

### **CONFIGURAZIONE MIKROTIK - GUI**



lliad.it

### **CONFIGURAZIONE MIKROTIK - GUI**

#### CONNESSIONE ALL'APPARATO

Effettuare il download di Winbox dal seguente link: <u>https://mikrotik.com/download</u> Note: Verificare compatibilità con sistema operativo utilizzato. Se compatibile, procedere con gli step seguenti.

- 1. Collegare il router Mikrotik e il proprio PC tramite cavo RJ-45. Di default, tutte le porte del router sono attive.
- 2. Aprire Winbox sul device utilizzato per effettuare la configurazione e verificare che nella sezione neighbors venga rilevato il router Mikrotik
- 3. Effettuare il login con i parametri di default Login: admin (no password)

Connect To:							Keep P	browees	
Login.	admin						Open In	n New Win	low
Password							]		
	Add/Set					Connect To RoMON Connect	]		
Managed Neig	phoors							11.5	
T Refresh							Find	al	
MAC Address	IP Address	Identity MikroTik	Version 6.46.1 (stable)	Board	Uptime 00.12.54				

4. Rimuovere la "default config" che si presenta al primo avvio come da esempio che segue e attendere il reboot. Al termine del riavvio, effettuare nuovamente il login seguendo i punti 2 e 3.



5. La schermata di winbox dovrà presentarsi come segue:

_	
	Quick Set
	T CAPSMAN
	m Interfaces
	7 Wreless
	Octor
	n bioge
	CE PPP
	= Switch
	15 Mesh
	92 IP
	MPLS
	분 IPv6
	Kouting
	System
	Queues
	Files
	E Log
	A RADIUS
	Tools
	New Lemmal
	Oude >
	Custing .
	<ul> <li>Partition</li> </ul>
	Make Supout rif
	New WinBox
	📕 Exit
â	
E.	
s	
La C	
đ	
άž,	

### CONFIGURAZIONE INTERFACCE FISICHE/VIRTUALI E WIRELESS

- 6. Partendo dal punto 5:
  - Selezionare System  $\rightarrow$  Packages  $\rightarrow$  Selezionare ipv6  $\rightarrow$  Enable
  - Selezionare System  $\rightarrow$  Reboot: Yes
- 7. Partendo dal punto 5:
  - Selezionare Interfaces  $\rightarrow$  +  $\rightarrow$  Bridge  $\rightarrow$  Name : WAN  $\rightarrow$  OK
  - Selezionare Interfaces  $\rightarrow$  +  $\rightarrow$  Bridge  $\rightarrow$  Name : LAN  $\rightarrow$  OK
  - Selezionare Interfaces  $\rightarrow$  +  $\rightarrow$  Bridge  $\rightarrow$  Name : LAN-VOIP  $\rightarrow$  OK
  - Selezionare Interfaces  $\rightarrow$  +  $\rightarrow$  VLAN  $\rightarrow$  Name: WAN:836  $\rightarrow$  VLAN ID: 836  $\rightarrow$  Interface: WAN
  - Selezionare Interfaces  $\rightarrow$  +  $\rightarrow$  IPIPV6 Tunnel  $\rightarrow$  Name: ipipv6-tunnel1  $\rightarrow$  Local Address: Dato disponibile in
  - area personale  $\rightarrow$  Remote Address: Dato disponibile in area personale  $\rightarrow$  OK
  - Selezionare Interfaces  $\rightarrow$  wlan1 o wlan2  $\rightarrow$  Wireless  $\rightarrow$  Mode: AP bridge

Note: Avendo la possibilità di modificare i parametri in base alle proprio esigenze, un esempio di configurazione potrebbe essere come segue:

Interface <	wlan1>											
General	Wireless	Data Rates	Advanced	HT	HT MCS	WDS	Nstreme	NV2	Tx Power	Current Tx Power	Status	Traffic
	Mode	ap bridge										
Band Channel Width Frequency Secondary Channel		: 5GHz-A/N/	AC									
		: 20/40/80M	Hz Ceee									
		5180										
		l:										
	SSID	Home										
1	Radio Name	: 2CC81B413	2CC81B413B14									
	Scan List	: default										
Skip DF	FS Channels	: disabled										
Wirel	ess Protocol	: any										
Se	curity Profile	: default										
Interwo	orking Profile	: disabled										
	WPS Mode	: push button	1									
Frequ	uency Mode	regulatory-d	omain									
	Country	italy										
	Installation	: indoor										
W	MM Support	: disabled										
	Bridge Mode	: enabled										
	VLAN Mode	: no tag										
	VLAN ID	: 1										
Default	t AP Tx Limit											
Default C	lient Tx Limit											
				-								
		✓ Default A	Authenticate									
		✓ Default F	orward									
		Hide SSI	D									
Mult	ticast Helper	: default										
		✓ Multicast	Buffering									
		✓ Keepaliv	e Frames									

### 8. Partendo dal punto 5:

- Selezionare Wireless  $\rightarrow$  doppio click su default  $\rightarrow$  Mode: dynamic keys  $\rightarrow$  Authentication Types: WPA PSK, WPA2 PSK  $\rightarrow$  Unicast Ciphers: aes ccm,tkip  $\rightarrow$  Group Ciphers: aes ccm,tkip Note: Nelle sezioni successive "WPA Pre-Shared Key" e "WPA2 Pre-Shared Key" configurare la password del

Note: Nelle sezioni successive "WPA Pre-Shared Key" e "WPA2 Pre-Shared Key" configurare la password del WIFI associata all'SSID scelto nel punto 6

### CONFIGURAZIONE BRIDGE

- 9. Partendo dal punto 5:
  - Selezionare Bridge  $\rightarrow$  Ports  $\rightarrow$  +  $\rightarrow$  Interface: sfp-sfpplus1  $\rightarrow$  Bridge: WAN  $\rightarrow$  OK
  - Selezionare Bridge  $\rightarrow$  Ports  $\rightarrow$  +  $\rightarrow$  Interface: ether1  $\rightarrow$  Bridge: LAN  $\rightarrow$  OK
  - Selezionare Bridge  $\rightarrow$  Ports  $\rightarrow$  +  $\rightarrow$  Interface: ether2  $\rightarrow$  Bridge: LAN  $\rightarrow$  OK
  - Selezionare Bridge  $\rightarrow$  Ports  $\rightarrow$  +  $\rightarrow$  Interface: ether3  $\rightarrow$  Bridge: LAN  $\rightarrow$  OK [...] fino alla porta ether9
  - Selezionare Bridge  $\rightarrow$  Ports  $\rightarrow$  +  $\rightarrow$  Interface: wlan1  $\rightarrow$  Bridge: LAN  $\rightarrow$  OK
  - Selezionare Bridge  $\rightarrow$  Ports  $\rightarrow$  +  $\rightarrow$  Interface: wlan2  $\rightarrow$  Bridge: LAN  $\rightarrow$  OK
  - Selezionare Bridge  $\rightarrow$  Ports  $\rightarrow$  +  $\rightarrow$  Interface: ether10  $\rightarrow$  Bridge: LAN-VOIP  $\rightarrow$  OK

### CONFIGURAZIONE IPv4 ADDRESSING

10. Partendo dal punto 5:

- Selezionare IP  $\rightarrow$  Addresses  $\rightarrow$  +  $\rightarrow$  Address: Dato disponibile in area personale  $\rightarrow$  Interface: ipipv6-tunnel1  $\rightarrow$ OK

- Selezionare IP  $\rightarrow$  Addresses  $\rightarrow$  +  $\rightarrow$  Address: 192.168.1.1/24  $\rightarrow$  Interface: LAN  $\rightarrow$  OK

