

QoS on Hotspot

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Mikrotik User Meeting

Jakarta - Indonesia

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Tentang Presenter :

Paul Darius

- Dari Padang – Sumatra Barat - Indonesia
- Pendiri & pemilik Sky Networks Solusindo (2007)
- Mengenal mikrotik pertama kali @ 2004 with RB230+R52
- MTCNA (2011), MTCTCE (2012), MTCUME (2013), MTCRE (2014), MTCINE (2014)

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Gambaran Umum

- Presentasi ini adalah kelanjutan dari presentasi saya sebelumnya pada bulan Oktober 2015 di Yogyakarta, dengan judul “Hotspot on BGP-VPLS Network”
- Diimplementasikan pada sebuah hotel yang muncul setelah gempa besar di Sumatera Barat pada September 2009.
- Sistem lama dibuat oleh pihak lain yang mana menggunakan share single login, sehingga kecepatan yang sama untuk semuanya (staff and tamu).
- Semua bandwidth yang tersedia habis digunakan oleh staff dan tak ada tersisa untuk tamu / guest.

Gambaran Umum (cont.)

- Manajemen hotel memutuskan untuk membuat perbedaan kecepatan berdasarkan :
 - Jabatan / posisi pada hotel
 - Tipe kamar tamu
- Konfigurasi yang sama pada presentasi ini berjalan di atas network BGP-VPLS di tempat pelanggan.
- Konfigurasi pada presentasi ini adalah rekonstruksi pada router lab; yakni: RB952Ui-5ac2nD.
- Beberapa data (usermanager) dicopy dari router pelanggan (hotel).

Persiapan

Package List			
	Check For Updates	Enable	Disable
	Uninstall		
	Name ▲	Version	Build Time
	advanced-tools	6.33.3	Dec/03/2015 16:08:10
	dhcp	6.33.3	Dec/03/2015 16:08:10
	hotspot	6.33.3	Dec/03/2015 16:08:10
	mpls	6.33.3	Dec/03/2015 16:08:10
	ppp	6.33.3	Dec/03/2015 16:08:10
	routing	6.33.3	Dec/03/2015 16:08:10
	security	6.33.3	Dec/03/2015 16:08:10
	system	6.33.3	Dec/03/2015 16:08:10
	user-manager	6.33.3	Dec/03/2015 16:08:10
	wireless	6.33.3	Dec/03/2015 16:08:10

Skenario

Pengguna / user terbagi atas 2 kelompok :

- Back Office, dikontrol oleh HRD.
terdiri dari : hotel, management dan staff
- Front Office, dikontrol oleh Reception.
terdiri dari : single, superior, deluxe, suite, family, meeting dan voucher.

Configuration – Hotspot

```
[admin@SKYnet] > /ip hotspot profile set default login-by=http-chap,http-pap \  
\... radius-default-domain=SKYnet split-user-domain=yes use-radius=yes  
[admin@SKYnet] > /ip hotspot walled-garden ip add action=accept \  
\... dst-address=192.168.88.0/25 disabled=no  
[admin@SKYnet] > /ip hotspot add name=SKYnet address-pool=SKYnet \  
\... interface=SKYnet profile=default disabled=no
```


Hotspot – User Profile - staff

```
[admin@SKYnet] > /ip hotspot user profile \  
\... set [find default=yes] name=staff \  
\... address-list=staff idle-timeout=5m \  
\... transparent-proxy=yes
```

Hotspot – User Profile – staff (GUI / Winbox)

