Step by step installation

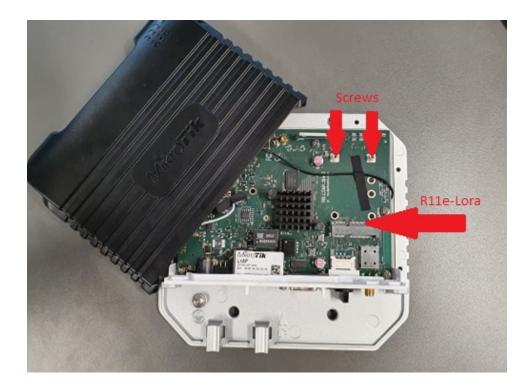
LoRa card installation

LtAP LTE kit will be used as example in this section.

Open your routers case. Once you have removed all the screws carefully move the upper case to the left side, as the LTE antennas are attached to the inner side of it.



Insert R11e-LoRa card into the mini-PCIe slot and apply two screws to the threaded inserts.



Attach antenna to the card (UFL connector)

In this case UFL \rightarrow SMA cable is also used, as the LtAP's case has a specific slot for it.



Once the previous steps are done, you can close the routers case and move on to configuration.

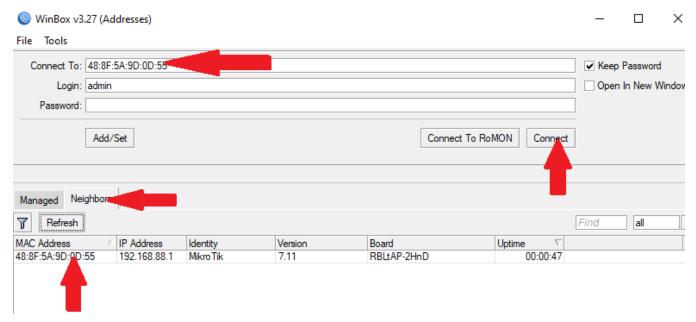
Configuration

GUI setup

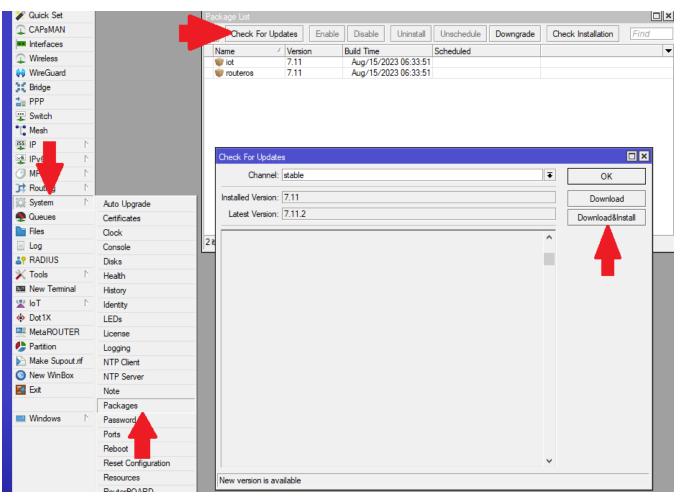
Connect to your router via Winbox or WebFig.

Winbox can be downloaded in the link given below:

https://mikrotik.com/download



It is Highly recommended to upgrade your RouterOS version to the latest available. Installing the version will perform a reboot:

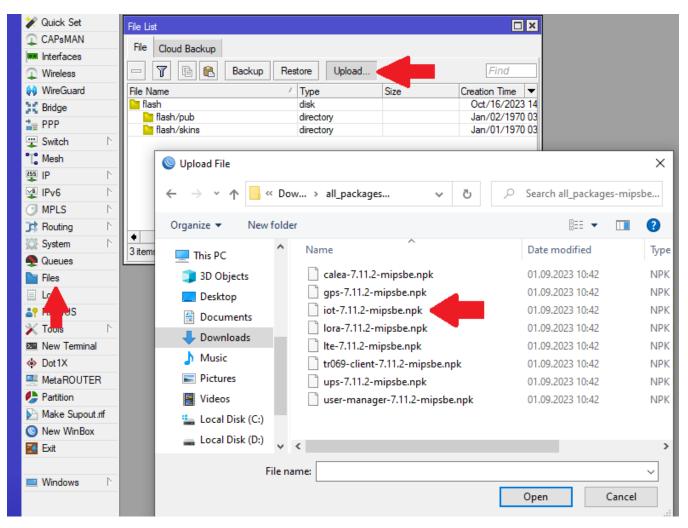


If your device does not have **IoT>LoRa** menu, download "**Extra packages**" specifically for your routers architecture and rOS version. You can see the type of your routers architecture at the top of Winbox window or in System \rightarrow Resources \rightarrow Architecture Name.