Note: L'IP utilizzato è d'esempio, è possibile utilizzare qualsiasi altra classe IP privata riportata nella documentazione RFC 1597 e 1918

- Selezionare IP  $\rightarrow$  Addresses  $\rightarrow$  +  $\rightarrow$  Address: 192.168.2.1/24  $\rightarrow$  Interface: LAN-VOIP $\rightarrow$  OK

- Selezionare IP  $\rightarrow$  Pool  $\rightarrow$  +  $\rightarrow$ Name: DHCP-LAN  $\rightarrow$  Addresses: 192.168.1.2-192.168.1.254  $\rightarrow$  OK

Note: Gli IP utilizzati sono d'esempio, è possibile utilizzare qualsiasi altra classe IP riportata nella documentazione RFC 1597 e 1918.

- Selezionare IP  $\rightarrow$  DHCP Server  $\rightarrow$  +  $\rightarrow$ Name: DHCP-LAN  $\rightarrow$  Interface: LAN  $\rightarrow$  Address Pool: DHCP-LAN  $\rightarrow$  OK

- Selezionare IP  $\rightarrow$  DHCP Server  $\rightarrow$  Networks  $\rightarrow$  +  $\rightarrow$  Address: 192.168.1.0/24  $\rightarrow$  Gateway: 192.168.1.1  $\rightarrow$  DNS Server: 8.8.8.8.8.4.4  $\rightarrow$  OK

Note: Verificare che nella sezione Leases il dispositivo/dispositivi collegati abbiano ricevuto un IP dal DHCP server ( in questo caso la Mikrotik )

- Selezionare IP  $\rightarrow$  Pool  $\rightarrow$  +  $\rightarrow$ Name: DHCP-VOIP-LAN $\rightarrow$  Addresses: 192.168.2.2-192.168.2.254  $\rightarrow$  OK

Note: Gli IP utilizzati sono d'esempio, è possibile utilizzare qualsiasi altra classe IP riportata nella documentazione RFC 1597 e 1918. In questa sezione è fondamentale configurare un range di IP disponibili.

- Selezionare IP  $\rightarrow$  DHCP Server  $\rightarrow$  +  $\rightarrow$ Name: DHCP-VOIP-LAN  $\rightarrow$  Interface: LAN-VOIP  $\rightarrow$  Address Pool: DHCP-VOIP-LAN  $\rightarrow$  OK

- Selezionare IP  $\rightarrow$  DHCP Server  $\rightarrow$  Networks  $\rightarrow$  +  $\rightarrow$  Address: 192.168.2.0/24  $\rightarrow$  Gateway: 192.168.2.1  $\rightarrow$  DNS Server: 8.8.8,8.8.4.4  $\rightarrow$  OK

Note: Verificare che nella sezione Leases il dispositivo/dispositivi collegati abbiano ricevuto un IP dal DHCP server ( in questo caso la Mikrotik )

- Selezionare IP  $\rightarrow$  Firewall  $\rightarrow$  NAT  $\rightarrow$  +  $\rightarrow$  Chain: srcnat  $\rightarrow$  Src. Address: 192.168.1.0/24  $\rightarrow$  Action  $\rightarrow$  Action: masquerade  $\rightarrow$  OK

- Selezionare IP  $\rightarrow$  Routes  $\rightarrow$  +  $\rightarrow$  Dst. Address: 0.0.0.0/0  $\rightarrow$  Gateway: ipipv6-tunnel1  $\rightarrow$  OK

### CONFIGURAZIONE IPv6 ADDRESSING

11. Partendo dal punto 5:

- Selezionare IPv6  $\rightarrow$  Addresses  $\rightarrow$  +  $\rightarrow$  Addresses: Dato disponibile in area personale  $\rightarrow$  Interface: ipipv6-tunnel1  $\rightarrow$  OK