Hotspot User Profile <staff>

General Advertise Scripts

Name: staff

Shared Users: 1

Address List: staff

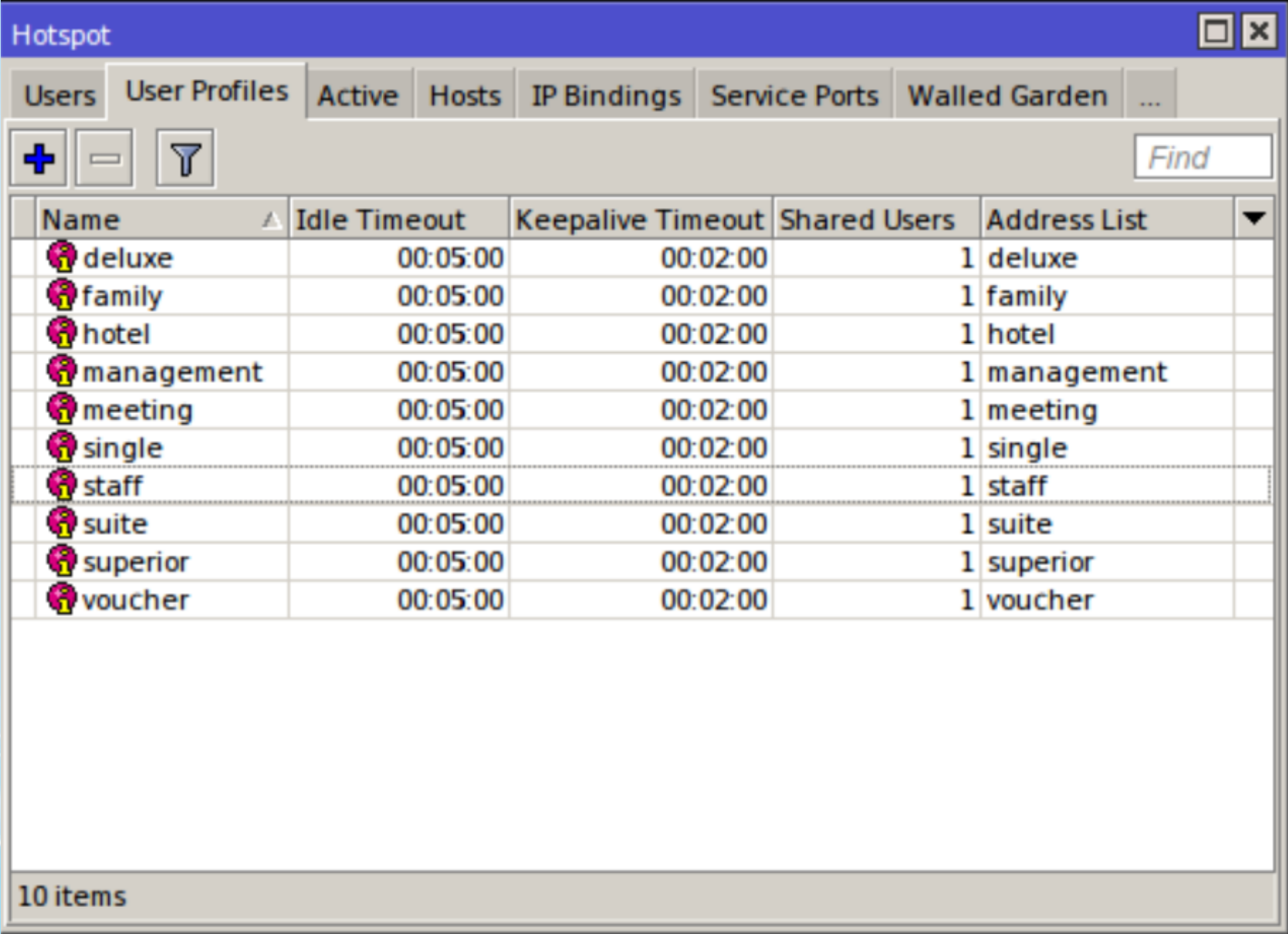
▼ ▲

Hotspot – User Profile - hotel

```
[admin@SKYnet] > /ip hotspot user profile \  
\... add name=hotel address-list=hotel \  
\... idle-timeout=5m transparent-proxy=yes
```

Lakukan hal yang sama untuk profile lainnya, seperti management, single, superior, deluxe, suite, family, meeting dan voucher.

Hotspot User Profile - GUI



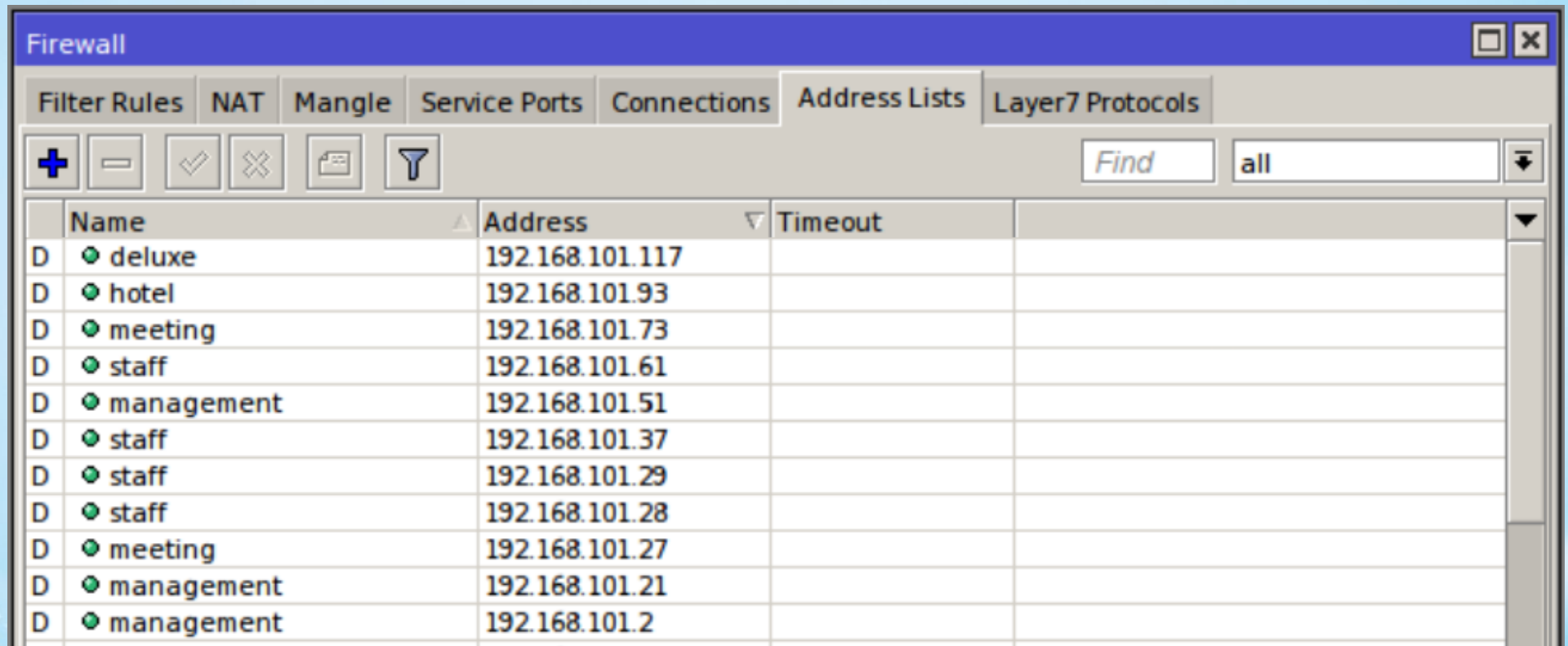
The screenshot shows a web-based interface for managing hotspot user profiles. The window has a purple title bar labeled 'Hotspot'. Below the title bar is a navigation menu with tabs: 'Users', 'User Profiles' (which is selected), 'Active', 'Hosts', 'IP Bindings', 'Service Ports', 'Walled Garden', and an ellipsis. Below the tabs are three icons: a blue plus sign, a minus sign, and a funnel icon, followed by a search box labeled 'Find'. The main content area is a table with the following columns: 'Name' (with a small triangle icon), 'Idle Timeout', 'Keepalive Timeout', 'Shared Users', and 'Address List' (with a dropdown arrow icon). The table contains 10 rows of user profiles, each with a small icon of a person with a key. The bottom of the window shows a status bar with the text '10 items'.

Name	Idle Timeout	Keepalive Timeout	Shared Users	Address List
deluxe	00:05:00	00:02:00	1	deluxe
family	00:05:00	00:02:00	1	family
hotel	00:05:00	00:02:00	1	hotel
management	00:05:00	00:02:00	1	management
meeting	00:05:00	00:02:00	1	meeting
single	00:05:00	00:02:00	1	single
staff	00:05:00	00:02:00	1	staff
suite	00:05:00	00:02:00	1	suite
superior	00:05:00	00:02:00	1	superior
voucher	00:05:00	00:02:00	1	voucher

10 items

Dynamic Address List

= dari router pelanggan / hotel =



The screenshot shows the Mikrotik WinBox interface for configuring Firewall Address Lists. The 'Address Lists' tab is selected. The table below lists the configured address lists, each associated with a dynamic list (D) and a specific IP address. The 'Timeout' column is empty for all entries.

