP stream	





New Firewall Rule

General | Advanced | Extra | Action | Statistics

Chain: forward

Src. Address:

Dst. Address:

Protocol:

Src. Port:

Dst. Port:

Any. Port:

In. Interface:

Out. Interface:

In. Interface List:

Out. Interface List:

Packet Mark:

Connection Mark:

Routing Mark:

Routing Table:

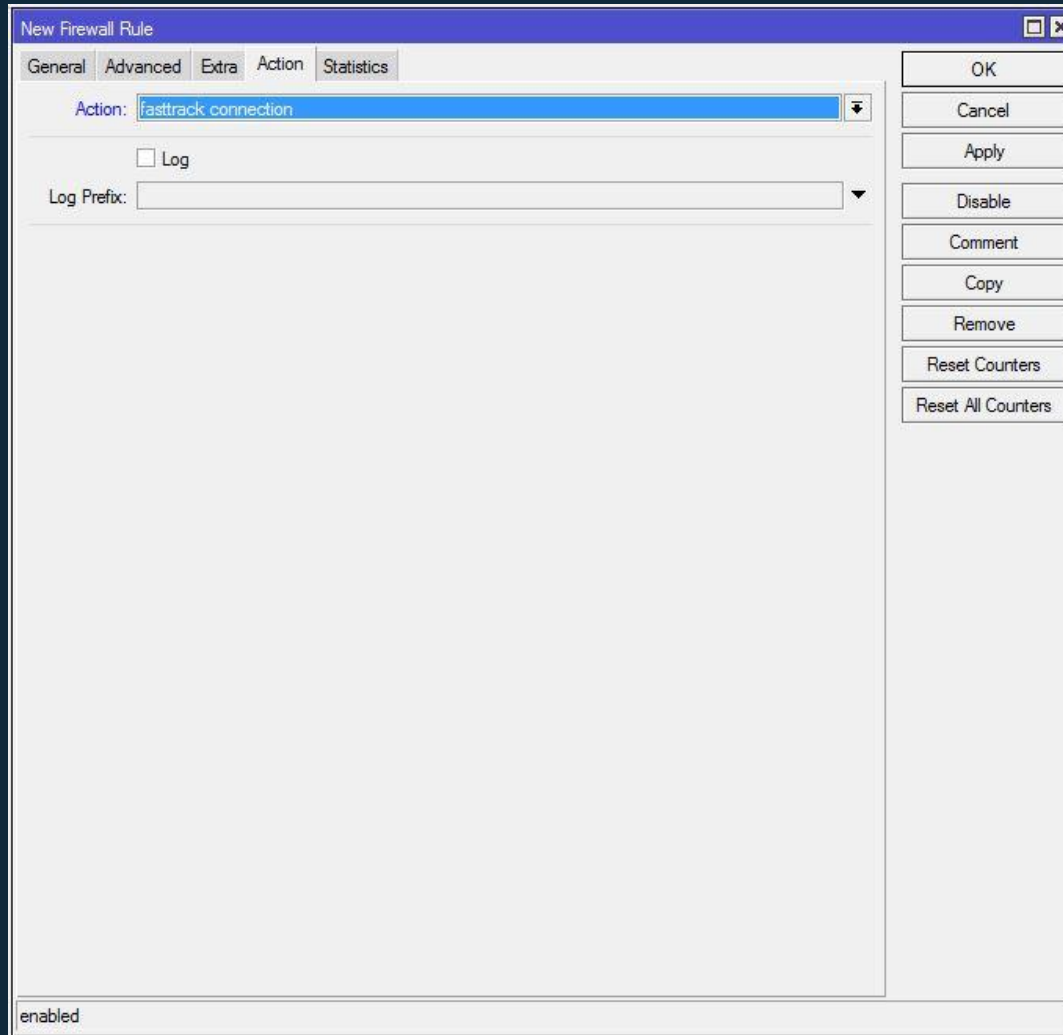
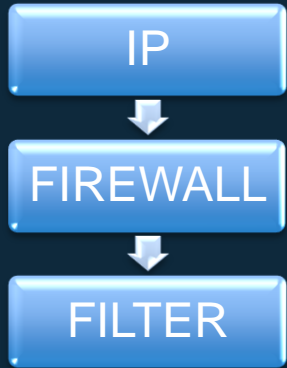
Connection Type:

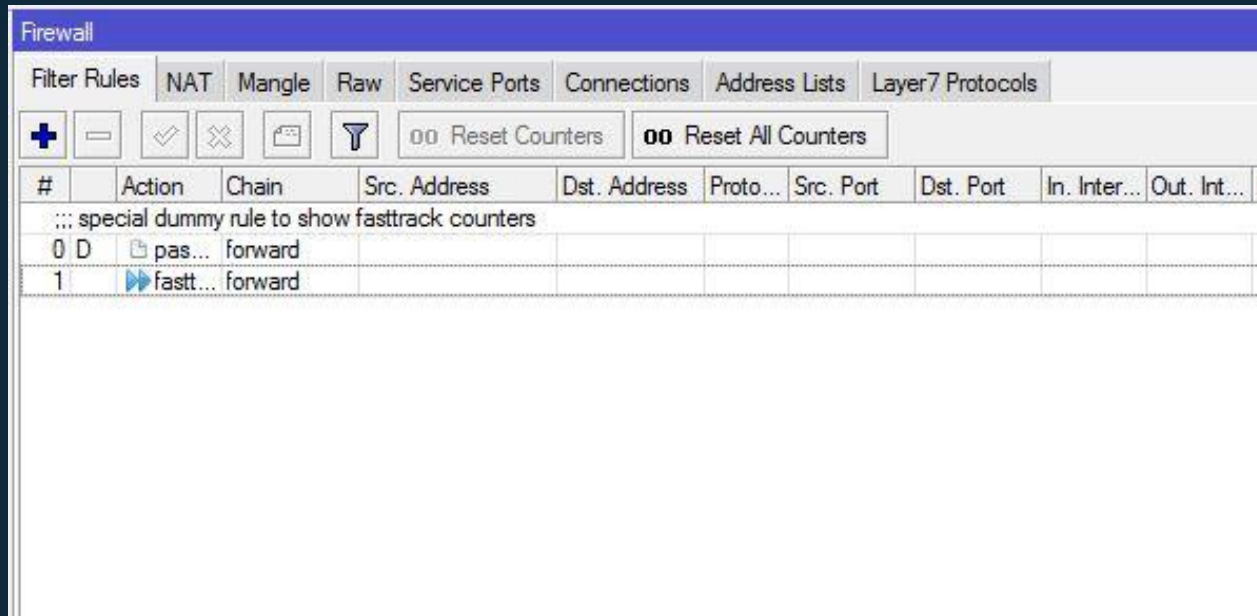
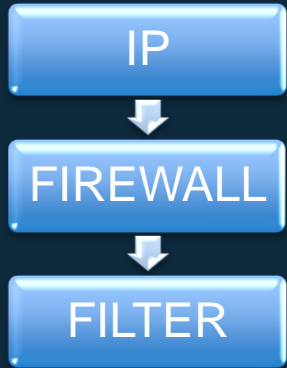
Connection State: invalid established related new untracked

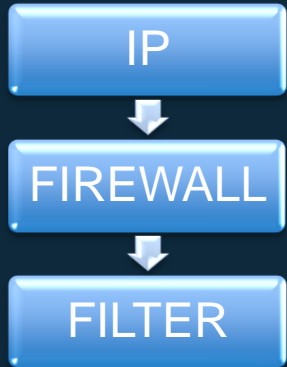
Connection NAT State:

enabled

OK
Cancel
Apply
Disable
Comment
Copy
Remove
Reset Counters
Reset All Counters





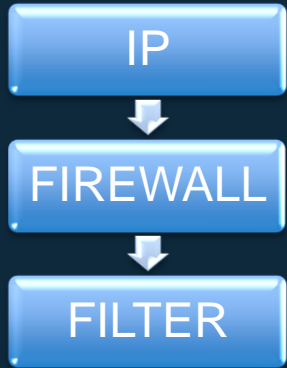


Firewall

Filter Rules NAT Mangle Raw Service Ports Connections Address Lists Layer7 Proto

+ - ✓ ✗ [icon] [icon] 00 Reset Counters 00 Reset All Counters

#	Action	Chain	Src. Address	Dst. Address	Proto...	Src. Port	Dst. Port
::: special dummy rule to show fasttrack counters							
0	D	pas...	prerouting				
::: special dummy rule to show fasttrack counters							
1	D	pas...	forward				
::: special dummy rule to show fasttrack counters							
2	D	pas...	postrouting				



New Firewall Rule

General Advanced Extra Action Statistics

Chain: forward

Src. Address:

Dst. Address:

Protocol:

Src. Port:

Dst. Port:

Any. Port:

In. Interface:

Out. Interface:

In. Interface List:

Out. Interface List:

Packet Mark:

Connection Mark:

Routing Mark:

Routing Table:

Connection Type:

Connection State: invalid established related new untracked

Connection NAT State:

enabled

OK

Cancel

Apply

Disable

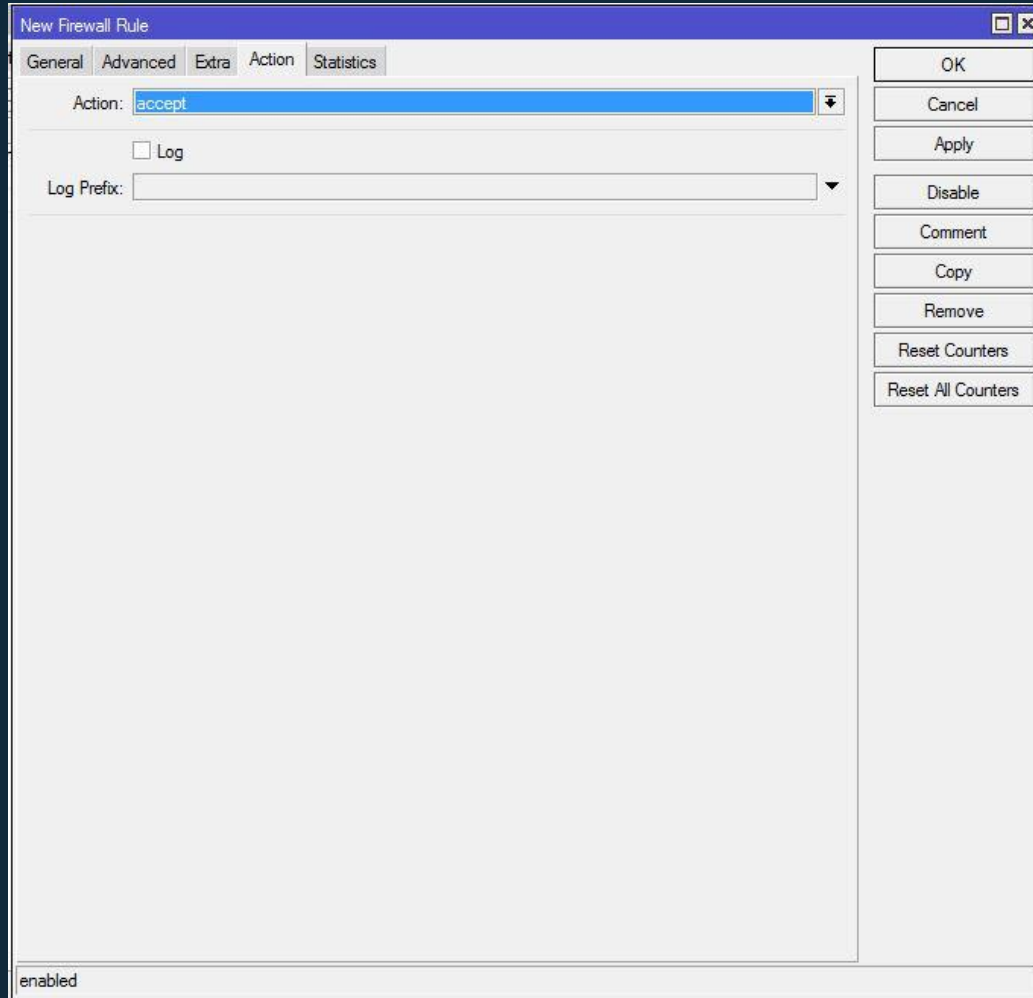
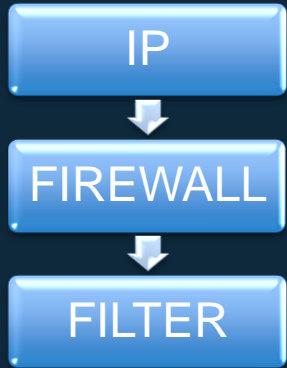
Comment

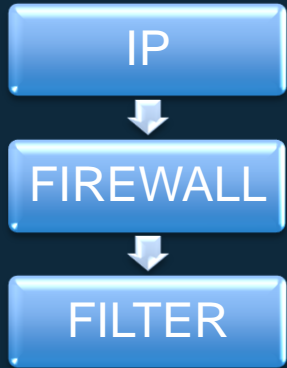
Copy

Remove

Reset Counters

Reset All Counters





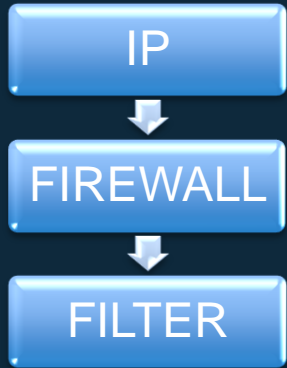
Firewall

Filter Rules NAT Mangle Raw Service Ports Connections Address Lists Layer7 Protocols

+ - ✓ ✗ [Filter Icon] 00 Reset Counters 00 Reset All Counters

#	Action	Chain	Src. Address	Dst. Address	Proto...	Src. Port	Dst. Port	In. Inter...	Out. Int...
::: special dummy rule to show fasttrack counters									
0	D pas...	forward							
1	▶▶ fast...	forward							
2	✓ acc...	forward							





New Firewall Rule

General | Advanced | Extra | Action | Statistics

Chain:

Src. Address:

Dst. Address:

Protocol:

Src. Port:

Dst. Port:

Any. Port:

In. Interface:

Out. Interface:

In. Interface List:

Out. Interface List:

Packet Mark:

Connection Mark:

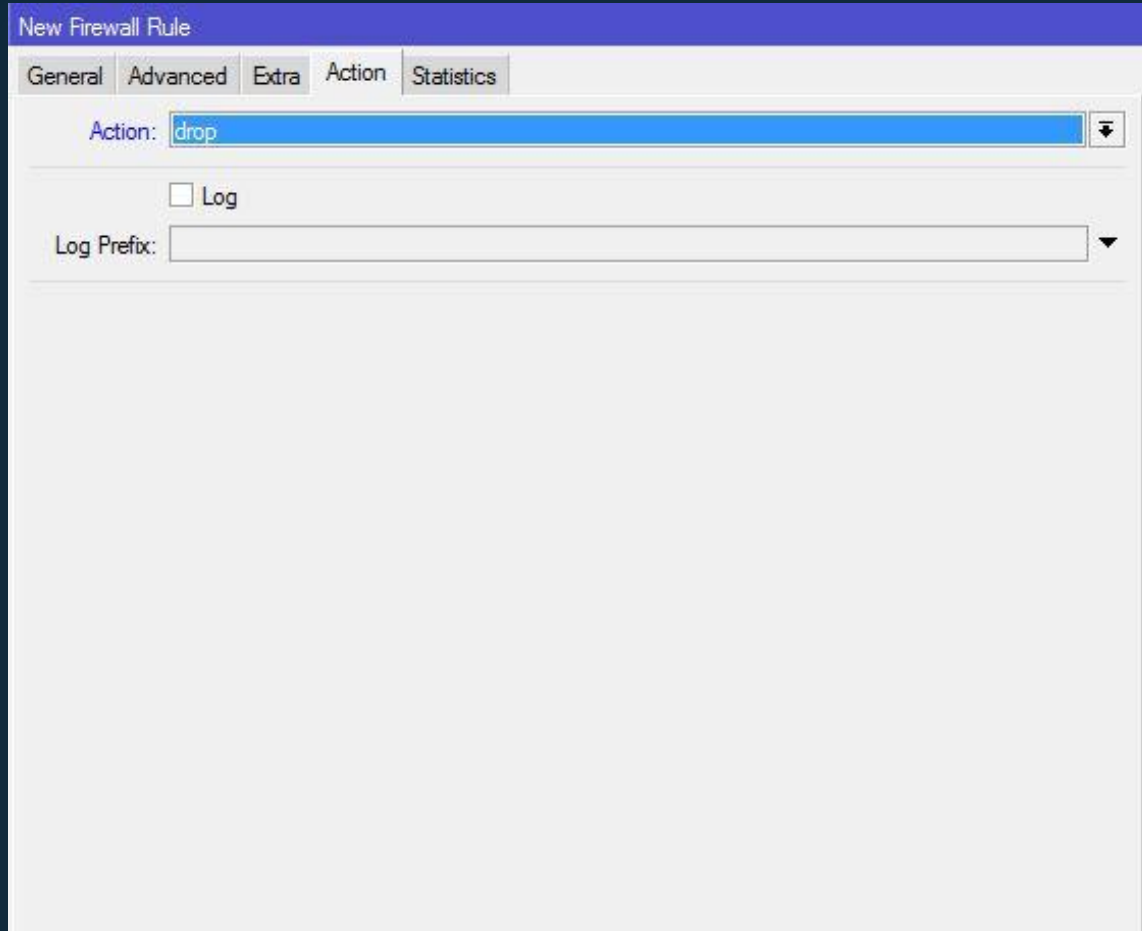
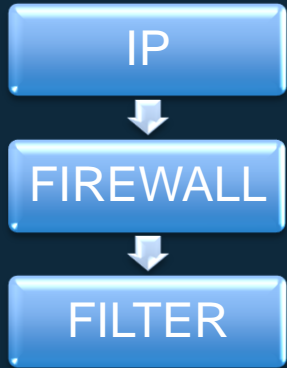
Routing Mark:

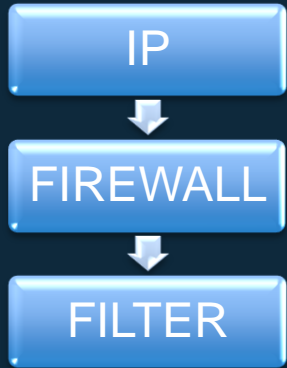
Routing Table:

Connection Type:

Connection State: invalid established related new untracked

Connection NAT State:





Firewall

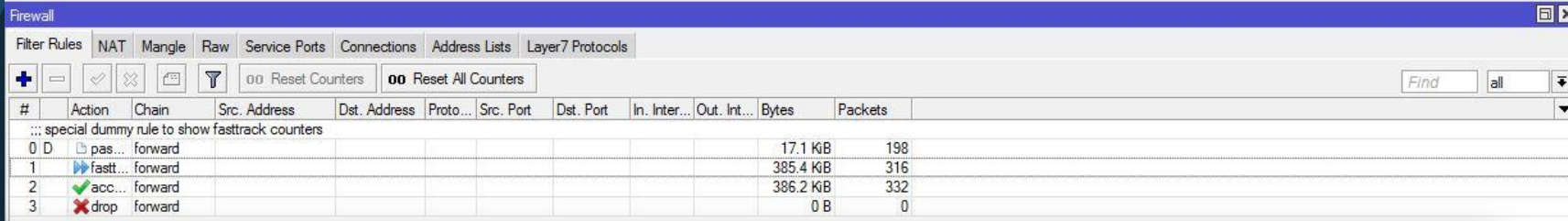
Filter Rules NAT Mangle Raw Service Ports Connections Address Lists Layer7 Protocols

+ - [check] [X] [info] [filter] 00 Reset Counters 00 Reset All Counters

#	Action	Chain	Src. Address	Dst. Address	Proto...	Src. Port	Dst. Port	In. Inter...	Out. Int...
... special dummy rule to show fasttrack counters									
0	D pas...	forward							
1	fastt...	forward							
2	acc...	forward							
3	drop	forward							

