MikroTik

USER MEETING CAMEROON

YAOUNDE 26 JANVIER 2018

Sécurisez votre routeur MIKROTIK

Presented by :

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About Aurelien D TCHUMTCHOUA

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G Suite Administrator and integrator

Network & Systeme administrator

MCP, MTCNA, Solutions Integrator

"Se réunir est un début ;

rester ensemble est un progrès ;

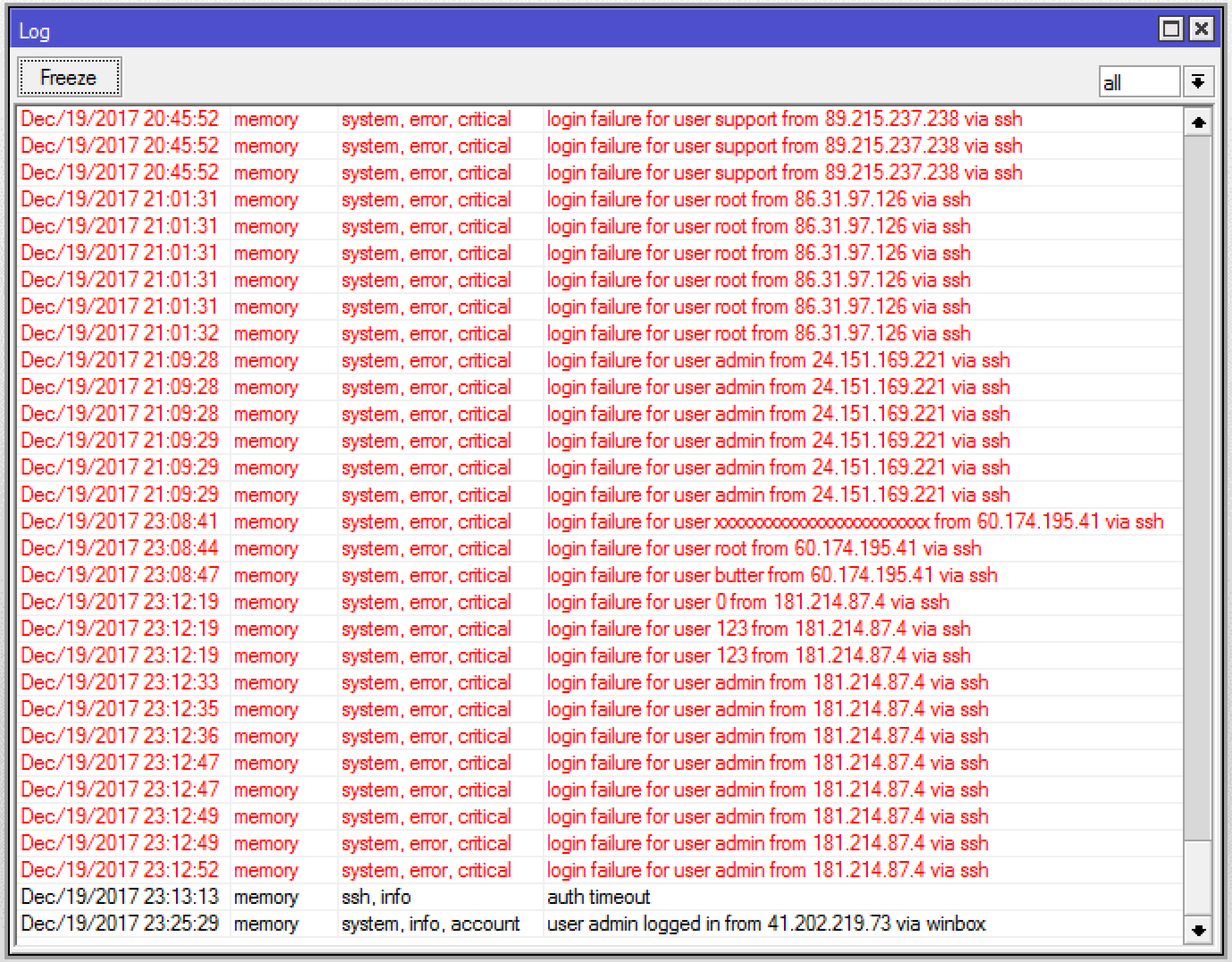
travailler ensemble est la réussite."

Henry Ford

Pourquoi ?

- ✓ Empêcher les personnes non autorisées d'accéder au système
- ✓ L'intrus peut vous voler des informations ou même vous refuser l'accès à vos ressources
- ✓ L'intrus peut utiliser vos ressources pour accéder à d'autre système

Pourquoi ?