	Name	Address	Timeout
D	deluxe	192.168.101.117	
D	hotel	192.168.101.93	
D	meeting	192.168.101.73	
D	staff	192.168.101.61	
D	management	192.168.101.51	
D	staff	192.168.101.37	
D	staff	192.168.101.29	
D	staff	192.168.101.28	
D	meeting	192.168.101.27	
D	management	192.168.101.21	
D	management	192.168.101.2	

Mark Connection - hotel

```
[admin@SKYnet] > /ip firewall mangle add chain=prerouting \  
\... action=mark-connection src-address-list=hotel \  
\... new-connection-mark=hotel comment=hotel
```

Lakukan hal yang sama untuk profile lainnya, seperti staff, management, single, superior, deluxe, suite, family, meeting dan voucher.

Mark Connection - staff (GUI / Winbox)

Mangle Rule <>

General Advanced Extra Action Statistics

Chain: prerouting

Src. Address:

Dst. Address:

General Advanced Extra Action Statistics

Src. Address Li... staff

Dst. Address L...

General Advanced Extra Action Statistics

Action: mark connection

New Connection Mark: staff

☒ Passthrough

Mark Connection - GUI

Firewall

Filter Rules NAT Mangle Service Ports Connections Address Lists Layer7 Protocols

+ - ✓ ✗ 📁 🔍 00 Reset Counters 00 Reset All Counters Find all

#	Action	Chain	Connection Mark	Src. Address List	New Packet Mark	New Connection Mark	Comment
0	mark connection	prerouting		hotel		hotel	hotel
1	mark connection	prerouting		management		management	management
2	mark connection	prerouting		staff		staff	staff
3	mark connection	prerouting		staff		single	single
4	mark connection	prerouting		superior		superior	single
5	mark connection	prerouting		deluxe		deluxe	deluxe
6	mark connection	prerouting		suite		suite	suite
7	mark connection	prerouting		family		family	family
8	mark connection	prerouting		meeting		meeting	meeting
9	mark connection	prerouting		voucher		voucher	voucher

30 items (1 selected)

Mark Packet – prerouting - hotel

```
[admin@SKYnet] > /ip firewall mangle add \  
\... chain=prerouting connection-mark=hotel \  
\... action=mark-packet new-packet-mark=hotel \  
\... passthrough=no comment=hotel
```

Lakukan hal yang sama untuk profile lainnya, seperti management, single, superior, deluxe, suite, family, meeting dan voucher.

Mark Packet - prerouting - staff (GUI / Winbox)

Mangle Rule <>

General Advanced Extra Action Statistics

Chain: prerouting



Src. Address:



Dst. Address:



Packet Mark:



Connection Mark ☐ staff



General Advanced Extra Action Statistics

Action: mark packet



New Packet Mark: staff



☐ Passthrough

Mark Packet – prerouting – GUI

Firewall

Filter Rules

NAT

Mangle

Service Ports

Connections

Address Lists

Layer7 Protocols

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00 Reset Counters

00 Reset All Counters

Find

all

#	Action	Chain	Connection Mark	Src. Address List	New Packet Mark	New Connection Mark	Comment
10	mark packet	prerouting	hotel		hotel		hotel
11	mark packet	prerouting	management		management		management
12	mark packet	prerouting	staff		staff		staff
13	mark packet	prerouting	single		single		single
14	mark packet	prerouting	superior		superior		superior
15	mark packet	prerouting	deluxe		deluxe		deluxe
16	mark packet	prerouting	suite		suite		suite
17	mark packet	prerouting	family		family		family
18	mark packet	prerouting	meeting		meeting		meeting
19	mark packet	prerouting	voucher		voucher		voucher

30 items (1 selected)

Mark Packet – postrouting - hotel

```
[admin@SKYnet] > /ip firewall mangle add \  
\... chain=postrouting connection-mark=hotel \  
\... action=mark-packet new-packet-mark=hotel \  
\... passthrough=no comment=hotel
```

Lakukan hal yang sama untuk profile lainnya, seperti management, single, superior, deluxe, suite, family, meeting dan voucher.

Mark Packet - postrouting - staff (GUI / Winbox)

Mangle Rule <>

General Advanced Extra Action Statistics

Chain: postrouting

Src. Address:

Dst. Address:

Packet Mark:

Connection Mark ☐ staff

General Advanced Extra Action Statistics

Action: mark packet

New Packet Mark: staff

☐ Passthrough

Mark Packet – postrouting – GUI

Firewall

Filter Rules

NAT

Mangle

Service Ports

Connections

Address Lists

Layer7 Protocols

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🔍

00 Reset Counters

00 Reset All Counters

Find

all

#	Action	Chain	Connection Mark	Src. Address List	New Packet Mark	New Connection Mark	Comment
20	mark packet	postrouting	hotel		hotel		hotel
21	mark packet	postrouting	management		management		management
22	mark packet	postrouting	staff		staff		staff
23	mark packet	postrouting	single		single		single
24	mark packet	postrouting	superior		superior		superior
25	mark packet	postrouting	deluxe		deluxe		deluxe
26	mark packet	postrouting	suite		suite		suite
27	mark packet	postrouting	family		family		family
28	mark packet	postrouting	meeting		meeting		meeting
29	mark packet	postrouting	voucher		voucher		voucher

30 items (1 selected)

Queue Type - pcq-upload

```
[admin@SKYnet] > /queue type add \  
\... kind=pcq name=pcq-upload \  
\... pcq-classifier=src-address
```

Queue Type – pcq-upload-64k

```
[admin@SKYnet] > /queue type add \  
\... kind=pcq name=pcq-upload-64k \  
\... pcq-classifier=src-address \  
\... pcq-rate=64k
```

Lakukan hal yang sama untuk:
pcq-upload-128K, pcq-upload-192K,
pcq-upload-256K, pcq-upload-512K, dan pcq-
upload-1M.