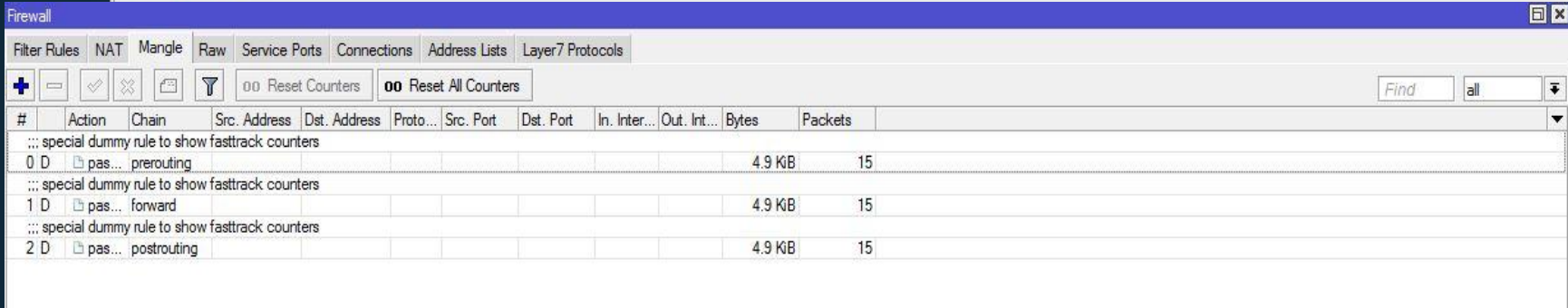
ملاحظة : عند استخدام هذه الميزة لن يتم تطبيق اي رول ضمن

Queues ,firewall filter, mangle



Firewall Filter Rules Table:

#	Action	Chain	Src. Address	Dst. Address	Proto...	Src. Port	Dst. Port	In. Inter...	Out. Int...	Bytes	Packets
::: special dummy rule to show fasttrack counters											
0	D	pas...	forward							17.1 KiB	198
1		fastt...	forward							385.4 KiB	316
2		acc...	forward							386.2 KiB	332
3		drop	forward							0 B	0



Firewall Filter Rules Table:

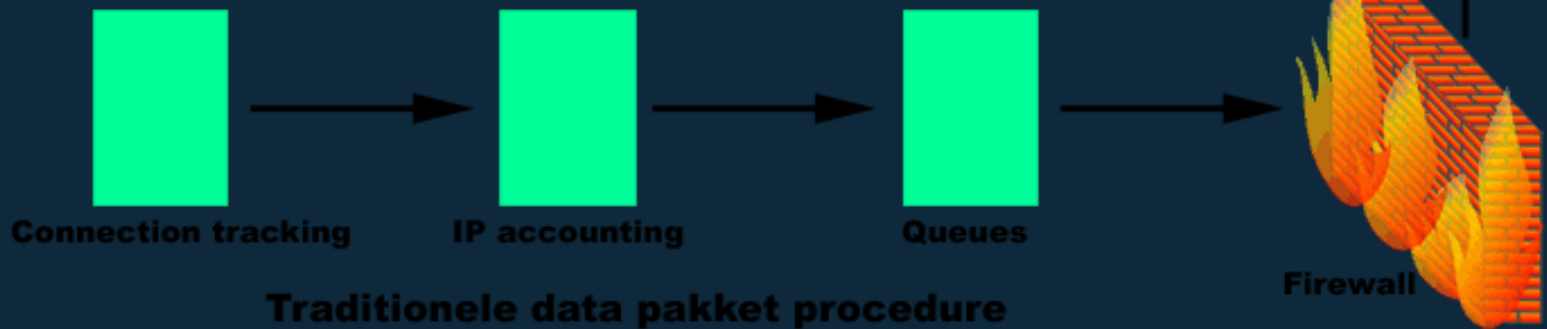
#	Action	Chain	Src. Address	Dst. Address	Proto...	Src. Port	Dst. Port	In. Inter...	Out. Int...	Bytes	Packets
::: special dummy rule to show fasttrack counters											
0	D	pas...	prerouting							4.9 KiB	15
::: special dummy rule to show fasttrack counters											
1	D	pas...	forward							4.9 KiB	15
::: special dummy rule to show fasttrack counters											
2	D	pas...	postrouting							4.9 KiB	15

/ip firewall filter

```
add action=fasttrack-connection chain=forward connection-state=established,related
```

```
add action=accept chain=forward connection-state=established,related
```

```
add action=drop chain=forward connection-state=invalid
```





بعض الافكار للاستفادة من هذه الميزة

لدى:

◊ مقدمي خدمة IPTV مع الانترنت

◊ مقدمي خدمة الانترنت



خدمة IPTV مع الانترنت

خدمة IPTV

اصبحت هذه الخدمة متداولة كثيرا في الانظمة الحديثة للشبكات ضمن المجمعات السكنية والسياحية .
 واصبحت من الخدمات الضرورية التي تقدم للزبائن بالاضافة للانترنت وغيرها من الخدمات.
 واصبحنا مضطرين للتعامل معها ضمن عملنا وتحتم علينا ايجاد افضل الحلول والوسائل لنقلها وايصالها
 الى الزبائن.