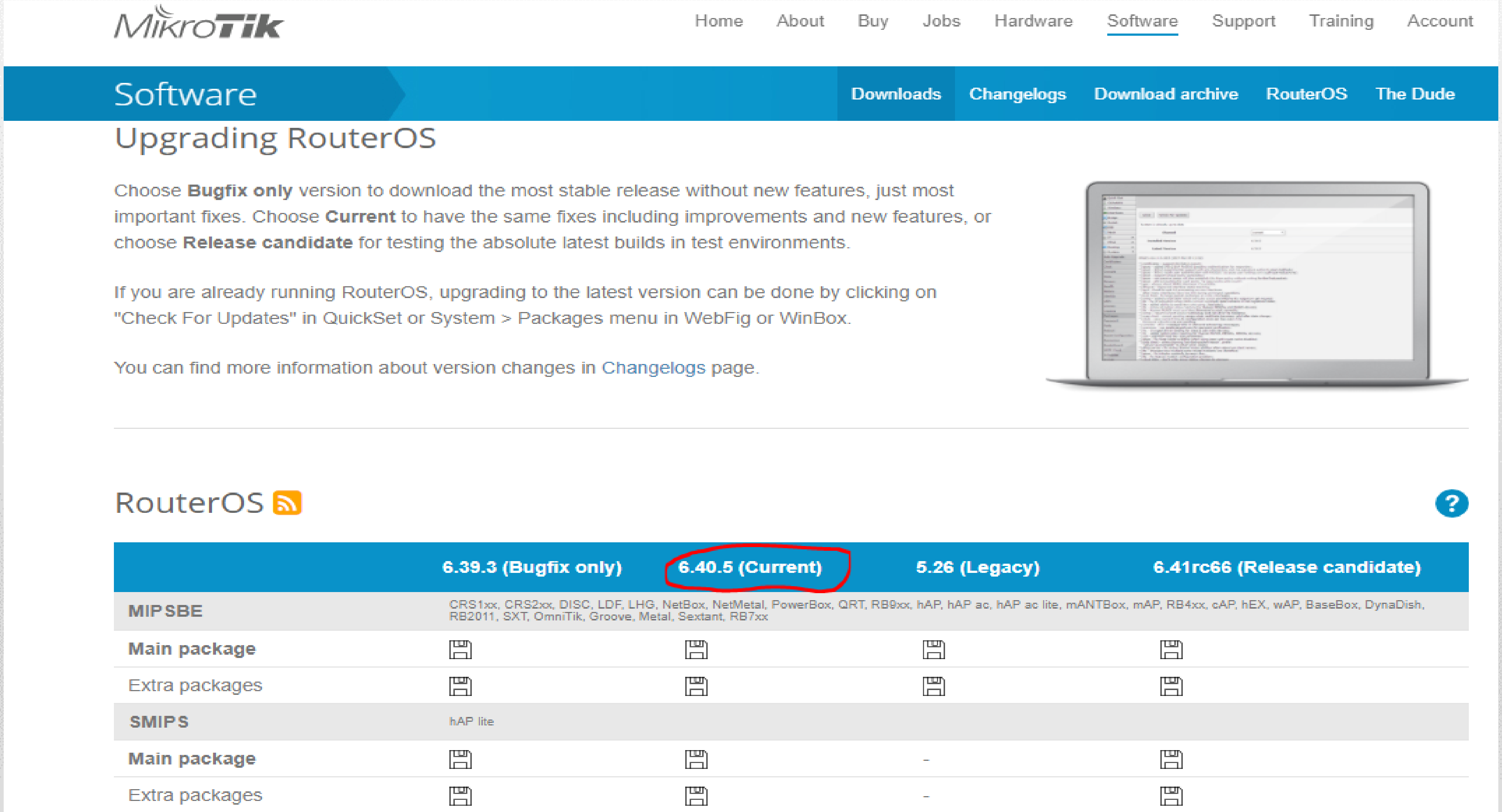


```
Dec/19/2017 20:45:52  memory  system, error, critical  login failure for user support from 89.215.237.238 via ssh
Dec/19/2017 20:45:52  memory  system, error, critical  login failure for user support from 89.215.237.238 via ssh
Dec/19/2017 20:45:52  memory  system, error, critical  login failure for user support from 89.215.237.238 via ssh
Dec/19/2017 21:01:31  memory  system, error, critical  login failure for user root from 86.31.97.126 via ssh
Dec/19/2017 21:01:31  memory  system, error, critical  login failure for user root from 86.31.97.126 via ssh
Dec/19/2017 21:01:31  memory  system, error, critical  login failure for user root from 86.31.97.126 via ssh
Dec/19/2017 21:01:31  memory  system, error, critical  login failure for user root from 86.31.97.126 via ssh
Dec/19/2017 21:01:31  memory  system, error, critical  login failure for user root from 86.31.97.126 via ssh
Dec/19/2017 21:01:32  memory  system, error, critical  login failure for user root from 86.31.97.126 via ssh
Dec/19/2017 21:09:28  memory  system, error, critical  login failure for user admin from 24.151.169.221 via ssh
Dec/19/2017 21:09:28  memory  system, error, critical  login failure for user admin from 24.151.169.221 via ssh
Dec/19/2017 21:09:28  memory  system, error, critical  login failure for user admin from 24.151.169.221 via ssh
Dec/19/2017 21:09:29  memory  system, error, critical  login failure for user admin from 24.151.169.221 via ssh
Dec/19/2017 21:09:29  memory  system, error, critical  login failure for user admin from 24.151.169.221 via ssh
Dec/19/2017 21:09:29  memory  system, error, critical  login failure for user admin from 24.151.169.221 via ssh
Dec/19/2017 23:08:41  memory  system, error, critical  login failure for user xxxxxxxxxxxxxxxxxxxxxxxxx from 60.174.195.41 via ssh
Dec/19/2017 23:08:44  memory  system, error, critical  login failure for user root from 60.174.195.41 via ssh
Dec/19/2017 23:08:47  memory  system, error, critical  login failure for user butter from 60.174.195.41 via ssh
Dec/19/2017 23:12:19  memory  system, error, critical  login failure for user 0 from 181.214.87.4 via ssh
Dec/19/2017 23:12:19  memory  system, error, critical  login failure for user 123 from 181.214.87.4 via ssh
Dec/19/2017 23:12:19  memory  system, error, critical  login failure for user 123 from 181.214.87.4 via ssh
Dec/19/2017 23:12:33  memory  system, error, critical  login failure for user admin from 181.214.87.4 via ssh
Dec/19/2017 23:12:35  memory  system, error, critical  login failure for user admin from 181.214.87.4 via ssh
Dec/19/2017 23:12:36  memory  system, error, critical  login failure for user admin from 181.214.87.4 via ssh
Dec/19/2017 23:12:47  memory  system, error, critical  login failure for user admin from 181.214.87.4 via ssh
Dec/19/2017 23:12:47  memory  system, error, critical  login failure for user admin from 181.214.87.4 via ssh
Dec/19/2017 23:12:49  memory  system, error, critical  login failure for user admin from 181.214.87.4 via ssh
Dec/19/2017 23:12:49  memory  system, error, critical  login failure for user admin from 181.214.87.4 via ssh
Dec/19/2017 23:12:52  memory  system, error, critical  login failure for user admin from 181.214.87.4 via ssh
Dec/19/2017 23:13:13  memory  ssh, info                auth timeout
Dec/19/2017 23:25:29  memory  system, info, account    user admin logged in from 41.202.219.73 via winbox
```

Comment ?

- ✓ Garder le routeur à jour
- ✓ Sécuriser l'utilisateur et le mot de passe
- ✓ Sécuriser l'accès physique
- ✓ Configurer les paquets
- ✓ Renforcement des services
- ✓ Paramétrer le pare-feu
- ✓ Journalisation
- ✓ NTP Sync
- ✓ Divers

Garder le routeur à jour



Upgrading RouterOS

Choose **Bugfix only** version to download the most stable release without new features, just most important fixes. Choose **Current** to have the same fixes including improvements and new features, or choose **Release candidate** for testing the absolute latest builds in test environments.

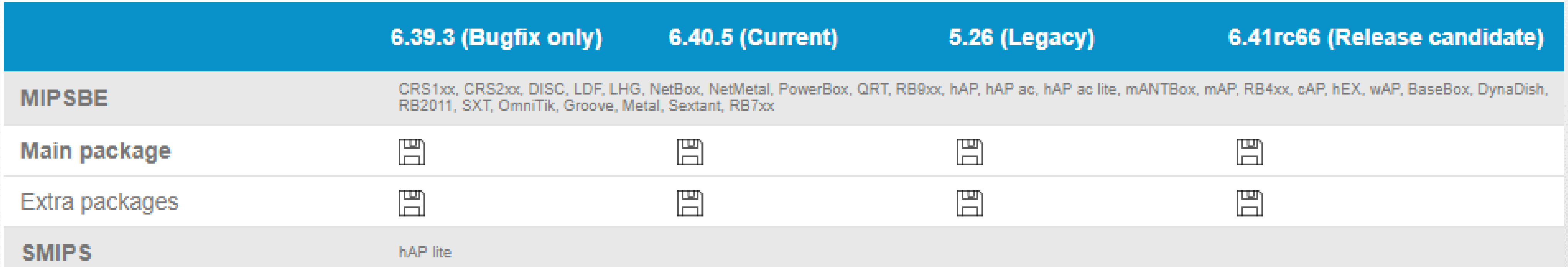
If you are already running RouterOS, upgrading to the latest version can be done by clicking on "Check For Updates" in QuickSet or System > Packages menu in WebFig or WinBox.

You can find more information about version changes in Changelogs page.

RouterOS

	6.39.3 (Bugfix only)	6.40.5 (Current)	5.26 (Legacy)	6.41rc66 (Release candidate)
MIPSBE	CRS1xx, CRS2xx, DISC, LDF, LHG, NetBox, NetMetal, PowerBox, QRT, RB9xx, hAP, hAP ac, hAP ac lite, mANTBox, mAP, RB4xx, cAP, hEX, wAP, BaseBox, DynaDish, RB2011, SXT, OmniTik, Groove, Metal, Sextant, RB7xx			
Main package	💾	💾	💾	💾
Extra packages	💾	💾	💾	💾
SMIPS	hAP lite			
Main package	💾	💾	-	💾
Extra packages	💾	💾	-	💾