Queue Type - pcq-upload

Queue Type <pcq-upload>	Queue Type <pcq-upload-1024k>
Type Name pcq-upload	Type Name pcq-upload-1024k
Kind pcq ▼	Kind pcq ▼
Rate 0 bits/s	Rate 1024k bits/s
Limit 50 KiE	Limit 50 KiE
Total Limi 2000 KiE	Total Limi 2000 KiE
Burst Rate ▼ bits/s	Burst Rate ▼ bits/s
Burst Threshold ▼	Burst Threshold ▼
Burst Time 00:00:10	Burst Time 00:00:10
Classifier ☒ Src. Address ☐ Dst. Address ☐ Src. Port ☐ Dst. Port	Classifier ☒ Src. Address ☐ Dst. Address ☐ Src. Port ☐ Dst. Port

Queue Type GUI - upload

Queue List

Simple Queues

Interface Queues

Queue Tree

Queue Types

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-

Type Name	Kind	Rate	Classifier
pcq-upload	pcq	0	Src. Address
pcq-upload-64k	pcq	64k	Src. Address
pcq-upload-128k	pcq	128k	Src. Address
pcq-upload-192k	pcq	192k	Src. Address
pcq-upload-256k	pcq	256k	Src. Address
pcq-upload-512k	pcq	512k	Src. Address
pcq-upload-1024k	pcq	1024k	Src. Address

17 items (1 selected)

Queue Type – pcq-download

```
[admin@SKYnet] > /queue type add \  
\... kind=pcq name=pcq-download \  
\... pcq-classifier=dst-address
```


Queue Type – pcq-download-256K

```
[admin@SKYnet] > /queue type add \  
\... kind=pcq name=pcq-download-256k \  
\... pcq-classifier=dst-address \  
\... pcq-rate=256k
```

Lakukan hal yang sama untuk:
pcq-download-384K, pcq-download-512K,
pcq-download-1M, pcq-download-1536K,
pcq-download-2M, pcq-download-3M.

Queue Type – pcq-download

Queue Type <pcq-download>	Queue Type <pcq-download-1024k>
Type Name pcq-download	Type Name pcq-download-1024k
Kind pcq ▼	Kind pcq ▼
Rate 0 bits/s	Rate 1M bits/s
Limit 50 KiE	Limit 50 KiE
Total Limi 2000 KiE	Total Limi 2000 KiE
Burst Rate ▼ bits/s	Burst Rate ▼ bits/s
Burst Threshold ▼	Burst Threshold ▼
Burst Time 00:00:10	Burst Time 00:00:10
Classifier ☐ Src. Address ☒ Dst. Address	Classifier ☐ Src. Address ☒ Dst. Address
☐ Src. Port ☐ Dst. Port	☐ Src. Port ☐ Dst. Port

Queue Type GUI - download

Queue List

Simple Queues Interface Queues Queue Tree Queue Types

Type Name	Kind	Rate	Classifier
pcq-download	pcq	0	Dst. Address
pcq-download-256k	pcq	256k	Dst. Address
pcq-download-384k	pcq	384k	Dst. Address
pcq-download-512k	pcq	512k	Dst. Address
pcq-download-1024k	pcq	1M	Dst. Address
pcq-download-1536k	pcq	1536k	Dst. Address
pcq-download-2048k	pcq	2M	Dst. Address
pcq-download-3096k	pcq	3M	Dst. Address

25 items (1 selected)

Configuration – Queue Tree (1)

```
[admin@SKYnet] > /queue tree add name=UPLOAD parent=ether1 queue=default max-limit=1536k
[admin@SKYnet] > /queue tree add name="01. HOTEL UPLOAD" packet-mark=hotel parent=UPLOAD \
... priority=1 queue=pcq-upload limit-at=8k max-limit=1536k
[admin@SKYnet] > /queue tree add name="02. MANAGEMENT UPLOAD" packet-mark=management parent=UPLOAD \
... priority=2 queue=pcq-upload-128k limit-at=8k max-limit=512k
[admin@SKYnet] > /queue tree add name="03. STAFF UPLOAD" packet-mark=staff parent=UPLOAD \
... priority=8 queue=pcq-upload-64k limit-at=8k max-limit=512k
[admin@SKYnet] > /queue tree add name="04. SINGLE UPLOAD" packet-mark=single parent=UPLOAD \
... priority=7 queue=pcq-upload-128k limit-at=8k max-limit=1M
[admin@SKYnet] > /queue tree add name="05. SUPERIOR UPLOAD" packet-mark=superior parent=UPLOAD \
... priority=6 queue=pcq-upload-192k limit-at=8k max-limit=1M
[admin@SKYnet] > /queue tree add name="06. DELUXE UPLOAD" packet-mark=deluxe parent=UPLOAD \
... priority=5 queue=pcq-upload-256k limit-at=8k max-limit=1M
[admin@SKYnet] > /queue tree add name="07. SUITE UPLOAD" packet-mark=suite parent=UPLOAD \
... priority=4 queue=pcq-upload-512k limit-at=8k max-limit=1M
[admin@SKYnet] > /queue tree add name="08. FAMILY UPLOAD" packet-mark=family parent=UPLOAD \
... priority=3 queue=pcq-upload-1024k limit-at=8k max-limit=1M
[admin@SKYnet] > /queue tree add name="09. MEETING UPLOAD" packet-mark=meeting parent=UPLOAD \
... priority=2 queue=pcq-upload-256k limit-at=8k max-limit=1M
[admin@SKYnet] > /queue tree add name="10. VOUCHER UPLOAD" packet-mark=voucher parent=UPLOAD \
... priority=7 queue=pcq-upload-128k limit-at=8k max-limit=512k
```

Queue Tree - Upload

Queue <UPLOAD>		Queue <02. MANAGEMENT UPLOAD>	
General	Statistics	General	Statistics
Name	UPLOAD	Name	02. MANAGEMENT UPLOAD
Parent	ether1	Parent	UPLOAD
Packet Mark:		Packet Mark	management
Queue Type	default	Queue Type	pcq-upload-128k
Priority:	8	Priority:	2
Bucket Size	0.100	Bucket Size	0.100
Limit At		Limit At	8k
Max Limit	1536k	Max Limit	512k