ومن المشكلات التي تواجهنا في ادارتها :

- ◇ حجم الترافيك الكبير الذي يسبب حمل عالي على CPU
- ◇ حاجتها لسرعة نقل اقلها 10ميغابت لكل قناة والتي تكون على الاغلب اعلى من السرعة المعطاة للزبون
- ◇ استهلاكها الكبير للبيانات واحتسابها من اشتراك الزبون

IPTV IN FASTTRACK

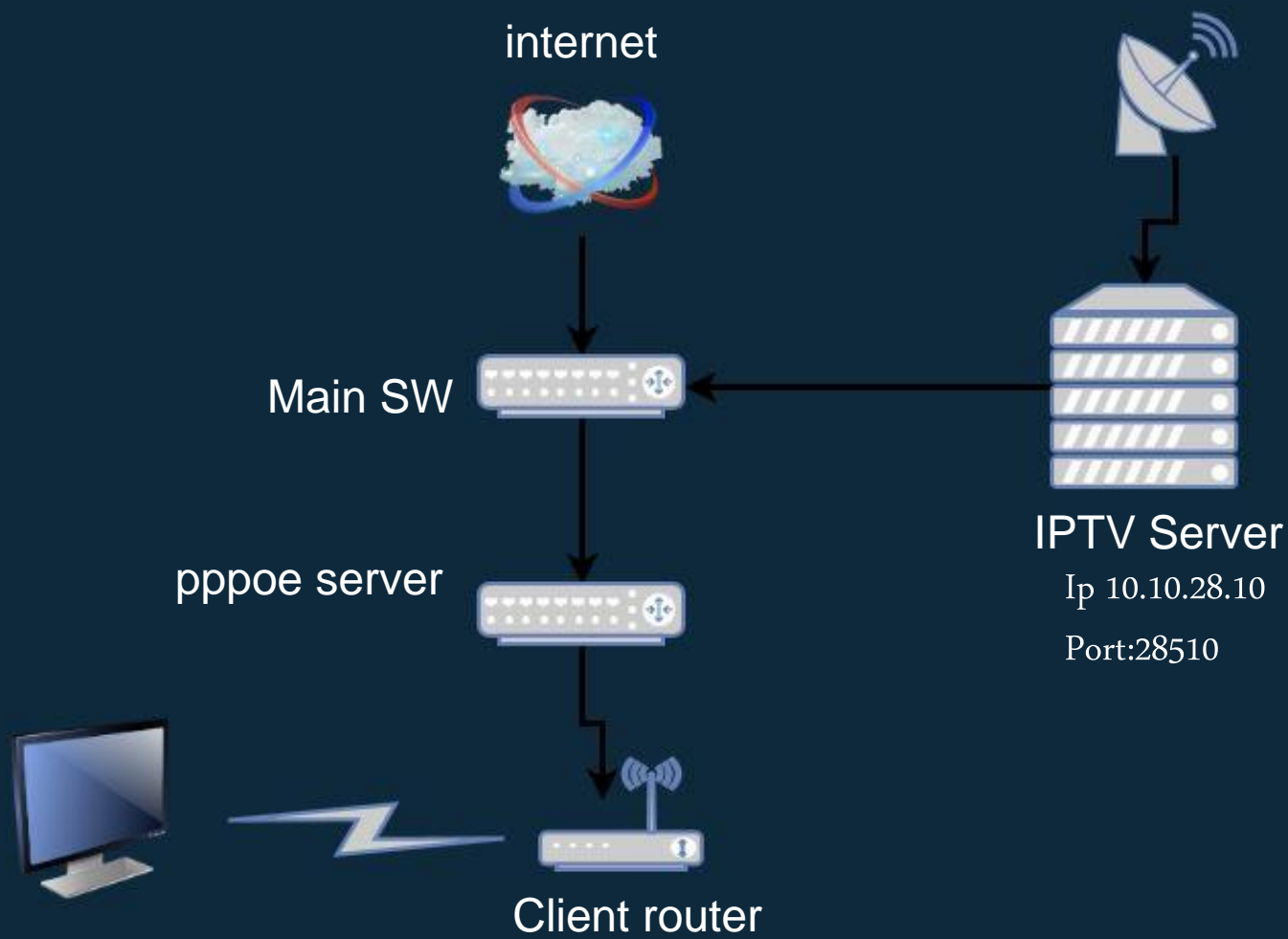
بافتراض ان لدينا شبكة ضمن مجمع سكني

ونقوم بتقديم خدمة IPTV مع الانترنت ونريد :