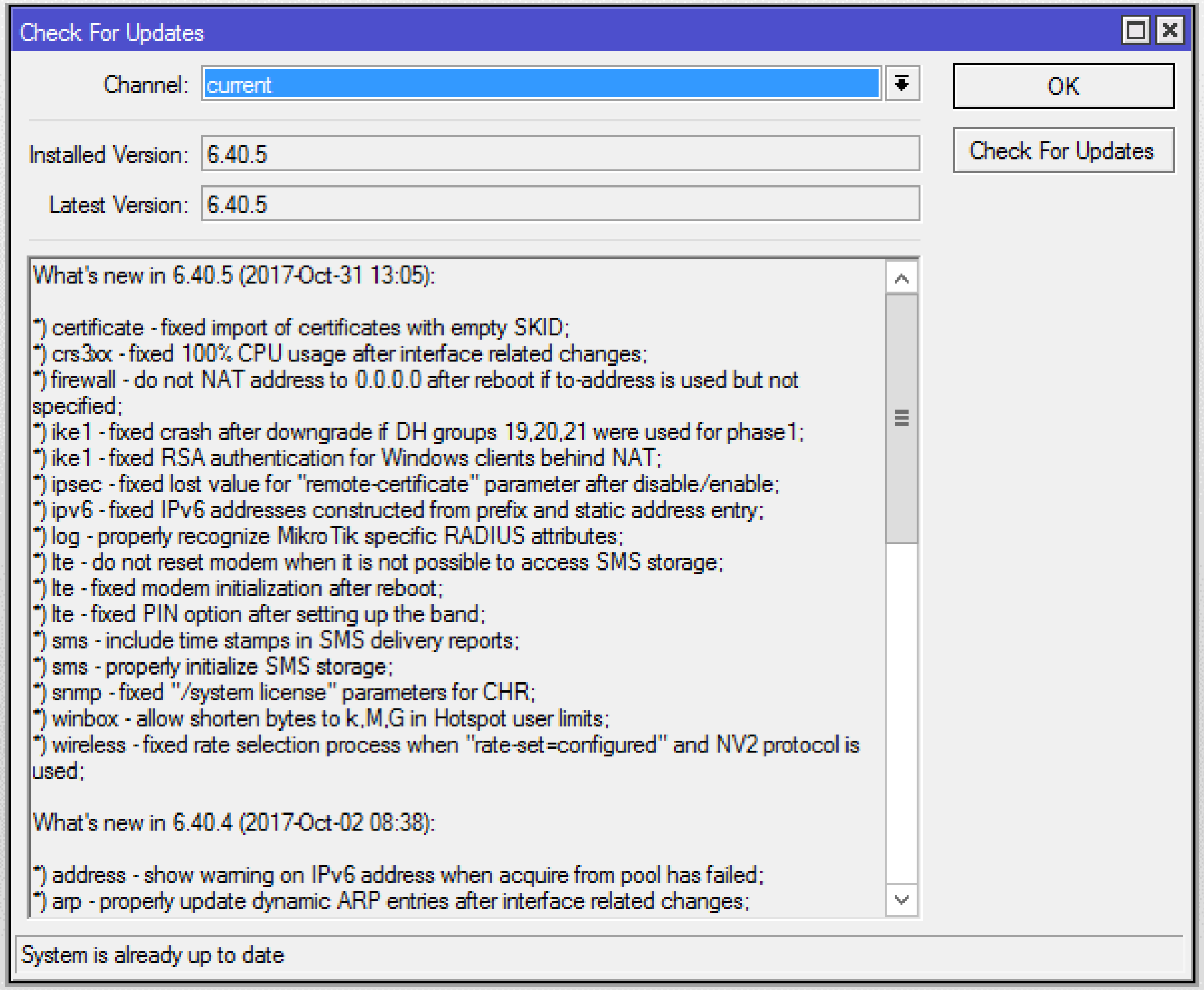
Garder le routeur à jour



	6.39.3 (Bugfix only)	6.40.5 (Current)	5.26 (Legacy)	6.41rc66 (Release candidate)
MIPSBE	CRS1xx, CRS2xx, DISC, LDF, LHG, NetBox, NetMetal, PowerBox, QRT, RB9xx, hAP, hAP ac, hAP ac lite, mANTBox, mAP, RB4xx, cAP, hEX, wAP, BaseBox, DynaDish, RB2011, SXT, OmniTik, Groove, Metal, Sextant, RB7xx			
Main package	💾	💾	💾	💾
Extra packages	💾	💾	💾	💾
SMIPS	hAP lite			

- ✓ Utiliser la version actuelle
- ✓ Vérifiez le journal des modifications avant la mise à niveau vers une version plus récente
- ✓ Télécharger depuis une source fiable
- ✓ Vérifier le fichier (MD5) lors du téléchargement depuis un site tiers