https://mikrotik.com/download

🕅 Μικγοτικ		Home About Buy Jobs Hardware Software Support Training Account
Software		Downloads Changelogs Download archive RouterOS The Dude Mobile apps
RouterOS v7 🔊		•
	7.11.2 Stable	7.12rc1 Testing
ARM		
Main package		
Extra packages		凹
ARM64		
Main package		圏
Extra packages		凹
MIPSBE		
Main package		圏
Extra packages	Ē	
MMIPS		
Main package	Ē	
Extra packages		

Once the package is downloaded and extracted, upload the **IoT** package to your router. It can be done via drag & drop as well. It should appear in the files folder after the upload is complete, reboot your router (System \rightarrow Reboot) to install the package:



After the reboot, the package should be visible in the Package list:

X Quick Set	Package List							
	Check For	Updates Enal	ole Disable	Uninstall	Unschedule	Downgrade	Check Installation	Find
	Name	△ Version	Build Time		Scheduled			-
Wireless	iot 🖤	7.11.2		23 13:09:44				
😝 WireGuard	💗 routeros	7.11.2	Sep/27/20	23 13:09:44				
Bridge								
The second secon								
The Switch								
°Ţ° Mesh								
P N								
IPv6 D								
MPLS N								
🔀 Routing 🗈								
💭 System 🗈	Auto Upgrade							
🙅 Que	Certificates							
📔 Fil	Clock							
🗒 Log	Console							
RADIUS	Disks							
🔀 Tools 🛛 🗅	Health							
🔤 New Terminal	History							
🗶 loT 🛛 🖹	Identity							
Dot1X	LEDs							
MetaROUTER	License							
🦺 Partition	Logging							
Nake Supout.rif	NTP Client							
New WinBox	NTP Server							
🛃 Exit	Note							
	Packages							
Windows	Password							

Check if the LoRa gateway has initialized under IoT>LoRa>Devices. If it is LtAP model, make sure to set USB Type to Mini-PCIe:

🚀 Quick Set	LoRa						
CAPsMAN				-			
Interfaces	Devices	Channels Traffic Join	EUI NetID	Servers			
Wireless	✓ ※	Reset devices					Find
😝 WireGuard	Status	∠ Name	Gatewa	y ID Channel plan			_
💥 Bridge	Disabled	gateway-0		36 EU 868			
🏣 PPP							
🙄 Switch							
°T <mark>°</mark> Mesh					RouterBOARD		
🖳 IP 👘 🗈 🗈						✓ RouterBOARD	ОК
🖳 IPv 💦 📐 🕑					Model:	RBLtAP-2HnD	
🕑 MH 🛛 Ւ					Serial Number:	FA860FBD81B9	Upgrade
🔀 Routi 🧃 🗈 🗈							Settings
🔯 System 🗅	Auto Upgrade				Firmware Type:	mt7621L	USB
🜻 Queues	Certificates				Factory Firmware:	6.48.6	USB Power Reset
📔 Files	Clock				Current Firmware:	7.11.2	
🗒 Log	Console				Upgrade Firmware:	7.11.2	Reset Button
RADIUS	Disks						
🔀 Tools 🛛 🗅	Health					USB	
🔤 New Terminal	History					Type: Mini PCle 🛛	ок
🗶 loT 🛛 🗎	Identity						
Dot1X	LEDs						Cancel
🥵 Partition	License					T	Apply
📐 Make Supout.rif	Logging						
🔘 New WinBox	NTP Client						
🔣 Exit	NTP Server						
	Note						
Windows 🗅	Packages						
	Password						
	Ports						
	Reboot						
	Reset Configuration						
	Resources						
	RouterBOARD						
	Scheduler						

