



**Activity ThingPark Location
Integration with Third Party Network Servers (NS) -
TTN**

Under NDA



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Headquarters

Actility Lannion,

Actility S.A 4 rue Ampère BP 30225

22300 Lannion France

www.actility.com

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Versions

Version	Date	Author	Details
01	15/11/17	S. Solomon	Initial Version
02.3	16/01/16	S. Solomon	Updated Architecture overview
02.3	16/01/13	S. Solomon	Updated Introduction, layout and formatting
02.8	16/03/16	S. Solomon	Update page layout and table of contents style
02.9	16/06/07	S. Solomon	Updated footer to include document title name instead of file name
02.10	16/06/09	S. Solomon	More header levels implemented
02.11	16/09/21	S. Solomon	Updated Architecture overview
03	16/11/28	M.L. Ancelle	Rebranding
04	16/12/01	M.L. Ancelle	Rebranding
05	17/01/13	M.L. Ancelle	Added LoRaWAN® and LoRa Alliance®
06	17/01/16	M.L. Ancelle	Added LoRa Alliance Certified ^{CM}
09	17/03/20	M.L. Ancelle	New template designed to comply with new rebranding
10	17/09/01	M.L. Ancelle L. Guillemot	Added styles for User's Guides and created styles for Developer' Guides
11	17/09/28	M.L. Ancelle L. Guillemot	Updated ThingPark Overview section
12	18/02/20	L. Guillemot	Styles simplification and template cleaning
13	18/10/04	M.L. Ancelle	Added Review Section
14	19/12/02	M.L. Ancelle	<ul style="list-style-type: none">▪ Updated @ year▪ Removed Review section▪ Replaced capital of company
15	19/07/04	M.L. Ancelle	<ul style="list-style-type: none">▪ All headings have been rewritten with lower case except for the first letter which is capitalized.▪ LoRaWANTM, LoRa AllianceTM, and LoRa Alliance CertifiedTM have been renamed LoRaWAN[®], LoRa Alliance[®] and LoRa Alliance Certified^{CM} to comply with new LoRa Alliance[®] guidelines.

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Version	Date	Author	Details
16	20/04/23	M.L. Ancelle	<ul style="list-style-type: none">▪ Updated @ year
17	20/06/12	B. Lecuyer	<ul style="list-style-type: none">▪ Styles have been modified for MadCap Flare import.▪ Styles and guidelines modified in accordance with the Actility style guide.
18	20/09/21	L. Guillemot	<ul style="list-style-type: none">▪ Added image about formatting tools to use in Word to get a clean migration to Madcap Flare

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Reference documents

	Documents	Author

What's new

New/Enhanced Functionalities	For More Information, See...	Release
Overview Section	The process of local installation is described here, https://nodered.org/docs/getting-started/local	n/a
Styles for Users' Product Documentation	Error! Reference source not found.	n/a
Styles for Developers' Product Documentation	Error! Reference source not found.	n/a
Styles for MadCap Flare import	User-oriented styles	n/a

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Acronyms and definitions

Acronyms	Definitions
ABP	Activation By Personalization
ADR	Adaptive Data Rate
AES	Advanced Encryption Standard
AS	Application Server
BPM	Business Process Management
BSS	Billing Support Systems
CSP	Communication Service Provider
DC	Duty Cycle
End Device	A sensor or actuator
ESP	Estimated Signal Power
ETSI	European Telecommunications Standards Institute
HAN	Home Area Network

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Acronyms	Definitions
HSM	Hardware Security Module
IaaS	Infrastructure As A Service
IEC	International Electrotechnical Commission
IoT	Internet of Things
ISM	Industrial Scientific Medical
GSCL	Gateway Service Capability Layer
GTM	Go To Market
KPI	Key Performance Indicator
LC	Logical Channel
LoRaWAN®	Long Range Wide Area NW
LPWAN	Low Power Wide Area Network
LRC	Long Range Controller
LRR	Long Range Relay
MAC	Media Access Control
M2M	Machine-2-Machine
MTBF	Mean Time Before Failure
NAT	Network Address Translation
NW	Network
NSCL	Network Service Capability Layer. Also called RMS.
OBIX	Open Building Information Exchange
OSS	Operations Support Systems
OTA	Over The Air
PER	Packet Error Rate
PKI	Public Key Infrastructure
POC	Proof Of Concept
REST	Representational State Transfer
RF	Radio Frequency
RIT	Receiver Initiated Transmit
RSSI	Received Signal Strength Indicator
SaaS	Software as a Service