Garder le routeur à jour



Channel: current

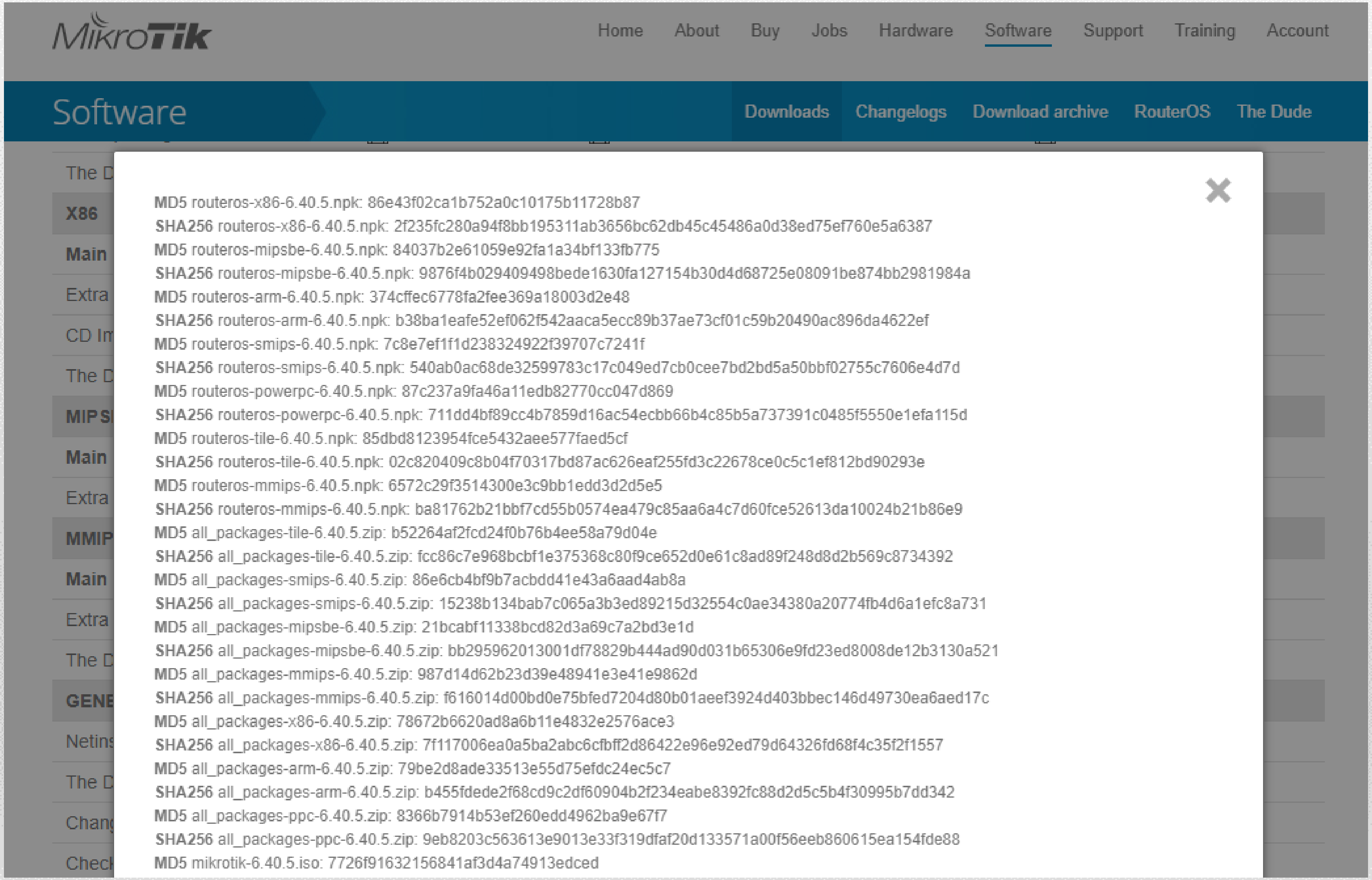
Installed Version: 6.40.5

Latest Version: 6.40.5

```
What's new in 6.40.5 (2017-Oct-31 13:05):

*) certificate - fixed import of certificates with empty SKID;
*) crs3xx - fixed 100% CPU usage after interface related changes;
*) firewall - do not NAT address to 0.0.0.0 after reboot if to-address is used but not
specified;
*) ike1 - fixed crash after downgrade if DH groups 19,20,21 were used for phase1;
*) ike1 - fixed RSA authentication for Windows clients behind NAT;
*) ipsec - fixed lost value for "remote-certificate" parameter after disable/enable;
*) ipv6 - fixed IPv6 addresses constructed from prefix and static address entry;
*) log - properly recognize MikroTik specific RADIUS attributes;
*) lte - do not reset modem when it is not possible to access SMS storage;
*) lte - fixed modem initialization after reboot;
*) lte - fixed PIN option after setting up the band;
*) sms - include time stamps in SMS delivery reports;
*) sms - properly initialize SMS storage;
*) snmp - fixed "/system license" parameters for CHR;
*) winbox - allow shorten bytes to k,M,G in Hotspot user limits;
*) wireless - fixed rate selection process when "rate-set=configured" and NV2 protocol is
used;

What's new in 6.40.4 (2017-Oct-02 08:38):

*) address - show warning on IPv6 address when acquire from pool has failed;
*) arp - properly update dynamic ARP entries after interface related changes;
```

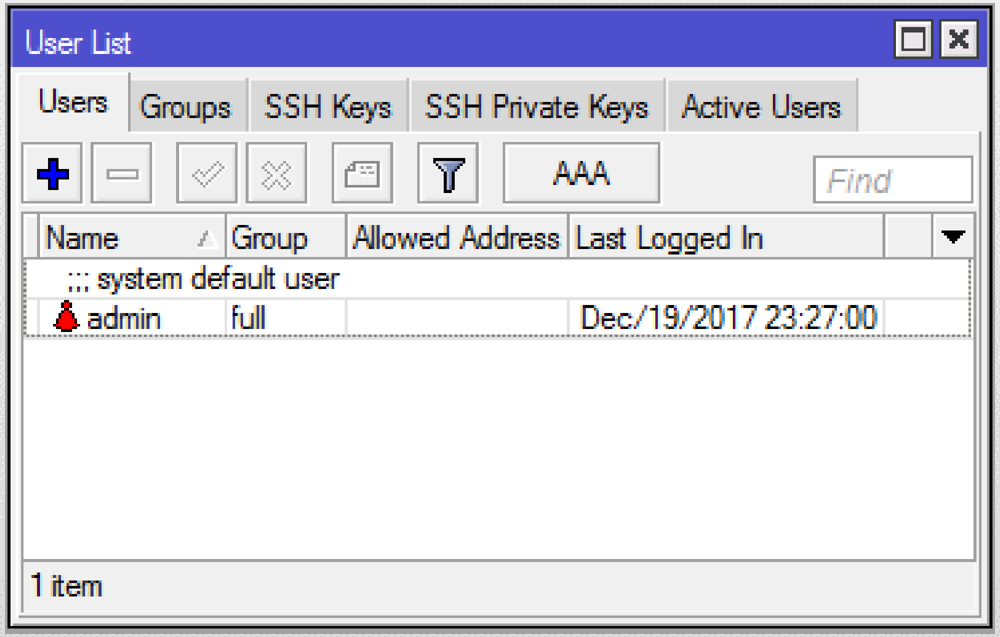
System is already up to date

Garder le routeur à jour



MD5 routeros-x86-6.40.5.npk: 86e43f02ca1b752a0c10175b11728b87
SHA256 routeros-x86-6.40.5.npk: 2f235fc280a94f8bb195311ab3656bc62db45c45486a0d38ed75ef760e5a6387
MD5 routeros-mipsbe-6.40.5.npk: 84037b2e61059e92fa1a34bf133fb775
SHA256 routeros-mipsbe-6.40.5.npk: 9876f4b029409498bede1630fa127154b30d4d68725e08091be874bb2981984a
MD5 routeros-arm-6.40.5.npk: 374cffec6778fa2fee369a18003d2e48
SHA256 routeros-arm-6.40.5.npk: b38ba1eafe52ef062f542aaca5ecc89b37ae73cf01c59b20490ac896da4622ef
MD5 routeros-smips-6.40.5.npk: 7c8e7ef1f1d238324922f39707c7241f
SHA256 routeros-smips-6.40.5.npk: 540ab0ac68de32599783c17c049ed7cb0cee7bd2bd5a50bbf02755c7606e4d7d
MD5 routeros-powerpc-6.40.5.npk: 87c237a9fa46a11edb82770cc047d869
SHA256 routeros-powerpc-6.40.5.npk: 711dd4bf89cc4b7859d16ac54ecbb66b4c85b5a737391c0485f5550e1efa115d
MD5 routeros-tile-6.40.5.npk: 85dbd8123954fce5432aee577faed5cf
SHA256 routeros-tile-6.40.5.npk: 02c820409c8b04f70317bd87ac626eaf255fd3c22678ce0c5c1ef812bd90293e
MD5 routeros-mmips-6.40.5.npk: 6572c29f3514300e3c9bb1edd3d2d5e5
SHA256 routeros-mmips-6.40.5.npk: ba81762b21bbf7cd55b0574ea479c85aa6a4c7d60fce52613da10024b21b86e9
MD5 all_packages-tile-6.40.5.zip: b52264af2fcd24f0b76b4ee58a79d04e
SHA256 all_packages-tile-6.40.5.zip: fcc86c7e968bcbf1e375368c80f9ce652d0e61c8ad89f248d8d2b569c8734392
MD5 all_packages-smips-6.40.5.zip: 86e6cb4bf9b7acbdd41e43a6aad4ab8a
SHA256 all_packages-smips-6.40.5.zip: 15238b134bab7c065a3b3ed89215d32554c0ae34380a20774fb4d6a1efc8a731
MD5 all_packages-mipsbe-6.40.5.zip: 21bcabf11338bcd82d3a69c7a2bd3e1d
SHA256 all_packages-mipsbe-6.40.5.zip: bb295962013001df78829b444ad90d031b65306e9fd23ed8008de12b3130a521
MD5 all_packages-mmips-6.40.5.zip: 987d14d62b23d39e48941e3e41e9862d
SHA256 all_packages-mmips-6.40.5.zip: f616014d00bd0e75bfed7204d80b01aeef3924d403bbec146d49730ea6aed17c
MD5 all_packages-x86-6.40.5.zip: 78672b6620ad8a6b11e4832e2576ace3
SHA256 all_packages-x86-6.40.5.zip: 7f117006ea0a5ba2abc6cfbff2d86422e96e92ed79d64326fd68f4c35f2f1557
MD5 all_packages-arm-6.40.5.zip: 79be2d8ade33513e55d75efdc24ec5c7
SHA256 all_packages-arm-6.40.5.zip: b455fdede2f68cd9c2df60904b2f234eabe8392fc88d2d5c5b4f30995b7dd342
MD5 all_packages-ppc-6.40.5.zip: 8366b7914b53ef260edd4962ba9e67f7
SHA256 all_packages-ppc-6.40.5.zip: 9eb8203c563613e9013e33f319dfaf20d133571a00f56eeb860615ea154fde88
MD5 mikrotik-6.40.5.iso: 7726f91632156841af3d4a74913edced