Configuration – Queue Tree (2)

```
[admin@SKYnet] > /queue tree add name=DOWNLOAD parent=SKYnet queue=default max-limit=10M
[admin@SKYnet] > /queue tree add name="01. HOTEL DOWNLOAD" packet-mark=hotel parent=DOWNLOAD \
... priority=1 queue=pcq-download limit-at=64k max-limit=10M
[admin@SKYnet] > /queue tree add name="02. MANAGEMENT DOWNLOAD" packet-mark=management parent=DOWNLOAD \
... priority=2 queue=pcq-download-384k limit-at=64k max-limit=2M
[admin@SKYnet] > /queue tree add name="03. STAFF DOWNLOAD" packet-mark=staff parent=DOWNLOAD \
... priority=8 queue=pcq-download-256k limit-at=64k max-limit=1536k
[admin@SKYnet] > /queue tree add name="04. SINGLE DOWNLOAD" packet-mark=single parent=DOWNLOAD \
... priority=7 queue=pcq-download-512k limit-at=64k max-limit=8M
[admin@SKYnet] > /queue tree add name="05. SUPERIOR DOWNLOAD" packet-mark=superior parent=DOWNLOAD \
... priority=6 queue=pcq-download-1024k limit-at=64k max-limit=8M
[admin@SKYnet] > /queue tree add name="06. DELUXE DOWNLOAD" packet-mark=deluxe parent=DOWNLOAD \
... priority=5 queue=pcq-download-1536k limit-at=64k max-limit=8M
[admin@SKYnet] > /queue tree add name="07. SUITE DOWNLOAD" packet-mark=suite parent=DOWNLOAD \
... priority=4 queue=pcq-download-2048k limit-at=64k max-limit=8M
[admin@SKYnet] > /queue tree add name="08. FAMILY DOWNLOAD" packet-mark=family parent=DOWNLOAD \
... priority=3 queue=pcq-download-3096k limit-at=64k max-limit=8M
[admin@SKYnet] > /queue tree add name="09. MEETING DOWNLOAD" packet-mark=meeting parent=DOWNLOAD \
... priority=2 queue=pcq-download-512k limit-at=64k max-limit=8M
[admin@SKYnet] > /queue tree add name="10. VOUCHER DOWNLOAD" packet-mark=voucher parent=DOWNLOAD \
... priority=7 queue=pcq-download-384k limit-at=64k max-limit=8M
```

Queue Tree - Download

Queue <DOWNLOAD>		Queue <02. MANAGEMENT DOWNLOAD>	
General	Statistics	General	Statistics
Name	DOWNLOAD	Name	02. MANAGEMENT DOWNLOAD
Parent	SKYnet	Parent	DOWNLOAD
Packet Mark:		Packet Mark:	management
Queue Type	default	Queue Type	pcq-download-384k
Priority:	8	Priority:	2
Bucket Size	0.100	Bucket Size	0.100
Limit At		Limit At	64k
Max Limit	10M	Max Limit	2M

Queue Tree - GUI

= dari router pelanggan / hotel =

Queue List										
Simple Queues Interface Queues Queue Tree Queue Types + - ✓ ✗ 📄 🔍 🔄 Reset Counters 🔄 Reset All Counters Find										
Name	Parent	Packet Marks	Queue Type	Priority	Limi...	Max Li...	Avg. Rate	Bytes	Packets	
📁 DOWNLOAD	hotspot		default	8		10M	360.1 kbps	311.0 GiB	270 414 968	⬆
📁 01. HOTEL DOWNLOAD	DOWNLOAD	hotel	pcq-download	1	64k	10M	0 bps	1856.8 MiB	1 486 355	
📁 02. MANAGEMENT DOWNLOAD	DOWNLOAD	management	pcq-download-384k	2	64k	2M	14.1 kbps	84.9 GiB	72 370 496	
📁 03. STAFF DOWNLOAD	DOWNLOAD	staff	pcq-download-256k	8	64k	1536k	264.9 kbps	37.8 GiB	36 202 412	
📁 04. SINGLE DOWNLOAD	DOWNLOAD	single	pcq-download-512k	7	64k	8M	0 bps	4056.1 MiB	3 251 250	
📁 05. SUPERIOR DOWNLOAD	DOWNLOAD	superior	pcq-download-1024k	6	64k	8M	0 bps	76.9 GiB	66 423 945	
📁 06. DELUXE DOWNLOAD	DOWNLOAD	deluxe	pcq-download-1536k	5	64k	8M	0 bps	76.7 GiB	65 602 583	
📁 07. SUITE DOWNLOAD	DOWNLOAD	suite	pcq-download-2048k	4	64k	8M	0 bps	13.2 GiB	11 805 948	
📁 08. FAMILY DOWNLOAD	DOWNLOAD	family	pcq-download-3096k	3	64k	8M	0 bps	6.4 GiB	4 861 060	
📁 09. MEETING DOWNLOAD	DOWNLOAD	meeting	pcq-download-512k	2	64k	3M	89.1 kbps	6.3 GiB	5 419 602	
📁 10. VOUCHER DOWNLOAD	DOWNLOAD	voucher	pcq-download-384k	7	64k	2M	0 bps	3152.9 MiB	2 991 403	
📁 UPLOAD	pppoe-indihome		default	8		1536k	84.4 kbps	58.3 GiB	238 332 288	
📁 01. HOTEL UPLOAD	UPLOAD	hotel	pcq-upload	1	8k	1536k	0 bps	39.2 MiB	282 157	
📁 02. MANAGEMENT UPLOAD	UPLOAD	management	pcq-upload-128k	2	8k	512k	1760 bps	5.7 GiB	46 011 328	
📁 03. STAFF UPLOAD	UPLOAD	staff	pcq-upload-64k	8	8k	512k	10.7 kbps	3939.0 MiB	19 910 450	
📁 04. SINGLE UPLOAD	UPLOAD	single	pcq-upload-128k	7	8k	1M	0 bps	274.2 MiB	1 154 168	
📁 05. SUPERIOR UPLOAD	UPLOAD	superior	pcq-upload-192k	6	8k	1M	0 bps	6.5 GiB	32 497 520	
📁 06. DELUXE UPLOAD	UPLOAD	deluxe	pcq-upload-256k	5	8k	1M	0 bps	6.7 GiB	31 139 403	
📁 07. SUITE UPLOAD	UPLOAD	suite	pcq-upload-512k	4	8k	1M	0 bps	3567.5 MiB	5 534 389	
📁 08. FAMILY UPLOAD	UPLOAD	family	pcq-upload-1024k	3	8k	1M	0 bps	137.2 MiB	1 180 654	
📁 09. MEETING UPLOAD	UPLOAD	meeting	pcq-upload-256k	2	8k	1M	5.9 kbps	537.2 MiB	2 837 006	
📁 10. VOUCHER UPLOAD	UPLOAD	voucher	pcq-upload-128k	7	8k	512k	0 bps	384.7 MiB	1 863 839	⬇