◇ مرورها بسلاسة وبدون ان تسبب حمل على CPU

◇ ان لا تدخل في حساب استهلاك البيانات من اشتراك الزبون

◇ خروجها بسرعة غير السرعة المحددة للزبون



Simple Queue <<pppoe-runnet050>>

General Advanced Statistics Traffic Total Total Statistics

Target Upload: Rate: 98.9 kbps
 Target Download: 2.0 Mbps

Packet Rate: 271 p/s
 443 p/s

Upload: 98.9 kbps
 Download: 2.0 Mbps

Upload Packets: 271 p/s
 Download Packets: 443 p/s

dynamic

Queue List

Simple Queues Interface Queues Queue Tree Queue Types

Reset Counters Reset All Counters

Name: contains 050

#	Name	Target	Upload Max Limit	Download Max Limit	Packet Mar
6	<pppoe-runnet050>	<pppoe-runnet050>	2M	2M	

OK
Copy
Remove
Reset Counters

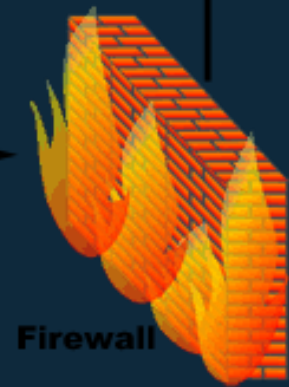


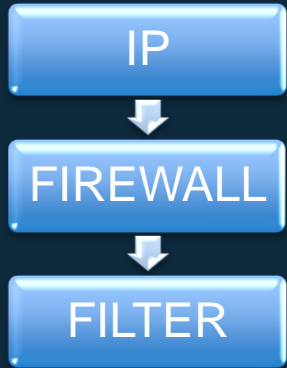
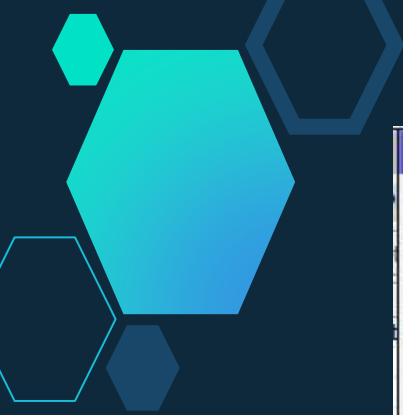


Fasttrack overbrugt alle onderste procedures



Traditionele data pakket procedure





Firewall Rule <10.10.28.10:28510>

General | Advanced | Extra | Action | Statistics

Chain:

Src. Address:

Dst. Address:

Protocol:

Src. Port:

Dst. Port:

Any. Port:

In. Interface:

Out. Interface:

In. Interface List:

Out. Interface List:

Packet Mark:

Connection Mark:

Routing Mark:

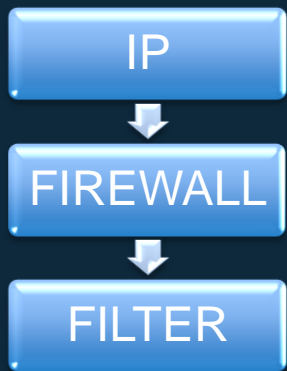
Routing Table:

Connection Type:

Connection State: invalid established related new untracked

Connection NAT State:





New Firewall Rule

General Advanced Extra Action Statistics

Action: **fasttrack connection**

Log

Log Prefix: _____

OK
Cancel
Apply
Disable
Comment
Copy
Remove
Reset Counters
Reset All Counters

enabled



Firewall

Filter Rules NAT Mangle Raw Service Ports Connections Address Lists Layer7 Protocols

+ - ✓ ✗ 📄 🔍 00 Reset Counters 00 Reset All Counters

#	Action	Chain	Src. Address	Dst. Address	Proto...	Src. Port	Dst. Port	In. Inter...
::: special dummy rule to show fasttrack counters								
0	D pas...	forward						
1	▶▶ fastt...	forward		10.10.28.10	6 (tcp)		28510	

Firewall

Filter Rules NAT Mangle Raw Service Ports Connections Address Lists Layer7 Protocols

+ - ✓ ✗ 📄 🔍 00 Reset Counters 00 Reset All Counters

#	Action	Chain	Src. Address	Dst. Address	Proto...	Src. Port	Dst. Port	In. Inter...
::: special dummy rule to show fasttrack counters								
0	D pas...	prerouting						
::: special dummy rule to show fasttrack counters								
1	D pas...	forward						
::: special dummy rule to show fasttrack counters								
2	D pas...	postrouting						

/ip firewall filter

add action=fasttrack-connection chain=forward connection-state=established,related
dst-address=10.10.28.10 dst-port=28510 protocol=tcp