Sécuriser user ID & password



Name	Group	Allowed Address	Last Logged In
;;; system default user			
admin	full		Dec/19/2017 23:27:00

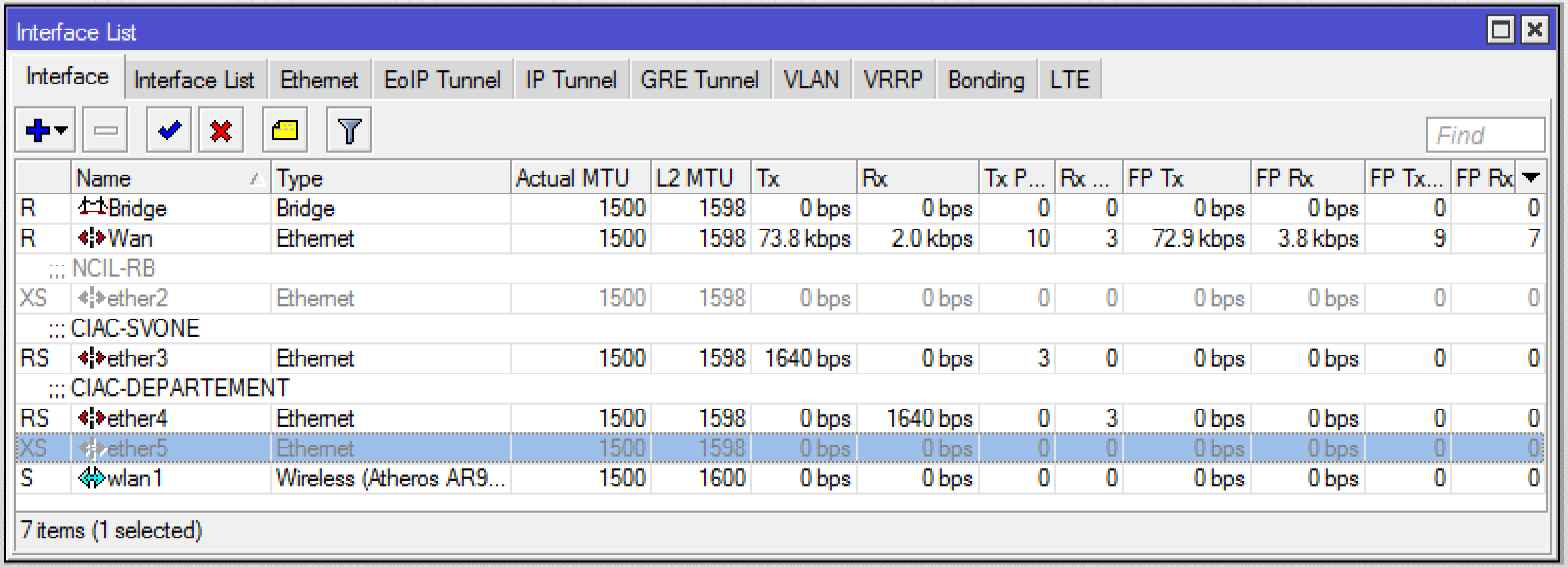
1 item

- ✓ Modifier le nom du compte administrateur
- ✓ Définir un mot de passe complexe
- ✓ Créer un compte séparé pour chaque utilisateur
- ✓ Définir l'adresse autorisée
- ✓ Placer un utilisateur en lecture seule dans le groupe "lire"

Sécuriser l'accès physique

- ✓ En cas de présente d’un port console, s’il n’est pas utilisé bien vouloir le désactiver (facultatif)
- ✓ Toujours déconnecter sa session console
- ✓ Désactiver les interfaces inutilisées
- ✓ Ne pas configurer les interfaces inutilisées (facultatif)

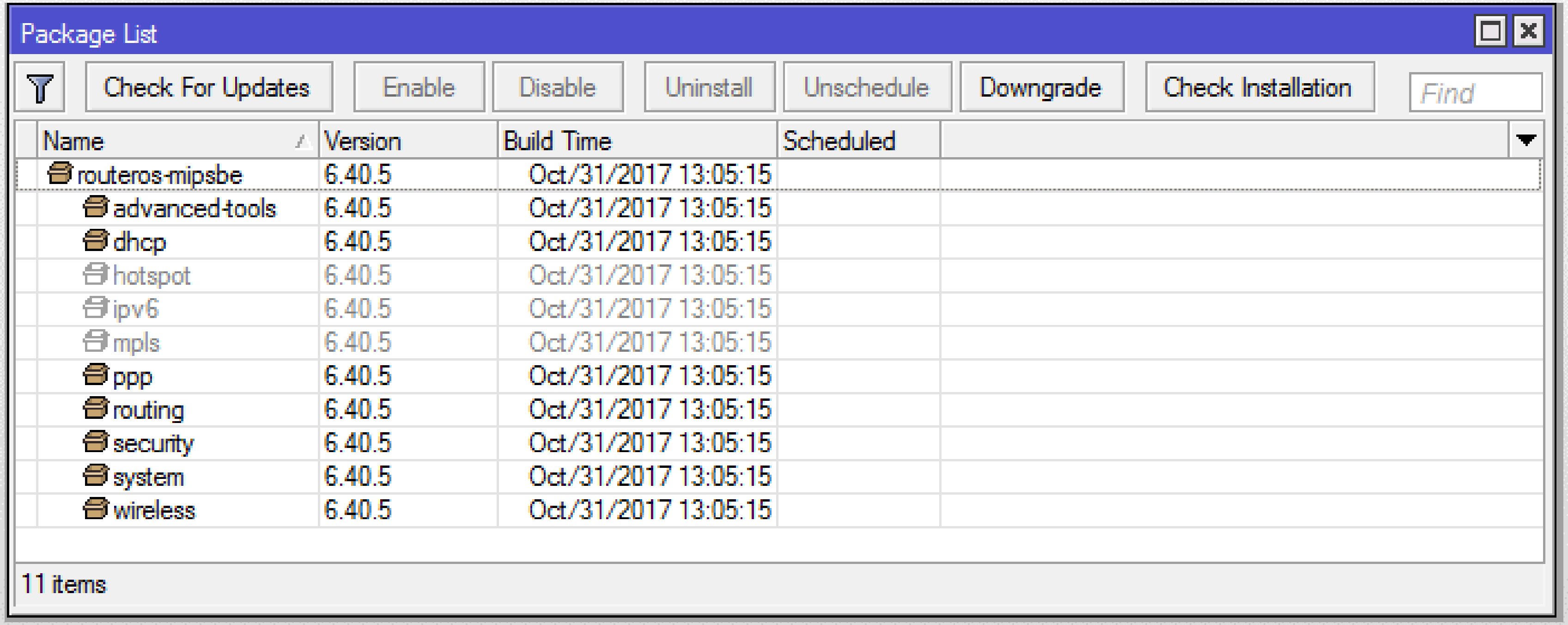
Sécuriser l'accès physique



	Name	Type	Actual MTU	L2 MTU	Tx	Rx	Tx P...	Rx ...	FP Tx	FP Rx	FP Tx...	FP Rx
R	Bridge	Bridge	1500	1598	0 bps	0 bps	0	0	0 bps	0 bps	0	0
R	Wan	Ethernet	1500	1598	73.8 kbps	2.0 kbps	10	3	72.9 kbps	3.8 kbps	9	7
	;;; NCIL-RB											
XS	ether2	Ethernet	1500	1598	0 bps	0 bps	0	0	0 bps	0 bps	0	0
	;;; CIAC-SVONE											
RS	ether3	Ethernet	1500	1598	1640 bps	0 bps	3	0	0 bps	0 bps	0	0
	;;; CIAC-DEPARTEMENT											
RS	ether4	Ethernet	1500	1598	0 bps	1640 bps	0	3	0 bps	0 bps	0	0
XS	ether5	Ethernet	1500	1598	0 bps	0 bps	0	0	0 bps	0 bps	0	0
S	wlan1	Wireless (Atheros AR9...	1500	1600	0 bps	0 bps	0	0	0 bps	0 bps	0	0

