



Configuration Guide

# **RAK Industrial LPWAN Gateway**

## **Remote Management - DDNS**

Version 1.1 | April 2020

**[www.RAKwireless.com](http://www.RAKwireless.com)**

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11 PAGES

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## 1. Overview

In this tutorial, we will describe how to use the fast and simple Dynamic Domain Name System (DDNS) Service for accessing RAK Industrial Gateways.

For accessing the Gateway behind a router, you have to consult with your router documentation in order to implement Port Forwarding or Demilitarized Zone (DMZ), so you can remotely access your Gateway.

For accessing the Gateway, when connected through an LTE network please contact your cellular service provider in order to implement Port Forwarding.



## 2. Registering a DDNS Service

Using DDNS you can assign a Domain name that you link to your Gateway's Real IP Address. This allows you to access your Gateway with a Domain name that is static and will not change even if a new IP address is assigned to the Gateway, making sure you don't have to keep a lengthy list of address that needs to be constantly updated. The DDNS service takes care of this for you.

### 2.1 Choose your DDNS provider

A list of providers supported by the RAK Industrial Gateway series can be found below:

<a href="https://3322.org">3322.org</a>	<a href="https://afraid.org">afraid.org</a> <sup>6)</sup>	<a href="https://changeip.com">changeip.com</a>	<a href="https://cloudflare.com">cloudflare.com</a> <sup>2) 5) 6)</sup>
<a href="https://core-networks.de">core-networks.de</a> <sup>6)</sup>	<a href="https://ddnss.de">ddnss.de</a> <sup>6)</sup>	<a href="https://dhis.org">dhis.org</a> <sup>6)</sup>	<a href="https://dnsdynamic.org">dnsdynamic.org</a>
<a href="https://dnsexit.com">dnsexit.com</a>	<a href="https://dnshome.de">dnshome.de</a> <sup>6)</sup>	<a href="https://dnsmax.com">dnsmax.com</a>	<a href="https://dnsomatic.com">dnsomatic.com</a>
<a href="https://dnspark.com">dnspark.com</a>	<a href="https://do.de">do.de</a> <sup>6)</sup>	<a href="https://dtdns.com">dtdns.com</a>	<a href="https://duckdns.org">duckdns.org</a> <sup>6)</sup>
<a href="https://duiadns.net">duiadns.net</a> <sup>6)</sup>	<a href="https://dy.fi">dy.fi</a>	<a href="https://dyndns.org">dyndns.org</a> <sup>6)</sup> ( <a href="https://dyn.com">dyn.com</a> )	<a href="https://dyndnss.net">dyndnss.net</a>
<a href="https://dyns.net">dyns.net</a>	<a href="https://dynsip.org">dynsip.org</a>	<a href="https://dynu.com">dynu.com</a>	<a href="https://dynv6.com">dynv6.com</a> <sup>6)</sup>
<a href="https://easydns.com">easydns.com</a>	<a href="https://editdns.net">editdns.net</a>	<a href="https://goip.de">goip.de</a> <sup>6)</sup>	<a href="https://google.com">google.com</a> <sup>5) 6)</sup>
<a href="https://he.net">he.net</a> <sup>6)</sup>	<a href="https://joker.com">joker.com</a>	<a href="https://loopia.se">loopia.se</a> <sup>6)</sup> ( <a href="https://loopia.com">loopia.com</a> )	<a href="https://mydns.jp">mydns.jp</a> <sup>6)</sup>
<a href="https://myonlineportal.net">myonlineportal.net</a> <sup>6)</sup>	<a href="https://mythic-beasts.com">mythic-beasts.com</a> <sup>6)</sup>	<a href="https://namecheap.com">namecheap.com</a>	<a href="https://nettica.com">nettica.com</a>
<a href="https://no-ip.com">no-ip.com</a> <sup>1)</sup> ( <a href="https://noip.com">noip.com</a> )	<a href="https://no-ip.pl">no-ip.pl</a> <sup>6)</sup>	<a href="https://nsupdate.info">nsupdate.info</a> <sup>6)</sup>	<a href="https://nubem.com">nubem.com</a>
<a href="https://ovh.com">ovh.com</a>	<a href="https://regfish.de">regfish.de</a> <sup>6)</sup>	<a href="https://schokoeks.org">schokoeks.org</a>	<a href="https://selfhost.de">selfhost.de</a>
<a href="https://sitelutions.com">sitelutions.com</a>	<a href="https://spdyn.de">spdyn.de</a> <sup>6)</sup> ( <a href="https://spdns.de">spdns.de</a> )	<a href="https://strato.com">strato.com</a>	<a href="https://system-ns.com">system-ns.com</a>
<a href="https://thatip.com">thatip.com</a>	<a href="https://twodns.de">twodns.de</a>	<a href="https://variomedia.de">variomedia.de</a> <sup>6)</sup>	<a href="https://zerigo.com">zerigo.com</a> <sup>6)</sup>
<a href="https://zoneedit.com">zoneedit.com</a> <sup>5)</sup>	<a href="https://zzzz.io">zzzz.io</a> <sup>5) 6)</sup>		<a href="https://bind.org">BIND nsupdate</a> <sup>3) 4) 6)</sup>