- Selezionare IPv6  $\rightarrow$  DHCP Client  $\rightarrow$  +  $\rightarrow$  DHCP  $\rightarrow$  Interface: WAN:836  $\rightarrow$  Request: Selezionare address,prefix  $\rightarrow$  Pool Name: ipv6-pool  $\rightarrow$  Selezionare "Use Peer DNS, Rapid Commit, Add default Route  $\rightarrow$  OK  $\rightarrow$  Click sulla voce "Release"

- Selezionare IPv6  $\rightarrow$  Addresses  $\rightarrow$  +  $\rightarrow$  Addresses: ::192:168:1:1/64  $\rightarrow$  From Pool: : ipv6-pool  $\rightarrow$  Interface: LAN  $\rightarrow$  Selezionare Advertise  $\rightarrow$  OK

- Selezionare IPv6  $\rightarrow$  Addresses  $\rightarrow$  +  $\rightarrow$  Addresses: ::192:168:2:1/64  $\rightarrow$  From Pool: : ipv6-pool  $\rightarrow$  Interface: LAN-VOIP  $\rightarrow$  Selezionare Advertise  $\rightarrow$  OK

- Selezionare IPv6  $\rightarrow$  Routes  $\rightarrow$  +  $\rightarrow$  Dst. Address: Dato disponibile in area personale  $\rightarrow$  Gateway:WAN  $\rightarrow$  OK

### PERSONALIZZARE CREDENZIALI DI ACCESSO ALL'APPARATO

Come best practices una volta effettuate le configurazioni, si consiglia dalla schermata di winbox (punto 5):

New Terminal → copiare e incollare
 /user add name=myname password=mypassword group=full
 /user remove admin

Note: "Myname" e "mypassword" sono valori di default che devono essere cambiati con le credenziali che si vogliono utilizzare per collegarsi all'apparato.

- New Terminal → copiare e incollare /ip service set telnet disabled=yes set ftp disabled=yes set www disabled=yes set api disabled=yes set api-ssl disabled=yes

Per maggiori dettagli

- https://wiki.mikrotik.com/wiki/Manual:Securing\_Your\_Router
- https://wiki.mikrotik.com/wiki/Main\_Page

#### lliad.it

### iliad

### **CONFIGURAZIONE VOIP – ESEMPIO CON GRANDSTREAM H813**

Di seguito i dati necessari per la configurazione del dispositivo e le relative schermate.

- SIP USERNAME: Dato disponibile in area personale
- SIP PASSWORD: Dato disponibile in area personale
- SIP DOMAIN: voip.iliad.it
- SIP OUTBOUND PROXY: Dato disponibile in area personale
- SIP PORT: 5060
- SIP PROTOCOL: UDP