7 items (1 selected)

Configuration des paquets

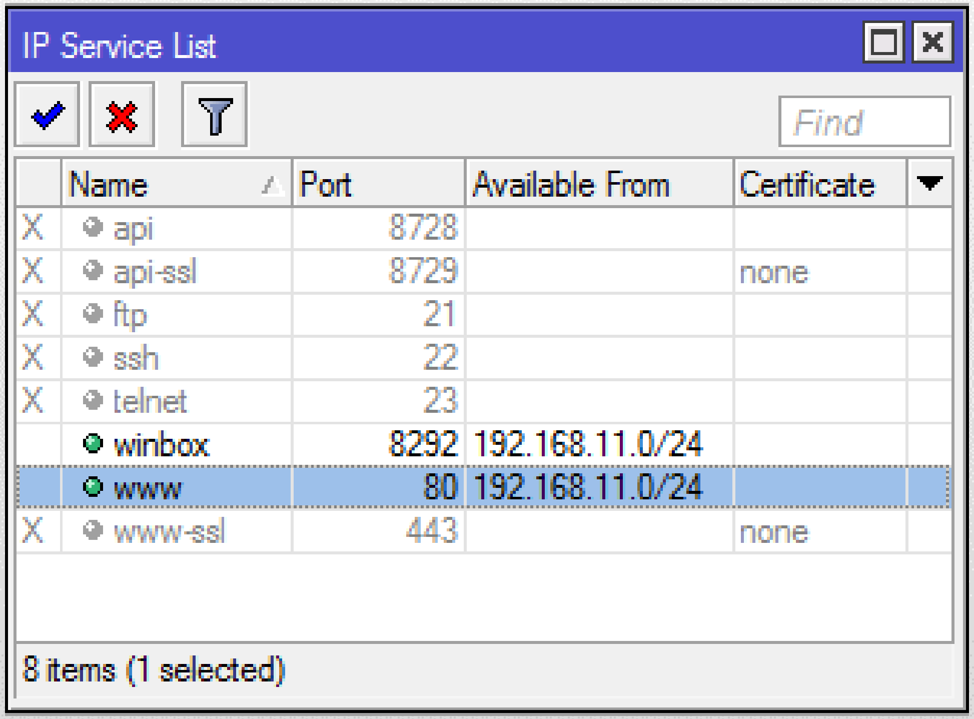


Name	Version	Build Time	Scheduled
routeros-mipsbe	6.40.5	Oct/31/2017 13:05:15	
advanced-tools	6.40.5	Oct/31/2017 13:05:15	
dhcp	6.40.5	Oct/31/2017 13:05:15	
hotspot	6.40.5	Oct/31/2017 13:05:15	
ipv6	6.40.5	Oct/31/2017 13:05:15	
mpls	6.40.5	Oct/31/2017 13:05:15	
ppp	6.40.5	Oct/31/2017 13:05:15	
routing	6.40.5	Oct/31/2017 13:05:15	
security	6.40.5	Oct/31/2017 13:05:15	
system	6.40.5	Oct/31/2017 13:05:15	
wireless	6.40.5	Oct/31/2017 13:05:15	

11 items

- ✓ Désactiver les packages inutilisés
- ✓ Vérifier les paquets installés
- ✓ Vérifier la version de chaque paquet

Sécurisation des services



	Name	Port	Available From	Certificate
X	api	8728		
X	api-ssl	8729		none
X	ftp	21		
X	ssh	22		
X	telnet	23		
	winbox	8292	192.168.11.0/24	
	www	80	192.168.11.0/24	
X	www-ssl	443		none

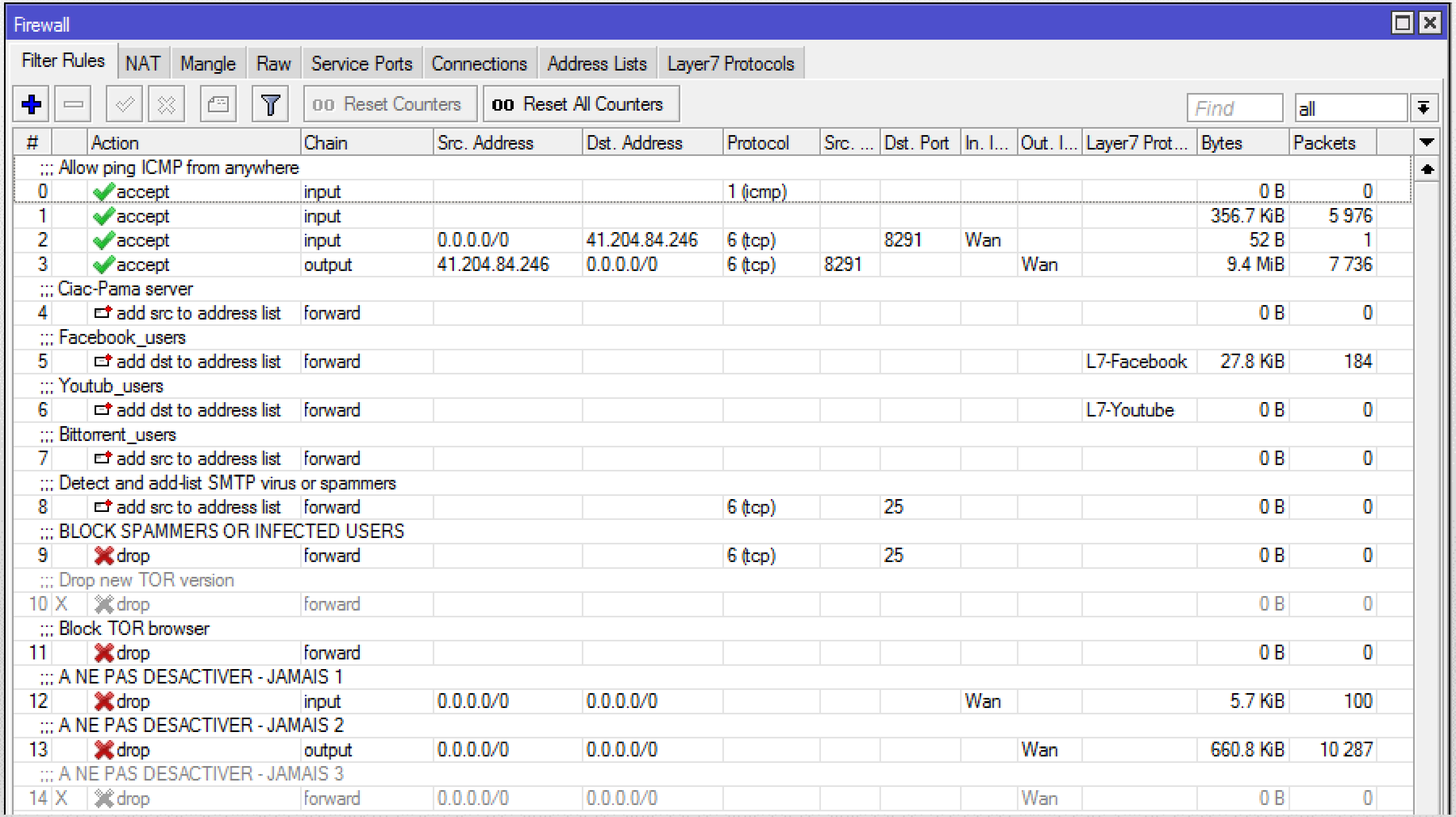
8 items (1 selected)