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Acronyms	Definitions
SF	Spreading Factor
SLRC	Secured LRC (VPN Concentrator)
SMP	System Management Platform
SMTP	Simple Mail Transfer Protocol
SNMP	Simple Network Management Protocol
SNR	Signal to Noise Ratio
SSH	Secure SHell
SSO	Single Sign On
TLS	Transport Layer Security
TWA	ThingPark Wireless Application
UNB	Ultra Narrow Band
VM	Virtual Machine
VPN	Virtual Private Network
WS	Web Service

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Introduction

This topic explains how to set up ThingPark Location for testing the unique features of Abeeway tracker devices with non-Actility LoRaWAN Network Servers. The examples below are specific to TTN, but similar principles can be applied for integration with other non-Actility Network Servers. This document is meant for system integrators, distributors, and operations engineers.

The setup environment requires the following components:

1. **BLE beacons / WiFi routers:** These components are required only in case you want to test the BLE/WiFi scan feature of the trackers
2. **Abeeway trackers**
3. **A LoRaWAN Network:** A network is built from LoRaWAN Gateways and a LoRaWAN Network Server. In this tutorial we assume that the network is already present and offers reliable connectivity at the test area.
4. **A Network Interface Converter (NIC) application:** It is a proxy application that translates messages between the LoRaWAN Network Server and the Location Solver. We will explain how you can develop your own interface proxy utilizing our Node-RED examples. *(Please note that this component is not needed if you are using Actility's Thingpark Wireless or ThingPark Enterprise in the cloud)*
5. **ThingPark X Location Engine (TPXLE):** TPXLE is a SaaS geolocation service solution for Abeeway trackers offered by Actility.
6. **Application Servers:** Application servers will visualize the location data reported by trackers. In our demo environment we will use Abeeway Device Manager

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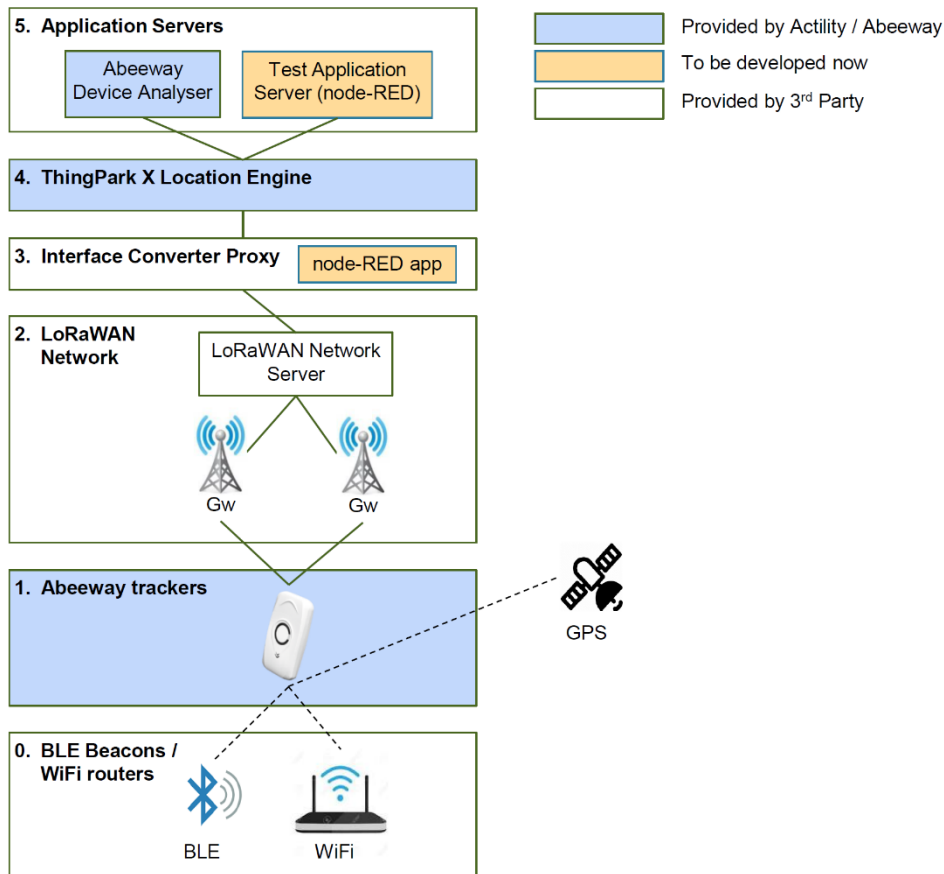