<sup>1)</sup> requires additional package `ddns-scripts_no-ip_com` to be installed.

<sup>2)</sup> needs additional package `ddns-scripts_cloudflare` to be installed.

<sup>3)</sup> directly updates a PowerDNS (or maybe bind server) via nsupdate.

<sup>4)</sup> needs additional package `ddns-scripts_nsupdate` and `bind-client` to be installed.

<sup>5)</sup> SSL support required.

<sup>6)</sup> support IPv6

You can refer to the link below for more information:

<https://openwrt.org/docs/guide-user/services/ddns/client>

For the purpose of this document we will be using the DDNS service provider [dyndnss.net](https://dyndnss.net).



## 2.2 Register your DYNDNS account

Go to [dyndns.net](http://dyndns.net) you will see the website in Figure 1. Click on *Register* to create account:

The screenshot shows the DynDNS Service website. At the top, there's a navigation bar with links: Home, Register (highlighted with a red box), Login, Port Scan, FAQ, Our Banners, Contact, Updater-Tool, and Rules. Below the navigation bar, there's a section titled "Welcome to your DynDNS Provider". The text explains that the service is for managing home servers or IP cameras with dynamic IP addresses. It mentions that the IP address changes every 24 hours, making it difficult to reach from the internet. The service offers a free account to solve this problem. It asks the user to sign up for free, enter the updater URL in their router, and provides a link to the FAQ for detailed instructions. There are also links for "How is my IP Address?", "Username:", "Password:", and "Login". A "You forgot the password?" link is also present.

Figure 1 | Register DYNDNS Account

Fill in your names, e-mail, user name and password. Agree with the terms and click *Create a Free Account*.

The screenshot shows the "Create your account for our free DynDNS Service" form. It has fields for First Name, Last Name, eMail Address, User Name, and Password. The First Name field contains "RAKwireless", the Last Name field contains "RAKwireless", the eMail Address field contains "todor.velev@rakwireless.com", the User Name field contains "rakwireless", and the Password field contains "\*\*\*\*\*". Below the fields, there's a checkbox labeled "I have read the Privacy Policy and accept these" which is checked. A red box highlights the "Create a Free Account" button. Below the button, there's a note: "It will be sent an activation email, only then your account will operate." At the bottom, there's a warning: "Do not enter any special characters or spaces in the login name and password such as: Å ö Ü Ñ µ, etc. - these are not accepted by our DynDNS Service."

Figure 2 | Create a Free Account

You will receive e-mail with a link that you have to open to confirm your account. This will bring you to the login page.



## 2.3 Created a DynDNS Url

Once you are logged in click on the *Creating a new DynDNS Url* link shown in Figure 3.

**DYNDNS SERVICE**  
YOU ARE LOGGED INTO YOUR FREE USER ACCOUNT

Sprache ändern

Home Installation Code Port Scan Updater-Tool FAQ Banners Rules Change Password Logout

Your Account Informations

Your Name: RAKwireless, RAKwireless  
User Name: rakwireless  
Account Stats: Free User   
Your IP Address: 89.106.101.181  
DynDNS URLs: 0 from max. 3

**DynDNS-Updater-Tool**  
Runs without any router entries (independent from router!)  
Up to 100 applications can run in parallel (eg. IP cams)  
Premium Account inclusive [More info here](#)

We thank you very much when you would like to support our complimentary project for further developments.