- ✓ Désactiver le service non sécurisé (Ex. Telnet)
- ✓ Changer le port de service (facultatif)
- ✓ Désactiver le service inutilisé
- ✓ Définir des listes d'accès pour chaque service

Paramétrage du pare-feu

- ✓ Le paramétrage du pare-feu ajoute une couche de sécurité
- ✓ Configurer le port knocking (facultatif)

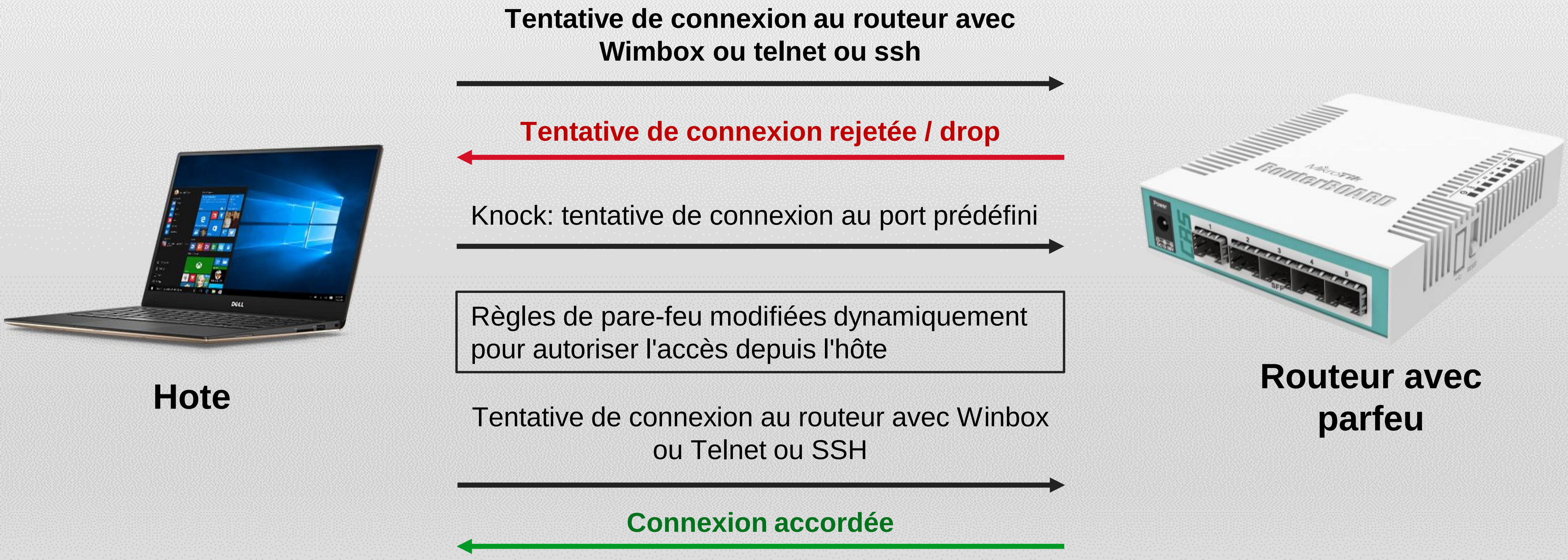
Paramétrage du pare-feu



#		Action	Chain	Src. Address	Dst. Address	Protocol	Src. ...	Dst. Port	In. I...	Out. I...	Layer7 Prot...	Bytes	Packets
;;; Allow ping ICMP from anywhere													
0		✓ accept	input			1 (icmp)						0 B	0
1		✓ accept	input									356.7 KiB	5 976
2		✓ accept	input	0.0.0.0/0	41.204.84.246	6 (tcp)		8291	Wan			52 B	1
3		✓ accept	output	41.204.84.246	0.0.0.0/0	6 (tcp)	8291			Wan		9.4 MiB	7 736
;;; Ciac-Pama server													
4		add src to address list	forward									0 B	0
;;; Facebook_users													
5		add dst to address list	forward								L7-Facebook	27.8 KiB	184
;;; Youtub_users													
6		add dst to address list	forward								L7-Youtube	0 B	0
;;; Bittorrent_users													
7		add src to address list	forward									0 B	0
;;; Detect and add-list SMTP virus or spammers													
8		add src to address list	forward			6 (tcp)		25				0 B	0
;;; BLOCK SPAMMERS OR INFECTED USERS													
9		✗ drop	forward			6 (tcp)		25				0 B	0
;;; Drop new TOR version													
10	X	✗ drop	forward									0 B	0
;;; Block TOR browser													
11		✗ drop	forward									0 B	0
;;; A NE PAS DESACTIVER - JAMAIS 1													
12		✗ drop	input	0.0.0.0/0	0.0.0.0/0				Wan			5.7 KiB	100
;;; A NE PAS DESACTIVER - JAMAIS 2													
13		✗ drop	output	0.0.0.0/0	0.0.0.0/0					Wan		660.8 KiB	10 287
;;; A NE PAS DESACTIVER - JAMAIS 3													
14	X	✗ drop	forward	0.0.0.0/0	0.0.0.0/0					Wan		0 B	0