Figure 1: Architecture of ThingPark Location Integration with 3rd Party Network Server (NS)

These components are also presented on Figure 1 above. Blue color represents components from Activity and Abeeway, orange color represents components that we plan to develop ourselves and white components are from 3rd parties.

Step 1: Install a Node-RED server

There are two ways to deploy Node-RED applications:

1. Locally: The process of local installation is described here, <https://nodered.org/docs/getting-started/local>
2. IBM Cloud: If you prefer to test the solution on IBM cloud follow the procedure explained under the following link, <https://nodered.org/docs/getting-started/ibmcloud>

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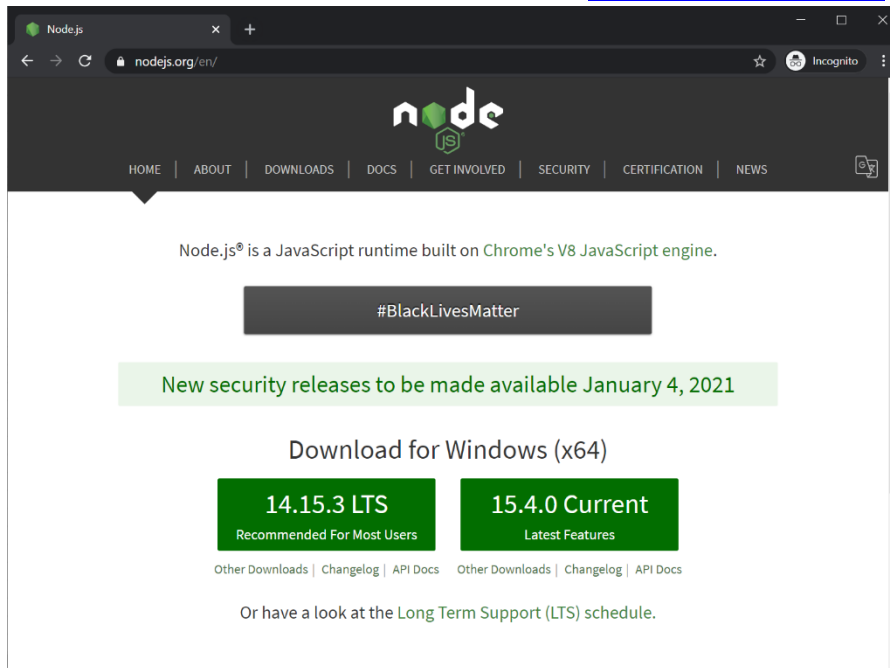
Option #1: Installing Node-RED locally on a Windows computer:

1. Please also check the official IBM documentation that describes the actual process of installation.

<https://nodered.org/docs/getting-started/local>

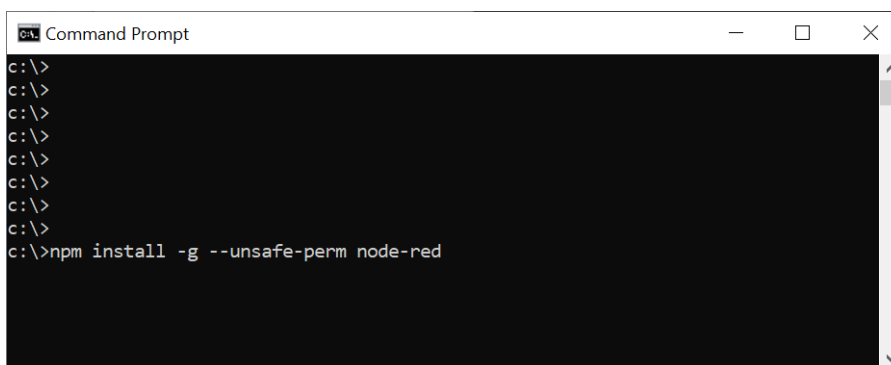
The following screenshots are presented for your convenience to help quickly running through the process.