#### https://www.grandstream.com/hubfs/Product\_Documentation/HT813\_User\_Guide.pdf

Internet Protocol: O IP	v4 Only	IPv6 Only	Both, prefer IPv4	O Both, prefer IPv6
Disable SIP NOTIFY Authenticate	ion: 🔘 No	• Yes (Device)	will not challenge NOTIFY wit	h 401 when set to Yes)
Authenticate Conf F	'ile: 🔘 No	Yes (cfg file	would be authenticated before	acceptance if set to Yes)
Validate Server Certifica	tes: 🔘 No	Yes (validate	server certificates with our trus	ted list of TLS connections)
Account Active:	O No	Yes		
Primary SIP Server:			(e.g., sip.mycompany.com,	or IP address)
Failover SIP Server:			(Optional, used when prim	ary server no response)
Prefer Primary SIP Server:	No (	Yes (yes - will r	egister to Primary Server if Fail	over registration expires)
Outbound Proxy:			(e.g., proxy.myprovider.com	m, or IP address, if any)
Backup Outbound Proxy:			(e.g., proxy.myprovider.com	m, or IP address, if any)
Prefer Primary Outbound	No (	Vac (yes will a	aragistar via Primary Outhound	Drovy if registration evolves)
Proxy:		les (yes-wiir	cicgister via Filinary Outooulu	Proxy in registration expires)
Allow DHCP Option 120 (override SIP server):	🔘 No	Yes		
SIP Transport:	O UDP	○ TCP ○ TLS	(default is UDP)	
SIP URI Scheme When Using				
TLS:	U sip	sips		
Use Actual Ephemeral Port in Contact with TCP/TLS:	🔘 No	Yes		
NAT Traversal	O No	Keen-Alive		
SIP User ID:			(the user part of an SIP add	ress)
Authenticate ID:			(can be identical to or diffe	rent from SIP User ID)
Authenticate Password:			(purposely not displayed fo	or security protection)
Name:			(optional. e.g., John Doe)	
	L			
DNS Mode:	A Record	a 🔍 SRV 🔍 1	NAPTR/SRV	
DNS SRV use Registered IP:	🔍 No	Yes		
Tel URI:	Disabled			
SIP Registration:	🔍 No 🛛	9 Yes		
Unregister On Reboot:	🔍 No	Yes		
Outgoing Call without	🔘 No	Yes		
Register Expiration:	60	(in minutes, default	1 hour, max 45 days)	
Reregister before Expiration:	0	(0-64800. Default 0	second)	
SIP Registration Failure Retry Wait Time:	20	(in seconds. Betwee	n 1-3600, default is 20)	
SIP Registration Failure Retry Wait Time upon 403 Forbidden:	1200 403 response	) (in seconds. Betwee	n 0-3600, default is 1200. 0 mea	ns stop retry registration upon
Enable SIP OPTIONS Keep Alive:	O No	Yes		
SIP OPTIONS Keep Alive Interval:	30	(in seconds. Betwee	n 1-64800, default is 30)	
SIP OPTIONS Keep Alive Max	3	(Number of max los	t packets for SIP OPTIONS Kee	p Alive before re-registration.
Lost:	Between 3-10	, default is 3)		
Laver 3 OoS	26	SIP DSCP (Diff-Ser	v value in decimal, 0-63, default	: 26)
	46	RTP DSCP (Diff-Se	rv value in decimal. 0-63. defau	lt 46)

### lliad.it

# iliad

SIP Registrat	tion Failure Retry	20	(in accords Potwar 1 2600, default is 20)
	Wait Time:	20	(in seconds. Detween 1-5000, detault is 20)
SIP Registration Failure Retry Wait Time upon 403 Forbidden: 4		1200 03 respons	(in seconds. Between 0-3600, default is 1200. 0 means stop retry registration upon e.)
Enable SIP OPT	IONS Keep Alive:	🔘 No	O Yes
SIP OPTIONS Ke	ep Alive Interval:	30	(in seconds. Between 1-64800, default is 30)
SIP OPTION	S Keep Alive Max	3	(Number of max lost packets for SIP OPTIONS Keep Alive before re-registration.
	Lost: I	Between 3-	0, default is 3)
	I mar 3 OoS.	26	SIP DSCP (Diff-Serv value in decimal, 0-63, default 26)
	Euger 5 900.	46	RTP DSCP (Diff-Serv value in decimal, 0-63, default 46)
	Local SIP Port:	5060	(default is 5060 for UDP; 5061 for TLS)
	Local RTP Port:	5004	(even number between 1024-65535, default 5004)
Use F	Random SIP Port:	No	O Yes
Use R	andom RTP Port:	No	Yes
	Enable RTCP:	O No	Yes
Hold Ta	rget Before Refer:	🔍 No	Yes
Refer-To Us	e Target Contact:	🔘 No	O Yes
Transfer on Con	nference Hangup:	No	O Yes
Disable Bel	llcore Style 3-Way Conference:	No	Yes (Using star code *23 for 3-way conference)
Remove OBP fro	om Route Header:	🔘 No	O Yes
Support	t SIP Instance ID:	🔍 No	Yes
Validate Incom	ing SIP Message:	🔘 No	O Yes
Check SIP Use	r ID for incoming INVITE:	🔍 No	◎ Yes (no direct IP calling if Yes)
Authenticate i	ncoming INVITE:	🔘 No	O Yes
Authenticate	server certificate domain:	No	◎ Yes
Authenticate	server certificate chain:	O No	● Yes