Paramétrage du pare-feu

Port Knockin process



Tentative de connexion au routeur avec Wimbox ou telnet ou ssh

Tentative de connexion rejetée / drop

Knock: tentative de connexion au port prédéfini

Règles de pare-feu modifiées dynamiquement pour autoriser l'accès depuis l'hôte

Tentative de connexion au routeur avec Winbox ou Telnet ou SSH

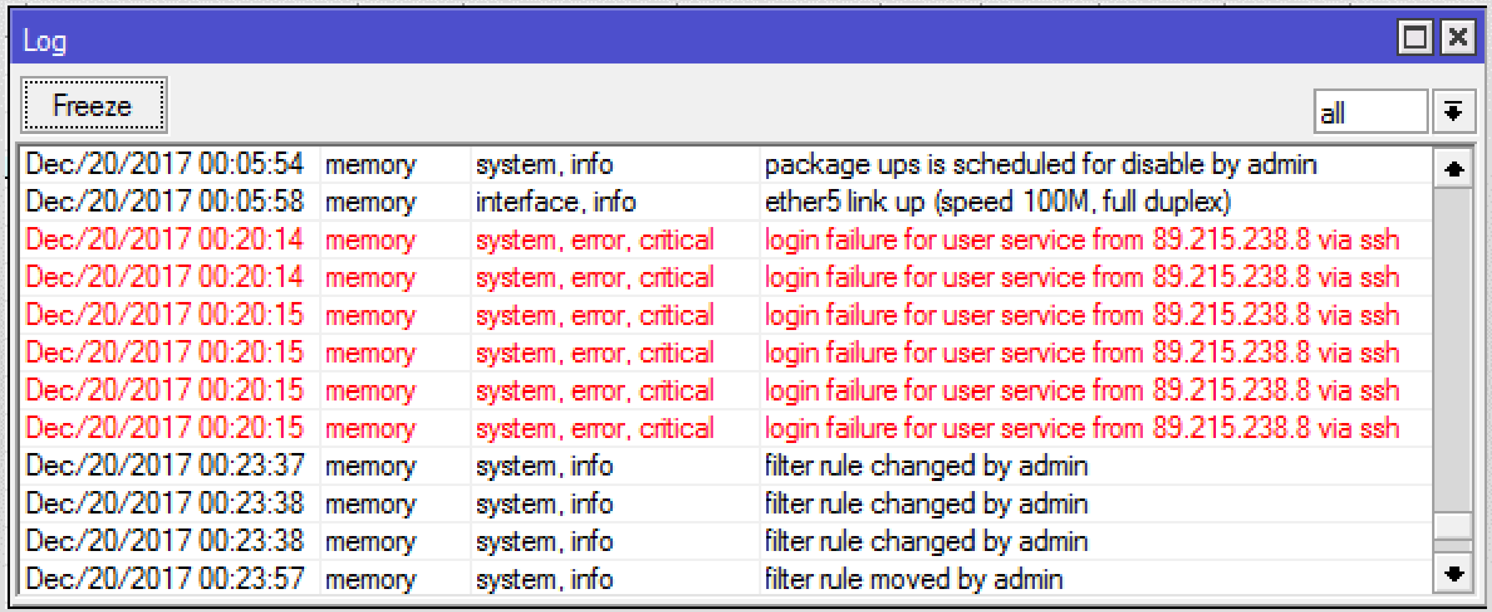
Connexion accordée

Hote

Routeur avec parfeu

Journalisation

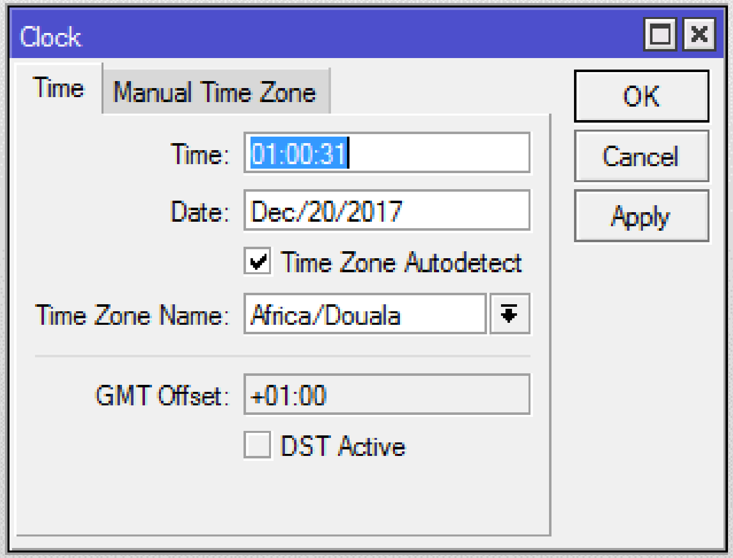
- ✓ Journalisation de la surveillance
- ✓ Sauvegarder sur le disque (journal RouterOS par défaut en mémoire)
- ✓ Transféré le journal vers un serveur syslog



```
Dec/20/2017 00:05:54  memory  system, info              package ups is scheduled for disable by admin
Dec/20/2017 00:05:58  memory  interface, info           ether5 link up (speed 100M, full duplex)
Dec/20/2017 00:20:14  memory  system, error, critical   login failure for user service from 89.215.238.8 via ssh
Dec/20/2017 00:20:14  memory  system, error, critical   login failure for user service from 89.215.238.8 via ssh
Dec/20/2017 00:20:15  memory  system, error, critical   login failure for user service from 89.215.238.8 via ssh
Dec/20/2017 00:20:15  memory  system, error, critical   login failure for user service from 89.215.238.8 via ssh
Dec/20/2017 00:20:15  memory  system, error, critical   login failure for user service from 89.215.238.8 via ssh
Dec/20/2017 00:20:15  memory  system, error, critical   login failure for user service from 89.215.238.8 via ssh
Dec/20/2017 00:23:37  memory  system, info              filter rule changed by admin
Dec/20/2017 00:23:38  memory  system, info              filter rule changed by admin
Dec/20/2017 00:23:38  memory  system, info              filter rule changed by admin
Dec/20/2017 00:23:57  memory  system, info              filter rule moved by admin
```

NTP Sync

- ✓ Définir le fuseau horaire
- ✓ Synchroniser l'heure avec un serveur NTP ou le service de IP cloud



Time: 01:00:31

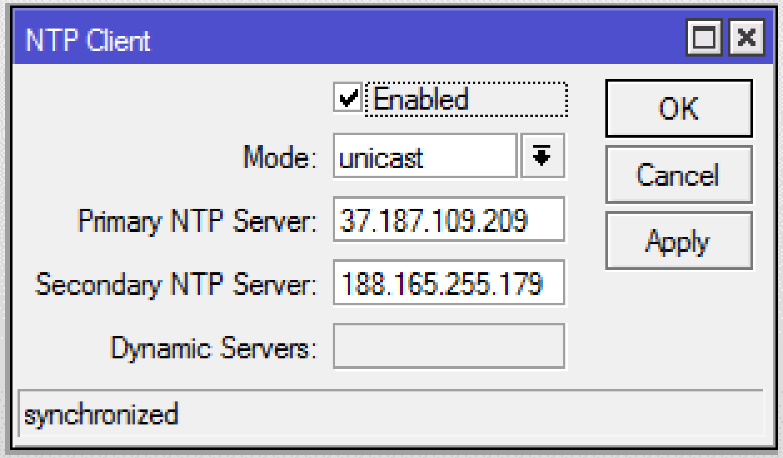
Date: Dec/20/2017

☑ Time Zone Autodetect

Time Zone Name: Africa/Douala

GMT Offset: +01:00

□ DST Active



☑ Enabled

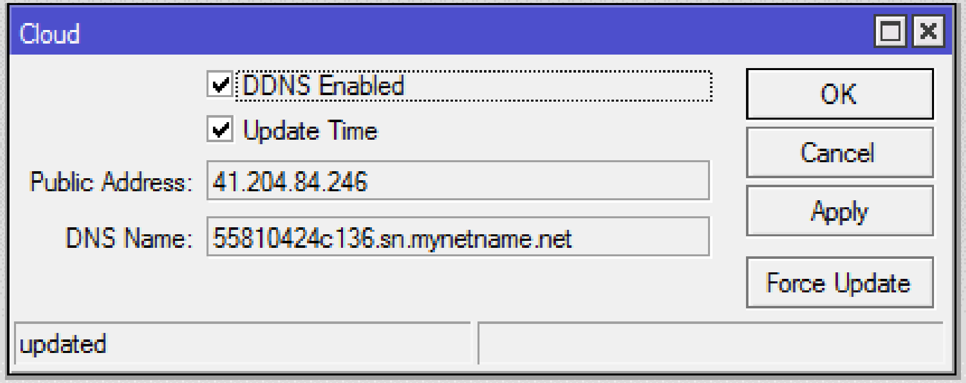
Mode: unicast

Primary NTP Server: 37.187.109.209

Secondary NTP Server: 188.165.255.179

Dynamic Servers:

synchronized



☑ DDNS Enabled

☑ Update Time

Public Address: 41.204.84.246

DNS Name: 55810424c136.sn.mynetname.net

updated

Autres

- ✓ Bail DHCP statique
- ✓ Sécurité Wi-Fi
- ✓ Sauvegardé la configuration avec un mot de passe crypté
- ✓ Bloquer la découverte Winbox
- ✓ Désactiver la découverte du voisinage de réseau

?

Questions

L'Entreprise

TAD-IT & SERVICES est une entreprise de conseils et de services dédiée aux nouvelles technologies de l'information. Notre objectif est de satisfaire les clients que nous accompagnions et d'établir avec eux un partenariat à long terme.

Nous intervenons principalement sur tous les secteurs d'activité de l'économie et nous œuvrons dans l'accompagnement de nos clients sur les axes suivants :

- ✓ Infrastructure réseau et systèmes
- ✓ Intégration des solutions d'entreprise
- ✓ Métiers du digital
- ✓ Infogérance

Merci !

TAD-IT & SERVICES

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