2. Download and Install the latest nodeJS from <https://nodejs.org/en/>



3. Open a command prompt and install the node-red package with the following command:

```
npm install -g --unsafe-perm node-red
```



4. Run Node-Red with the following command:

```
node-red
```

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```
node-red
C:\Users\norbert.herbert>
C:\Users\norbert.herbert>node-red
21 Dec 11:22:14 - [info]

Welcome to Node-RED
=====

21 Dec 11:22:14 - [info] Node-RED version: v1.2.6
21 Dec 11:22:14 - [info] Node.js version: v15.3.0
21 Dec 11:22:14 - [info] Windows_NT 10.0.19042 x64 LE
21 Dec 11:22:15 - [info] Loading palette nodes
21 Dec 11:22:16 - [info] Settings file : C:\Users\norbert.herbert\.node-red\settings.js
21 Dec 11:22:16 - [info] Context store : 'default' [module=memory]
21 Dec 11:22:16 - [info] User directory : C:\Users\norbert.herbert\.node-red
21 Dec 11:22:16 - [warn] Projects disabled : editorTheme.projects.enabled=false
21 Dec 11:22:16 - [info] Flows file : C:\Users\norbert.herbert\.node-red\flows_DESKTOP-CBH2M6B.json
21 Dec 11:22:16 - [info] Creating new flow file
21 Dec 11:22:16 - [warn]

-----
Your flow credentials file is encrypted using a system-generated key.

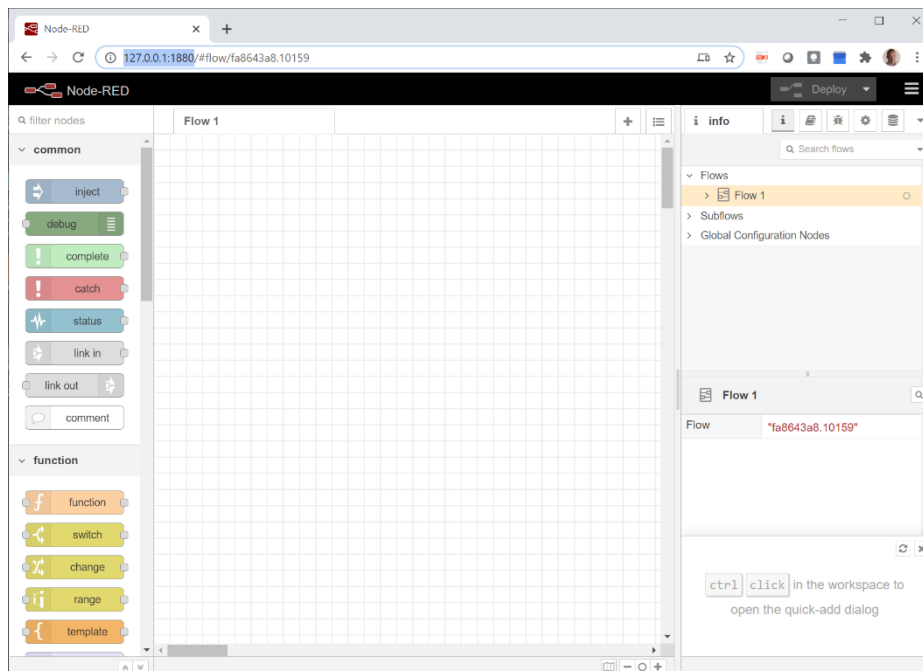
If the system-generated key is lost for any reason, your credentials
file will not be recoverable, you will have to delete it and re-enter
your credentials.

You should set your own key using the 'credentialSecret' option in
your settings file. Node-RED will then re-encrypt your credentials
file using your chosen key the next time you deploy a change.
-----