Interface <<pppoe-runnet050>>

General Status Traffic

Tx/Rx Rate: 12.0 Mbps / 576.6 kbps

Tx/Rx Packet Rate: 2 396 p/s / 1 324 p/s

FP Tx/Rx Rate: 0 bps / 0 bps

FP Tx/Rx Packet Rate: 0 p/s / 0 p/s

Tx/Rx Bytes: 494.1 MiB / 22.9 MiB

Tx/Rx Packets: 858 701 / 479 055

Tx/Rx Drops: 0

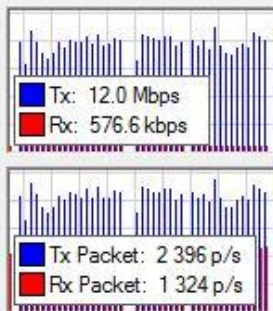
Tx/Rx Errors: 0

OK

Copy

Remove

Torch



dynamic enabled

Simple Queue <<pppoe-runnet050>>

General Advanced Statistics Traffic Total Total Statistics

Target Upload Target Download

Rate: 28.8 kbps / 1453.9 kbps

Packet Rate: 72 p/s / 134 p/s

Upload: 28.8 kbps

Download: 1453.9 kbps

Upload Packets: 72 p/s

Download Packets: 134 p/s

OK

Copy

Remove

Reset Counters

Reset All Counters

Torch

dynamic

Queue List

Simple Queues Interface Queues Queue Tree Queue Types

+ - ✓ ✗ 📧 🔍 ☰ Reset Counters ☑ Reset All Counters

Name contains 050

#	Name	Target	Upload Max Limit	Download Max Limit
6	<<pppoe-runnet050>>	<pppoe-runnet050>	2M	2M

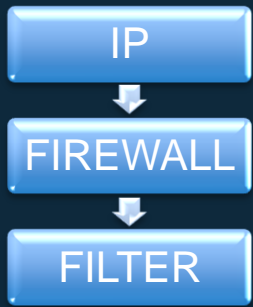
ISP'S AND FASTTRACK

اعتقد ان هذه الميزة ستفيد شركات الانترنت بشكل كبير.
فيمكنهم استخدامها لتحسين جودة الخدمات المقدمة للزبائن
وتقليل الضغط على روتراتهم.
فمثلا:

- ◇ استخدامها لتمير Cache Service بدون التقيد بسرعة معينة وبدون احتسابها من اشتراك الزبون.
- ◇ استخدامها بتعيين فترات مجانية لخدمات معينة او لكل الخدمة المقدمة.

لتحريم Cache Service بدون التقييد بسرعة معينة وبدون احتسابها من اشتراك الزبون.

The image shows two overlapping screenshots of Mikrotik WinBox. The foreground screenshot is titled 'New Firewall Rule' and shows the 'General' tab. The 'Action' is set to 'fasttrack connection'. There are checkboxes for 'Log' and 'Log Prefix'. The background screenshot is titled 'New Mangle Rule' and shows the 'General' tab. The 'Chain' is set to 'prerouting'. The 'Src. Address' is set to 'GGC IP RANG'. The 'Connection State' has 'established' and 'related' checked. The 'Connection NAT State' is empty. The 'enabled' checkbox is checked at the bottom.

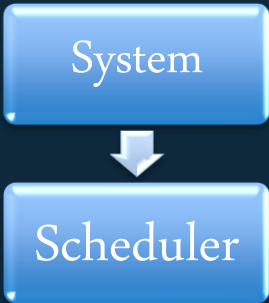


تعيين فترات مجانية لخدمات معينة او لكل الخدمة المقدمة

يمكن الاستفادة من هذه الميزة بتحديد فترة استهلاك مجانية لخدمة معينة مع استخدام الرادايوس او بدونه وذلك باستخدام FastTrack مع Scheduler



The screenshot displays the Mikrotik WinBox interface for configuring a Firewall Rule. The 'New Firewall Rule' dialog is the primary focus, with the 'General' tab selected. The 'Action' is set to 'fasttrack connection', and the 'Log' checkbox is checked. The 'Comment for New Firewall Rule' dialog is open, showing the comment 'FreeTime'. The 'New Mangle Rule' dialog is also visible, showing the 'Chain' set to 'prerouting' and the 'Src. Address' set to 'GGC IP RANG'. The 'Connection State' options are 'invalid', 'established', 'related', 'new', and 'untracked', with 'established' and 'related' checked. The 'Connection NAT State' is set to 'enabled'.



Schedule <FreeTime Enable>

Name: FreeTime Enable

Start Date: Jan/01/2019

Start Time: 00:30:00

Interval: 1d 00:00:00

Owner: supporty

Policy: ftp reboot
 read write
 policy test
 password sniff
 sensitive romon
 dude

Run Count: 0

Next Run: Jan/26/2019 00:30:00

On Event:

/ip firewall filter enable [find comment=Free Time]

enabled

Schedule <FreeTime Disable>

Name: FreeTime Disable

Start Date: Jan/01/2019

Start Time: 12:30:00

Interval: 1d 00:00:00

Owner: supporty

Policy: ftp reboot
 read write
 policy test
 password sniff
 sensitive romon
 dude

Run Count: 0

Next Run: Jan/26/2019 12:30:00

On Event:

/ip firewall filter disable [find comment=Free Time]

enabled

Buttons: OK, Cancel, Apply, Disable, Comment, Copy, Remove

```
/system scheduler
#add interval=1d name="FreeTime Disable" on-event="/ip firewall filter disable [find comment=FreeTime]" policy=read,write start-date=jan/01/2019 start-time=12:30:00
#add interval=1d name="FreeTime Enable" on-event="/ip firewall filter enable [find comment=FreeTime]" policy=read,write start-date=jan/01/2019 start-time=12:30:00
```



الختام..

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systemtik



SYSTEM.TIK