I would like to support this project with **2 Dollar**   
I would like to support this project with **5 Dollar**   
I would like to support this project with **8 Dollar**

**Premium User ?**  
Take advantage of all our options  
DynDNS Services  
Now achieve also [ftp://](#) and [https://](#) dynamic IP addresses  
Up to 100 DynDNS Urls can be applied  
[I want to know more](#)

Your DynDNS Url Informations

Live View Time: 05.04.2020 - 16:30:06 Clock [ Time Zone Berlin ]

Delete	Update-Typ	IP-Address	Port	Sub-Name	Password	Last-Update	View URL	Update
				<a href="#">Creating a new DynDNS Url</a>				

Figure 3 | Create DynDNS URL

Input a *Sub-Name* for your domain. This will be the one you use for accessing the Gateway later when we are finished configuring the service. Leave the *Port* field empty. For example we are going to be using *rakwireless.dyndns.net*.

**DYNDNS SERVICE**  
YOU ARE LOGGED INTO YOUR FREE USER ACCOUNT

Sprache ändern

Home Account Installation Code Port Scan Updater-Tool FAQ Banners Contact Rules Logout

Your Account Informations

Your Name: RAKwireless, RAKwireless  
User Name: rakwireless  
Account Stats: Free User   
Your IP Address:  
DynDNS URLs: 0 from max. 3

**DynDNS-Updater-Tool**  
Runs without any router entries (independent from router!)  
Up to 100 applications can run in parallel (eg. IP cams)  
Premium Account inclusive [More info here](#)

New DynDNS URL put on

Sub-Name:  dyndns.net  
Port:  This field leave free at port 80 for Apache Servers!

**Please note:**  
No spaces (blank) or special characters ( @ \* ~ ( ) , no point etc. ) for the Sub-Name!  
The length of the Sub-Name is limited up to 12 characters.

If you want a premium account (DynDNS VIP) with direct domain forwarding (eg for IP Cams) please contact us at [contact@dyndns.net](mailto:contact@dyndns.net) or use our [Contact Form](#). Please do not forget to include your account name.

Figure 4 | Create Subdomain Name

The DDNS URL is created. You should now have a password that we will need to setup the Gateway DDNS Service, full DDNS URL and “ENTER” button that will force the DynDNSS service to get the Gateway current IP.



Your DynDNS Url Informations

Live View Time: 05.04.2020 - 16:42:45 Clock [ Time Zone Berlin ]

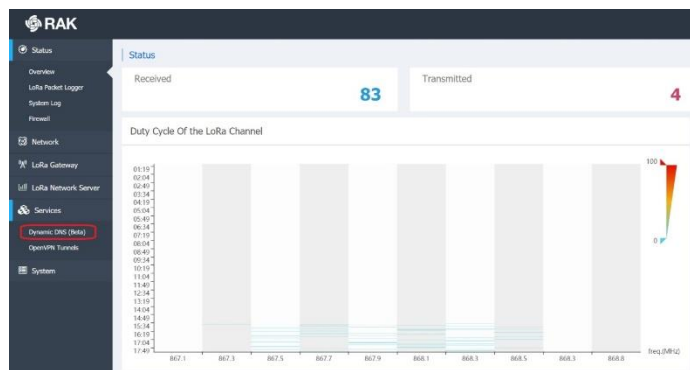
Delete	Update-Type	IP-Address	Port	Sub-Name	Password	Last-Update	View URL	Update
				rakwireless	73811625	01.01 - 01.01.00	<a href="http://rakwireless.dyndns.net">http://rakwireless.dyndns.net</a>	ENTER

[Creating a new DynDNS Url](#)

*Figure 5 | DynDNS Url Information*

## 2.4 Setting the DDNS Service in the Gateway

Log into the Gateway Web UI. Choose the Services → Dynamic DNS (Beta) menu.

*Figure 6 | RAK Gateway Web UI*

In the Dynamic DNS page, input a name for the service in the text box and click the “Add” button.

Configuration	Lookup Hostname	Enabled	Last Update	Process ID
myddns_ipv4	yourhost.example.com	Never Updated	Start / Stop	

myddns

*Figure 7 | Create a DDNS Service*



In the Dynamic DNS configuration page, *enable* the service. Next fill in the *Lookup Hostname* with “*dyndns.net*” and choose dyndns.net from the drop-down list for the *DDNS Service provider*. Fill in the *Hostname/Domain* with the one we created earlier (Figure 4), your Username for DynDNS and the Password (Figure 5).

Figure 8 | DDNS Basic Settings Configuration

Open the Advanced Settings tab.

The default *IP Address source* is Network and the default *Network* is WAN. This mean that the DDNS Service of the Gateway will check and report to dyndns.net the WAN IP of the Gateway. If you want to access your Gateway trough different backhaul you can choose it here.