21 Dec 11:22:16 - [info] Server now running at http://127.0.0.1:1880/
21 Dec 11:22:16 - [info] Starting flows
21 Dec 11:22:16 - [info] Started flows
```

5. Open the following URL with your web browser:

<http://127.0.0.1:1880>



Option #2: Installing Node-RED on IBM Cloud:

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1. Please also check the official IBM documentation that describes the actual process of installation.

<https://nodered.org/docs/getting-started/ibmcloud>

The following screenshots are presented for your convenience to help quickly running through the process.

2. Sign-up for a new account at <https://cloud.ibm.com>
(Click on “Create an account” link of the page)

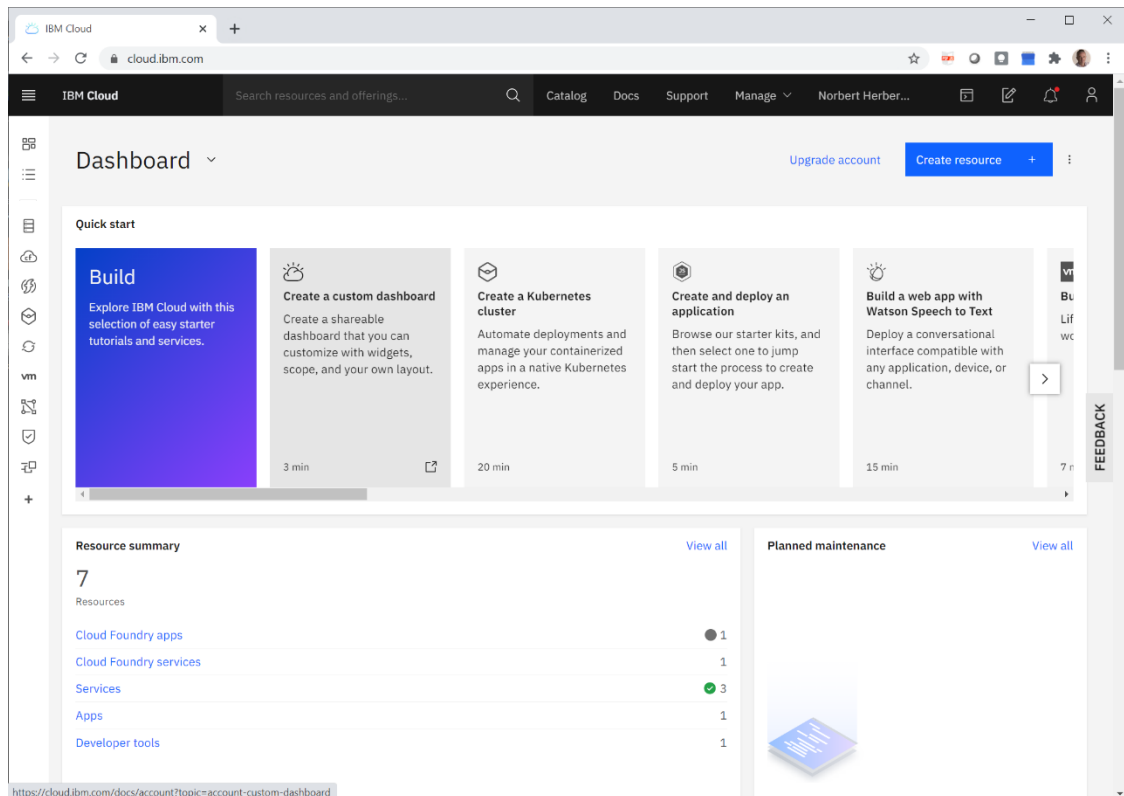
Fill-in the form and verify your e-mail.

3. Log-in with your new account at <https://cloud.ibm.com>

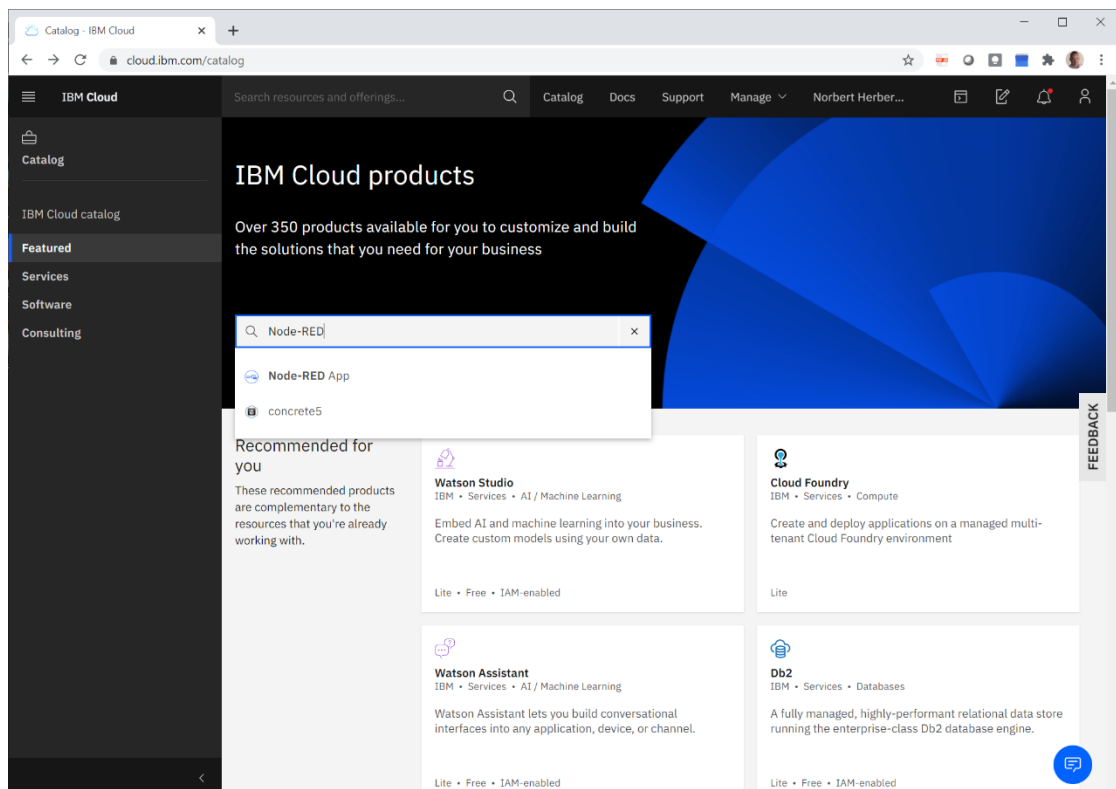
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4. Navigate to the catalog and search for “Node-RED”.



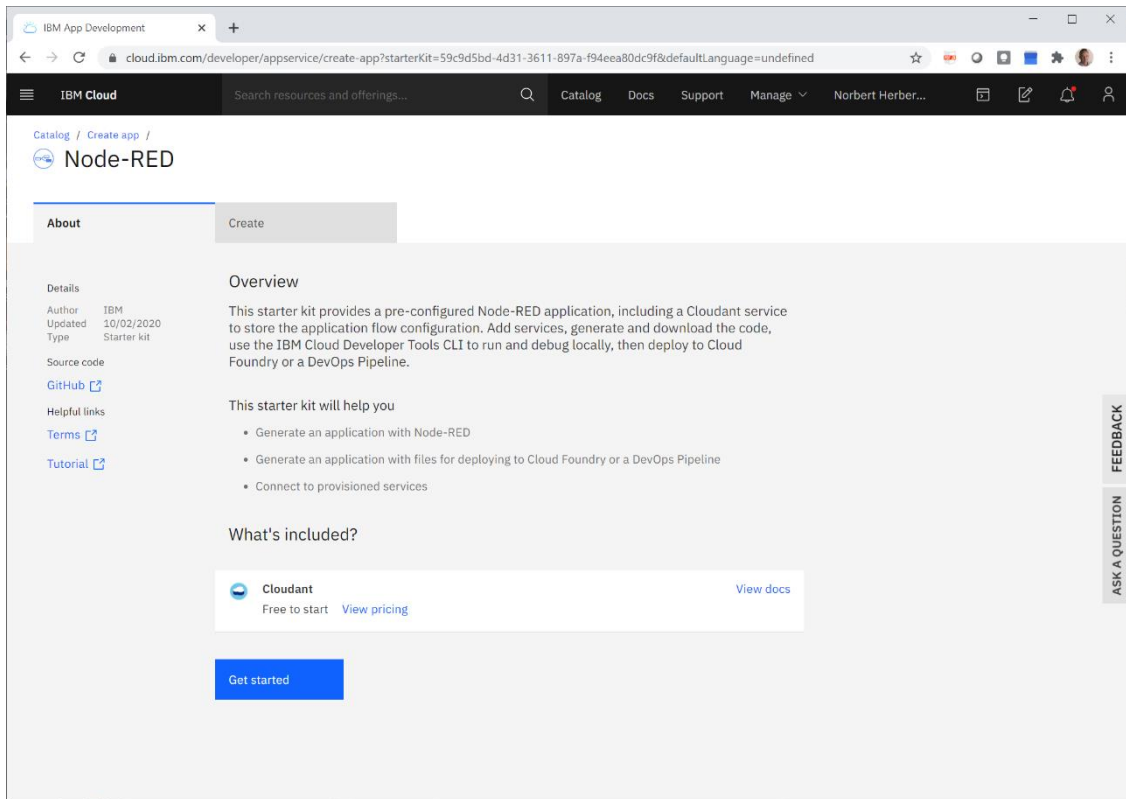
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This will present you with the Node-RED Starter. This gives you a Node-RED instance running as a Cloud Foundry application. It also provides a Cloudant database instance and a collection of nodes that make it easy to access various IBM Cloud services.



5. Click on the “Get started” button and fill in the “App name” field of the emerging form with your chosen name of your application.

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IBM App Development

cloud.ibm.com/developer/appservice/create-app?starterKit=59c9d5bd-4d31-...

IBM Cloud

Catalog Docs Support Manage

Catalog / Create app /

Node-RED

About Create

App details