Configuration – Radius, Clock and Usermanager

```
[admin@SKYnet] > /radius add address=127.0.0.1 domain=SKYnet \  
\... secret="MySecret" service=hotspot disabled=no  
[admin@SKYnet] > /radius incoming set accept=yes port=1700  
  
[admin@SKYnet] > /system clock set time-zone-name=Asia/Jakarta  
[admin@SKYnet] > /system ntp client set enabled=yes \  
\... server-dns-names=216.110.36.245,198.72.72.10  
  
[admin@SKYnet] > /tool user-manager customer set [find login=admin] time-zone=+07:00  
[admin@SKYnet] > /tool user-manager customer add login=front-office parent=admin permissions=read-write  
[admin@SKYnet] > /tool user-manager customer add login=back-office parent=admin permissions=full  
  
[admin@SKYnet] > /tool user-manager router add name="Main Router" \  
\... customer=admin ip-address=127.0.0.1 shared-secret="MySecret" \  
\... use-coa=yes coa-port=1700 log=auth-fail
```

Radius Configuration

Radius Server <127.0.0.1>

General Status

Service ☐ ppp ☐ login
☒ hotspot ☐ wireless
☐ dhcp

Called ID

Domain SKYnet

Address 127.0.0.1

Secret MySecret

Authentication Port 1812

Accounting Port 1813

Timeout 300 ms

Radius Incoming

☒ Accept

Port: 1700

Usermanager – Customer

☐	▽ Login	▽ Parent	▽ Permissions
☐	admin		Owner
☐	front-office	admin	Read write
☐	back-office	admin	Full

Usermanager - Router = dibuat by admin =

Router details

▲ Main

Name:

Main Router

Owner:

admin

IP address:

127.0.0.1

Shared secret:

MySecret

Time zone:

+07:00

Disabled:

☐

Log events:

☐ Authorization success

☒ Authorization failure

☐ Accounting success

☐ Accounting failure

▲ Radius incomming

CoA support:

☒

CoA port:

1700

▼ Request statistics

Save

Usermanager – Limitation

Profiles				
Limitations				
Add Edit				
				
☐	▽ Name	▽ Group name	▽ Uptime	▽ Owner
☐	hotel	hotel		back-office
☐	management	management		back-office
☐	staff	staff		back-office
☐	single	single		front-office
☐	superior	superior		front-office
☐	deluxe	deluxe		front-office
☐	suite	suite		front-office
☐	family	family		front-office
☐	meeting	meeting		front-office
☐	voucher	voucher	1h	front-office

Usermanager – Limitation (Console)

```
[admin@SKYnet] > /tool user-manager profile limitation \  
\... add name=hotel group-name=hotel  
[admin@SKYnet] > /tool user-manager profile limitation \  
\... add name=management group-name=management  
[admin@SKYnet] > /tool user-manager profile limitation \  
\... add name=staff group-name=staff  
  
[admin@SKYnet] > /tool user-manager profile limitation \  
\... add name=single group-name=single  
[admin@SKYnet] > /tool user-manager profile limitation \  
\... add name=superior group-name=superior  
[admin@SKYnet] > /tool user-manager profile limitation \  
\... add name=deluxe group-name=deluxe  
[admin@SKYnet] > /tool user-manager profile limitation \  
\... add name=suite group-name=suite  
[admin@SKYnet] > /tool user-manager profile limitation \  
\... add name=family group-name=family  
[admin@SKYnet] > /tool user-manager profile limitation \  
\... add name=meeting group-name=meeting  
[admin@SKYnet] > /tool user-manager profile limitation \  
\... add name=voucher group-name=voucher uptime-limit=1h
```


Usermanager - Profile

= back-office =

Profiles	Limitations						
Profile: hotel Name: hotel Name for users: Owner: back-office Validity: Starts: At first login Price: 0.00 Shared users: 1 Save profile Remove profile Profile limitations <table border="1"><thead><tr><th></th><th>Active</th><th>Constraints</th></tr></thead><tbody><tr><td>☐</td><td>Always</td><td>Group name: hotel</td></tr></tbody></table> Add new limitation Remove selected limitations			Active	Constraints	☐	Always	Group name: hotel
	Active	Constraints					
☐	Always	Group name: hotel					

Tambahkan profile management dan staff dengan setting yang sama dan limitation masing-masing.

Owned by back-office and without validity.

Usermanager - Profile

= front-office =

Profiles	Limitations
Profile:	single
Name:	single
Name for users:	
Owner:	front-office
Validity:	1d
Starts:	At first login
Price:	0.00
Shared users:	1

Tambahkan profile superior, deluxe, suite, family, and meeting dengan setting yang sama dan limitation masing-masing.

Owned by front-office and validity period 1d.

Save profile	Remove profile
--------------	----------------

Profile limitations

☐	Active	Constraints
☐	Always	Group name: single

Add new limitation	Remove selected limitations
--------------------	-----------------------------

Usermanager - Profile

= voucher =

Profiles	Limitations						
Profile: voucher + Name: voucher Name for users: Owner: front-office Validity: 1d Starts: At first login Price: 0.00 Shared users: 1 Save profile Remove profile Profile limitations <table border="1"><thead><tr><th>☐</th><th>Active</th><th>Constraints</th></tr></thead><tbody><tr><td>☐</td><td>Always</td><td>Uptime Limit: 1h Group name: voucher</td></tr></tbody></table> Add new limitation Remove selected limitations		☐	Active	Constraints	☐	Always	Uptime Limit: 1h Group name: voucher
☐	Active	Constraints					
☐	Always	Uptime Limit: 1h Group name: voucher					

**Owned by front-office
and validity period 1d.**

Usermanager - Profile (Console)