Figure 9 | DDNS Advanced Settings Configuration





IP address source [IPv4] Network

Network [IPv4] wan

Network
URL
Interface
Script

wan
lan
wan
wan0
alias

Figure 10 | Network Interface Options

Click Save & Apply.

After the configuration is saved, you will be redirected to the main Dynamic DNS page.

To start the Dynamic DNS Service, click the “Start” button. This is the page where you can see the dyndnss.net IP, which is the IP address that the Gateway reports any change in the IP address you chose in Figure 9.

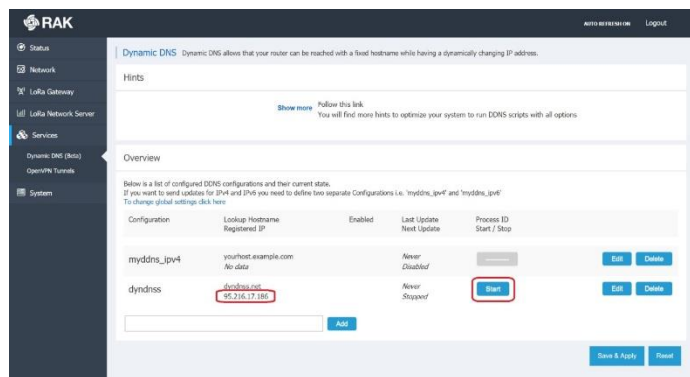


Figure 11 | Starting the DDNS Service in the Gateway

Go back to the dyndnss.net web page and click on the “ENTER” button.



Figure 12 | Updating the Real IP Address

If your setup was correct, you will see a confirmation screen with your Real IP.

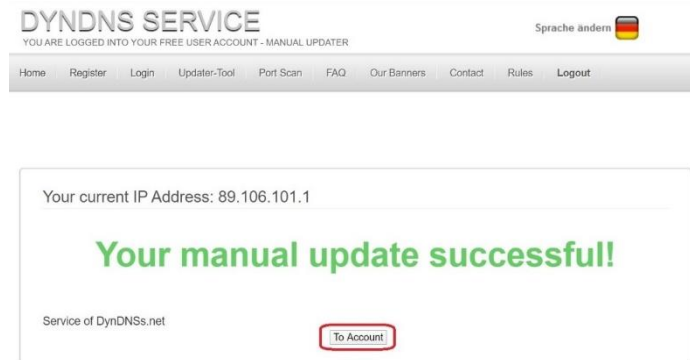


Figure 13 | DynDNS Confirmation Screen

Click the “To Account” button to turn back to the DynDNS Url Information page.

Now we can see the assigned IP address and the last time that was updated.

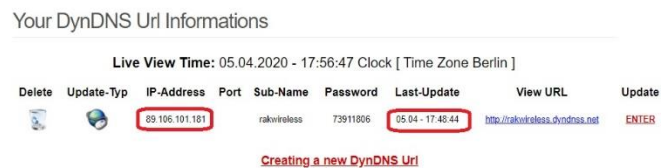


Figure 14 | DynDNS Updated IP

Now if you open the URL from a Web Browser, you will see the RAK Gateway login page. You can access your Gateway from anywhere using this URL.

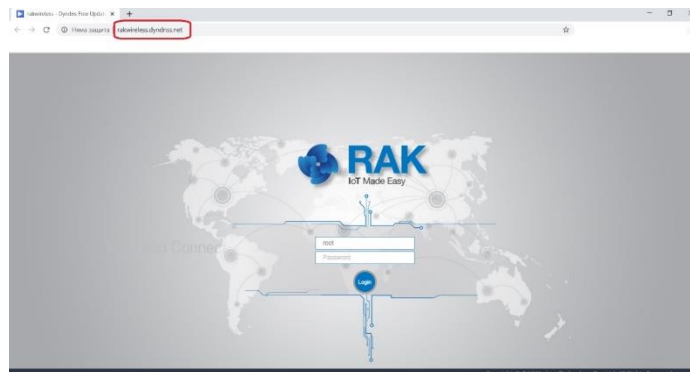


Figure 15 | RAK Gateway Remote Access From URL

This concludes the tutorial.



**About RAKwireless:**

RAKwireless is the pioneer in providing innovative and diverse cellular and LoRa® connectivity solutions for IoT edge devices. It's easy and modular design can be used in different IoT applications and accelerate time-to-market.

For more information, please visit RAKwireless website at [www.rakwireless.com](http://www.rakwireless.com).