App name

My_NodeRED_APP

Accept the default name, or enter a value between 2 and 128 characters.

Resource group

Default

Tags ⓘ

Examples: env:dev, version-1

Platform

☒ Node.js

Service details

Cloudant

Region

Frankfurt

Resource group

Default

Pricing plan

Lite

[Pricing details](#) [Terms](#)

FEEDBACK

ASK A QUESTION

- Click on the “Create” button and wait until the application has been created. It may take a few min.

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The screenshot shows the IBM App Development console interface. At the top, there's a navigation bar with 'IBM Cloud' and various icons. Below it, the breadcrumb 'Resource list / App details /' is visible. The main heading is 'My_NodeRED_APP' with an 'Add tags' link and an 'Actions...' dropdown menu. The 'Details' section shows fields for 'App URL' (with a message 'You must deploy your app first'), 'Source' (with a 'Download code' button), 'Resource group' (set to 'Default'), 'Deployment target' (with a message 'You must deploy your app first'), and 'Created' (21/12/2020). The 'Services' section shows a 'Cloudant' service with 'Provisioning service credentials' and buttons for 'Connect existing services' and 'Create service'. The 'Deployment Automation' section has a 'Configure Continuous Delivery' card with a 'Deploy your app' button. A 'Getting started quickly' sidebar on the right provides a numbered list of steps for configuring the app and deploying it.

IBM App Development

cloud.ibm.com/developer/appservice/apps/59d04731-2cdb-47f0-b9d7-12988...

IBM Cloud

Resource list / App details /

My_NodeRED_APP Add tags

Actions...

Details

App URL You must deploy your app first

Source Download code

Resource group Default