SIP Registration Failure Wait	Retry Time:	20		(in seconds. Between 1-3600, default is 20)
SIP Registration Failure Wait Time upon 403 Forb	Retry idden: 4	1200 403 respon	se.)	(in seconds. Between 0-3600, default is 1200. 0 means stop retry registration upon
Enable SIP OPTIONS Keep	Alive:	No		Yes
SIP OPTIONS Keep Alive In	terval:	30		(in seconds. Between 1-64800, default is 30)
SIP OPTIONS Keep Aliv	e Max Lost:	3 Between 3-	( 10,	(Number of max lost packets for SIP OPTIONS Keep Alive before re-registration. default is 3)
Layer :	QoS:	26 46		SIP DSCP (Diff-Serv value in decimal, 0-63, default 26) RTP DSCP (Diff-Serv value in decimal, 0-63, default 46)
Local SIF	Port:	5060		(default is 5060 for UDP; 5061 for TLS)
Local RTF	Port:	5004		(even number between 1024-65535, default 5004)
Use Random SIF	Port:	No		Yes
Use Random RTF	Port:	No	$\bigcirc$	Yes
Enable I	RTCP:	No	$\bigcirc$	Yes
Hold Target Before	Refer:	No	$\bigcirc$	Yes
Refer-To Use Target Co	ontact:	🔘 No		Yes
Transfer on Conference Ho	mgup:	No		Yes
Disable Bellcore Style Confe	3-Way rence:	🔘 No		Yes (Using star code *23 for 3-way conference)
Remove OBP from Route H	eader:	No		Yes
Support SIP Instan	ce ID:	No	$\bigcirc$	Yes
Validate Incoming SIP Me	ssage:	No		Yes
Check SIP User ID for inc IN	oming VITE:	No		Yes (no direct IP calling if Yes)
Authenticate incoming IN	VITE:	🔘 No		Yes
Authenticate server cert da	ificate main:	No		Yes
Authenticate server cert	ificate chain:	No		Yes

SIP User-Agent:	
SIP User-Agent Postfix:	
Disable Call-Waiting:	No  Yes
Disable Call-Waiting Caller ID:	● No
Disable Call-Waiting Tone:	No Yes
Disable Connected Line ID:	💿 No 🔍 Yes
Disable Receiver Offhook Tone:	No Or Yes (ROH tone will not be played after offhook for 60 seconds)
Disable Reminder Ring for On- Hold Call:	● No ○ Yes
Disable Visual MWI:	● No  ○ Yes
Do Not Escape '#' as %23 in SIP URI:	● No  ● Yes
Disable Multiple m line in SDP:	◎ No ○ Yes
Ring Timeout:	60 (0-300, default is 60 seconds, 0 means no timeout)
Delayed Call Forward Wait Time:	20 (Allowed range 1-120, in seconds.)
No Key Entry Timeout:	4 (1-15, default is 4 seconds)
Early Dial:	● No
Dial Plan Prefix:	(this prefix string is added to each dialed number)
Use # as Dial Key:	○ No ○ Yes (if set to Yes, "#" will function as the "(Re-)Dial" key)
Dial Plan:	{ x+   \+x+   *x+   *xx*x+ }
SUBSCRIBE for MWI:	<ul> <li>No, do not send SUBSCRIBE for Message Waiting Indication</li> <li>Yes, send periodical SUBSCRIBE for Message Waiting Indication</li> </ul>
Send Anonymous:	No O Yes (caller ID will be blocked if set to Yes)
Anonymous Call Rejection:	◎ No   ○ Yes
Special Feature:	Standard V
Enable Session Timer:	O No O Yes
Session Expiration:	180 (90-64800. default 180 seconds)
Min-SE:	90 (90-64800. default 90 seconds)
Caller Request Timer:	No O Yes (Request for timer when making outbound calls)
Callee Request Timer:	No Ves (When caller supports timer but did not request one)
Force Timer:	No Ves (Use timer even when remote party does not support)
UAC Specify Refresher:	○ UAC ○ UAS ◎ Omit (Recommended)
UAS Specify Refresher:	UAC UAS (When UAC did not specify refresher tag)
Force INVITE:	No O Yes (Always refresh with INVITE instead of UPDATE)
Enable 100rel:	● No ○ Yes
Add Auth Header On Initial REGISTER:	● No ○ Yes