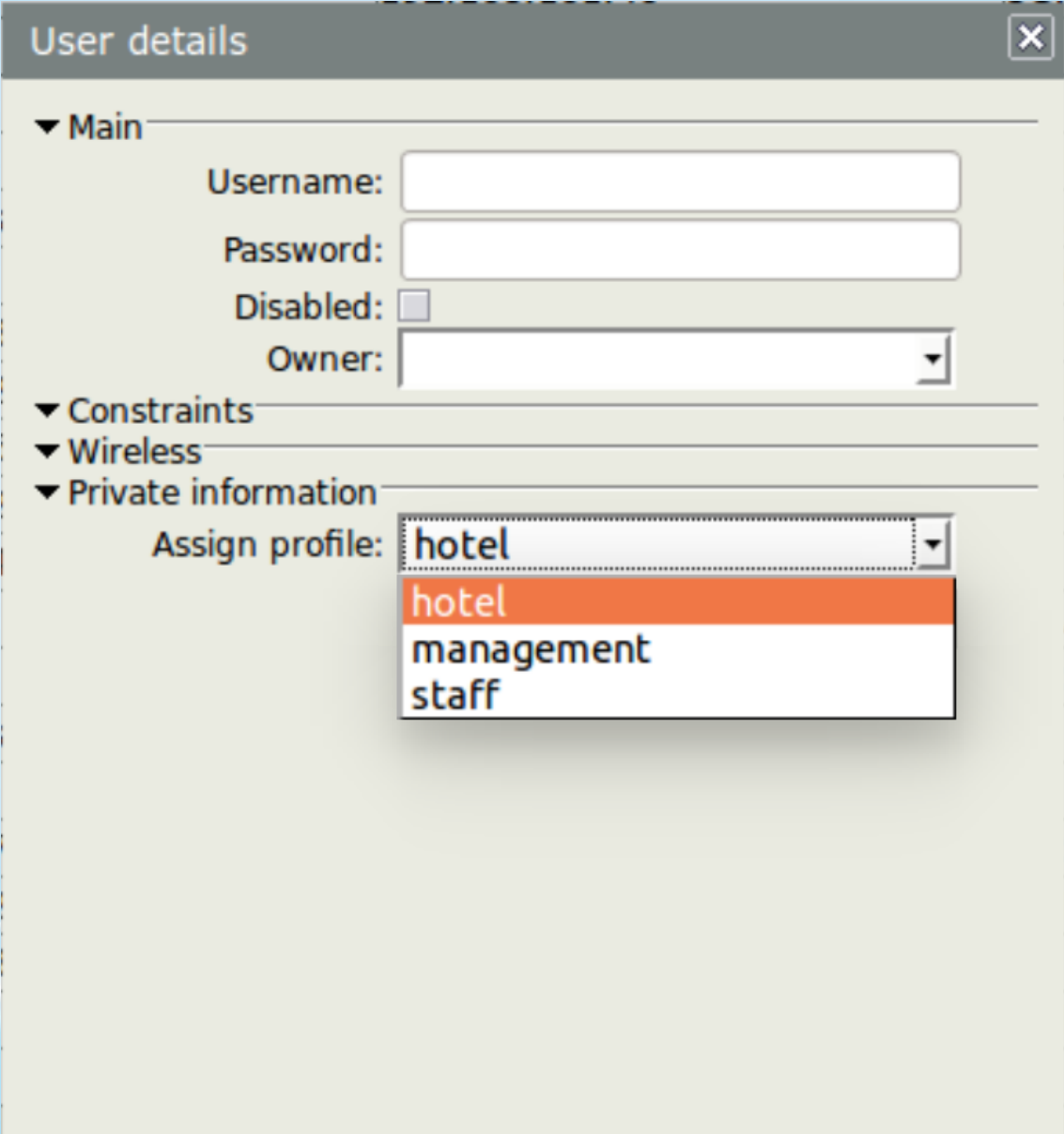
```
[admin@SKYnet] > /tool user-manager profile add owner=back-office \  
\... override-shared-users=1 starts-at=logon name="hotel"  
[admin@SKYnet] > /tool user-manager profile add owner=back-office \  
\... override-shared-users=1 starts-at=logon name="management"  
[admin@SKYnet] > /tool user-manager profile add owner=back-office \  
\... override-shared-users=1 starts-at=logon name="staff"  
  
[admin@SKYnet] > /tool user-manager profile add owner=front-office \  
\... override-shared-users=1 starts-at=logon validity=ld name="single"  
[admin@SKYnet] > /tool user-manager profile add owner=front-office \  
\... override-shared-users=1 starts-at=logon validity=ld name="superior"  
[admin@SKYnet] > /tool user-manager profile add owner=front-office \  
\... override-shared-users=1 starts-at=logon validity=ld name="deluxe"  
[admin@SKYnet] > /tool user-manager profile add owner=front-office \  
\... override-shared-users=1 starts-at=logon validity=ld name="suite"  
[admin@SKYnet] > /tool user-manager profile add owner=front-office \  
\... override-shared-users=1 starts-at=logon validity=ld name="family"  
[admin@SKYnet] > /tool user-manager profile add owner=front-office \  
\... override-shared-users=1 starts-at=logon validity=ld name="meeting"  
[admin@SKYnet] > /tool user-manager profile add owner=front-office \  
\... override-shared-users=1 starts-at=logon validity=ld name="voucher"
```


Usermanager – Profile-Limitation (Console)

```
[admin@SKYnet] > /tool user-manager profile \  
\... profile-limitation add profile=hotel limitation=hotel  
[admin@SKYnet] > /tool user-manager profile \  
\... profile-limitation add profile=management limitation=management  
[admin@SKYnet] > /tool user-manager profile \  
\... profile-limitation add profile=staff limitation=staff  
[admin@SKYnet] > /tool user-manager profile \  
\... profile-limitation add profile=single limitation=single  
[admin@SKYnet] > /tool user-manager profile \  
\... profile-limitation add profile=superior limitation=superior  
[admin@SKYnet] > /tool user-manager profile \  
\... profile-limitation add profile=deluxe limitation=deluxe  
[admin@SKYnet] > /tool user-manager profile \  
\... profile-limitation add profile=suite limitation=suite  
[admin@SKYnet] > /tool user-manager profile \  
\... profile-limitation add profile=family limitation=family  
[admin@SKYnet] > /tool user-manager profile \  
\... profile-limitation add profile=meeting limitation=meeting  
[admin@SKYnet] > /tool user-manager profile \  
\... profile-limitation add profile=voucher limitation=voucher
```

Usermanager – Add User

= view oleh back-office =



User details

▼ Main

Username:

Password:

Disabled: ☐

Owner:

▼ Constraints

▼ Wireless

▼ Private information

Assign profile:

- hotel
- management
- staff

Usermanager – Add User

= view oleh front-office =

User details

▼ Main

Username:

Password:

Disabled: ☐

Owner:

▼ Constraints

▼ Wireless

▼ Private information

Assign profile:

deluxe

deluxe

family

meeting

single

suite

superior

voucher

Usermanager - Add User

= view oleh admin =

User details

▼ Main

Username:

Password:

Disabled: ☐

Owner:

▼ Constraints

▼ Wireless

▼ Private information

Assign profile:

deluxe

deluxe

family

hotel

management

meeting

single

staff

suite

superior

voucher

Usermanager – Userlist

= view oleh backoffice – dari router pelanggan =

Add Edit Generate					
1	2	page 1 of 2			
☐	▼ Username	▼ Uptime Used	▼ Last used IP	▼ Last used MAC	▼ Actual profile
☐	s	10h20m8s	192.168.101.46	5C:96:9D:79:C8:1D	hotel
☐	s	3w14h55m51s	192.168.101.93	34:23:BA:84:E5:D8	hotel
☐	j	3w4d14h51m39s	192.168.101.102	A8:1B:5A:B0:A4:93	management
☐	e	5w3d55m54s	192.168.101.51	E8:BB:A8:89:3F:05	management
☐	s	15h35m18s	192.168.101.67	00:03:7E:E8:02:E9	management
☐	r	2w4d19h43m29s	192.168.101.47	14:DD:A9:5B:B6:D6	management
☐	e	1w2d11h22m25s	192.168.101.7	90:F6:52:46:E6:E0	management
☐	r	8w6d13h55m5s	192.168.101.2	20:16:D8:50:00:BF	management
☐	r	1d35m32s	192.168.101.125	BC:6E:64:8B:A9:64	management
☐	r	5w9h26m43s	192.168.101.61	A0:93:47:2B:48:F0	staff
☐	r	3w5d1h28m12s	192.168.101.28	14:DD:A9:A6:98:79	staff
☐	c	3w4d22h56m56s	192.168.101.41	A8:1B:5A:0C:AE:D2	staff
☐	t	2h4m18s	192.168.101.126	30:AA:BD:C0:F1:60	staff
☐	r	2d18h53m52s	192.168.101.36	CC:07:E4:60:98:FB	staff
☐	t	3w5d2h45m9s	192.168.101.126	C8:7D:65:02:1B:53	staff
☐	r	1w16h34m4s	192.168.101.2	20:16:D8:50:00:BF	staff
☐	r	3w1d3h49m57s	192.168.101.19	BC:20:10:45:24:7C	staff
☐	r	3w1d14h10m23s	192.168.101.44	14:DD:A9:A6:40:31	staff
☐	t	2w4d15h10m35s	192.168.101.45	B0:9F:BA:D7:57:B4	staff
☐	t	4d10h13m26s	192.168.101.58	E4:EC:10:DD:1B:7A	staff

Usermanager – Userlist

= view oleh fontoffice – dari router pelanggan =

Add Edit Generate									
1	2	3	4	...	6	page 1 of 6			
☐	▼ Username	▼ Password	▼ Uptime Used	▼ Last used IP	▼ Last used MAC	▼ Time left	▼ Till time	▼ Total time left	▼ Actual profile
☐	andri1	107	4h7m46s	192.168.101.124	E4:F8:EF:89:0B:31		Unknown		
☐	fanny1	212	1h46m14s	192.168.101.8	E8:2A:EA:BD:E5:AC		Unknown		
☐	fanny2	212	2h32m11s	192.168.101.8	E8:2A:EA:BD:E5:AC		Unknown		
☐	febri1	306	20m8s	192.168.101.38	E0:CB:EE:B5:2E:23		Unknown		deluxe
☐	andri2	107	5h15m18s	192.168.101.41	A8:1B:5A:0C:AE:D2		Unknown		superior
☐	loan	102	6h54m55s	192.168.101.86	D8:CF:9C:57:4A:74		Unknown		superior
☐	angga	205	6h59m	192.168.101.56	7C:0B:C6:00:99:FC		Unknown		superior
☐	jose	209	4h50m1s	192.168.101.66	08:62:66:B2:00:F6		Unknown		superior
☐	al hafri	206	6h58m7s	192.168.101.99	04:1B:BA:BD:FF:E5		Unknown		superior
☐	ROL6sr	vyz		0.0.0.0		Unknown	Unknown	1d	voucher
☐	ELDKjf	v9s		0.0.0.0			01/09/2016 05:02:52		voucher
☐	ELDjrs	rtr		0.0.0.0		Unknown	Unknown	1d	voucher
☐	ELDdm5	wxq		0.0.0.0		Unknown	Unknown	1d	voucher
☐	ELDhgz	nub		0.0.0.0		Unknown	Unknown	1d	voucher
☐	EDL98x	r2h		0.0.0.0		Unknown	Unknown	1d	voucher
☐	EDL443	zsw		0.0.0.0			Unknown		voucher
☐	KOj7w	ndt		0.0.0.0		Unknown	Unknown	1d	voucher
☐	KOd6k	x67		0.0.0.0		Unknown	Unknown	1d	voucher
☐	KOnhr	e3k		0.0.0.0		Unknown	Unknown	1d	voucher
☐	KOz9h	787		0.0.0.0		Unknown	Unknown	1d	voucher

Kesimpulan (1)

- Mikrotik dengan RouterOS mengatur hotspot, mangle dan Qos (Queue Tree).
- Radius (User Manager) mengatur management user dan pengelompokannya.
- Pengaturan kelompok user pada hotspot berada pada menu Hotspot - User Profile.
- Pengaturan kelompok user pada user manager berada pada Profile.
- Limitation pada User Manager merupakan penghubung kelompok user antara Mikrotik (RouterOS) dengan Radius (User Manager).
- Profile-Limitation adalah link / penghubung antara Profile dan Limitation.

Kesimpulan (2)

- Back office (office) memiliki Full rights untuk login internal hotel; pemilik, management and staff.
- Front office (f0) memiliki Read-Write rights untuk seluruh login tamu hotel, tapi tidak memiliki kuasa untuk menghapus.
- Admin punya satu tugas baru; menghapus login yang tidak terpakai yang pernah dibuat oleh front office (f0) dan dibandingkan dengan data daftar tamu hotel.

Kesimpulan (3)

- Login yang dibuat oleh admin bisa dilihat oleh front office maupun back office. Oleh karena itu admin tidak disarankan untuk membuat login.
- Untuk alasan keamanan, disarankan untuk :
 - Menambah firewall; seperti menutup tcp & udp 53, 3128, dan 8080 dari luar / internet.
 - Proteksi port 20-23, 80 dan 8129 dari luar / internet, misalnya dengan knock.

Saran dan atau pertanyaan ?

Thank you for watching this presentation.
For any other further enquiries, please email
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