Once the gateway has shown up (under IoT>LoRa>Devices) select it, choose Network Servers from the default ones or add your own (under IoT>LoRa>Se rvers) and enable it:

🚀 Quick Set	LoRa	×
CAPsMAN	Devices Channels Traffic Servers JoinEUI NetID	
Interfaces		
Wireless	Image: Second	
😝 WireGuard	Status / Name Gateway ID Channel plan	•
Bridge	X Disabled gateway-0 503139 EU 868	-
늘 PPP	LoRa Device	
🙄 Switch	General Stats OK	
°T <mark>°</mark> Mesh	Status: Disabled Cancel	
🐺 IP 🛛 🗅		
📡 IPv6 🛛 🗅	Name: gateway-0 Apply	
O MPLS ►	Gateway ID: 5031395	
C Routing ►	Firmware ID: cf1b71f	
🔯 System 🗅	Network Servers: TTN V3 (eu1)	
🙅 Queues	Channel plan: EU 868	
📔 Files	Antenna Gain: 0 dBi	
🗒 Log	Forward: Valid Valid I Error Disabled	
2 RADIUS	- Network	
🔀 Tools 🛛 🗅	Public O Private	
New Terminal		_
🛛 🔤 Tol 🖉	Bluetooth LBT	
Dot 1X	LoRa Src. Address:	
MetaROUTER	MQTT Band: 863-870	
Partition	Modbus Locks:	
Make Supout.rif		
🕓 New WinBox		

Navigate to Traffic tab to monitor the surrounding nodes sending requests:

🖵 CAPsMAN														
Interfaces		LoRa												
Wireless		Devic	es Channels	Traffic Servers										
Bridge	-	Devic	es Channels	Traine Servers										
PPP		7	Clear Traffic	Options								Fin	d all	₹
T Switch		Type /	Gateway ID	Message Type	Dev Addr	Freq (MHz)	Modulation	Bandwidth	Datarate	Coderate	CRC Status	RSSI (dB)	SNR (dB)	
Mesh	- 100	Rx	323433362	Join-request		868.100	LoRa	125 kHz	SF 12	4/5	Ok	-59.00	9.50	4
		Rx	323433362	Join-request		868.100	LoRa	125 kHz	SF 12	4/5	Ok	-61.00	10.50	
EIP 🗅		Rx	323433362	Join-request		868.300	LoRa	125 kHz	SF 12	4/5	Ok	-59.00	9.25	
MPLS N		Rx	323433362	Join-request		868.300	LoRa	125 kHz	SF 12	4/5	Ok	-59.00	9.75	
<i></i>	- 100	Rx	323433362	Join-request		868.100	LoRa	125 kHz	SF 12	4/5	Ok	-57.00	9.25	
Routing		Rx	323433362	Join-request		868.300	LoRa	125 kHz	SF 12	4/5	Ok	-61.00	9.25	
🗊 System 🛛 🗅		Rx	323433362	Unconfirmed Data Do	51 6E 25 BA	867.100	LoRa	125 kHz	SF 7	4/6	Error	-117.00	-11.00	
Queues		Rx	323433362	Join-request		868.500	LoRa	125 kHz	SF 12	4/5	Ok	-59.00	8.25	
Files	- 100	Rx	323433362	Join-request		868.500	LoRa	125 kHz	SF 12	4/5	Ok	-55.00	7.25	
_	- 10	Rx	323433362	Join-request		868.500	LoRa	125 kHz	SF 12	4/5	Ok	-56.00	7.25	
Log		Rx	323433362	Join-request		868.500	LoRa	125 kHz	SF 12	4/5	Ok	-61.00	9.50	
P RADIUS		Rx	323433362	Join-request		868.500	LoRa	125 kHz	SF 12	4/5	Ok	-61.00	8.75	
		Rx	323433362	Join-request		868.500	LoRa	125 kHz	SF 12	4/5	Ok	-54.00	8.50	
K Tools 🛛 🗅		Rx	323433362	Join-request		868.100	LoRa	125 kHz	SF 12	4/5	Ok	-61.00	8.75	
New Terminal		Rx	323433362	Join-request		868.500	LoRa	125 kHz	SF 12	4/5	Ok	-61.00	8.75	4
LoRa		54 item	9											

This concludes basic installation and configuration of LoRa mini-PCIe cards. For additional settings check: General Properties