Conference URI:	
Use First Matching Vocoder in 2000K SDP:	• No • Yes
Preferred Vocoder	choice 1: G729 V
(in listed order):	choice 3: G723
	choice 4: G729 V
	choice 5: G726-32 V
	choice 6: iLBC V
	choice /: OPUS V
Voice Frames per 1X:	
G/23 Rate:	6.3kbps encoding rate
ILBC Frame Size:	
iI DC Dedeed Town	No Vies (removes "/2" from other)
ILBC Payloaa Type:	(between 90 and 127, default is 97)
UPUS Payload Type:	(between 90 and 127, default is 123)
VAD: Summatuia DTD.	No res
Symmetric KIF: Fax Mode:	T 22 Data Through
Re-INVITE After For Tone	• 1.58 • Pass-Though
Detected:	Enabled O Disabled
Jitter Buffer Type:	○ Fixed
Jitter Buffer Length:	🔍 Low 💿 Medium 🔍 High
SRTP Mode:	Disabled
Crypto Life Time:	O Disabled O Enabled
SLIC Setting:	EUROPEAN CTR21
Caller ID Scheme:	ETSI-FSK during ringing
DTMF Caller ID:	Start Ione Detault V Stop Ione Detault V
Polarity Keversal:	No Yes (reverse polarity upon call establishment and termination)
Plan hum/reorder torse before Loop	No Yes (loop current disconnect upon call termination)
Current Disconnect:	• No Ves (play busy/reorder tone before loop current disconnect upon call fail)
Loop Current Disconnect Duration:	200 (100 - 10000 milliseconds. Default 200 milliseconds)
Enable Pulse Dialing:	💿 No 🔍 Yes
Pulse Dialing Standard:	General Standard
Enable Hook Flank	

Enable Hook Flash:	O No O Yes						
Hook Flash Timing:	In 40-2000 milliseconds range, minimum: 300 maximum: 1100						
On Hook Timing:	400 (In 40-2000 milliseconds range, default is 400)						
Gain:	<i>TX</i> 0dB default ∽ <i>RX</i> -6dB default ∽						
Disable Line Echo Canceller (LEC):	● No  ● Yes						
Disable Network Echo Suppressor:	◎ No						
Outgoing Call Duration Limit:	0 (0-180 minutes, default is 0 (No Limit) )						
Enable High Ring Power:	◎ No						
RFC2833 Events Count:	8 (between 2 and 10, default is 8)						
RFC2833 End Events Count:	3 (between 2 and 10, default is 3)						
Distinctive Ring Tone:	Ring Tone 1     used if incoming caller ID is       Ring Tone 1     used if incoming caller ID is						
Ring Tones	(Syntax: c=on1/off1-on2/off2-on3/off3;)						
Ring Tone 1:	c=2000/4000;						
Ring Tone 2:	c=2000/4000;						
Ring Tone 3:	c=2000/4000;						
Ring Tone 4:	c=2000/4000;						
Ring Tone 5:	c=2000/4000;						
Ring Tone 6:	c=2000/4000;						
Ring Tone 7:	c=2000/4000;						
Ring Tone 8:	c=2000/4000;						
Ring Tone 9:	c=2000/4000;						
Ring Tone 10:	c=2000/4000;						

iliod