Deployment target You must deploy your app first

Created 21/12/2020

Services

Cloudant

Provisioning service credentials

Connect existing services + Create service +

Deployment Automation

Configure Continuous Delivery

Continuous Delivery is not enabled for this app. Enable Continuous Delivery to automate builds, tests, and deployments through Delivery Pipeline, GitLab, and more.

Deploy your app

Getting started quickly

Configuring your app

To connect services and DevOps toolchains to your app:

1. Use the **Services** card to connect a service to your app. Select an existing service instance, or create a new one. [Learn more.](#)
2. If you want to view the code before your app is deployed, click **Download code** to obtain the .zip file.
3. Click **Deploy your app** in the **Deployment Automation** card to select the deployment target and configure the Continuous Delivery service. The deployment begins automatically.
4. After the deployment begins, you can view the status of the deployment, modify your app, view your repo, or view the app's URL.
5. If you make any changes to your app, be sure to

Once the App has been created, you will see the following screen:

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IBM App Development

cloud.ibm.com/developer/appservice/apps/59d04731-2cdb-47f0-b9d7-12988...

IBM Cloud

Resource list / App details /

My_NodeRED_APP

Add tags

Actions...

Details

App URL

You must deploy your app first

Source

Download code

Resource group

Default

Deployment target

You must deploy your app first

Created

21/12/2020

Services

Cloudant

Open dashboard

Documentation

Credentials

Connect existing services

Create service

Deployment Automation

Configure Continuous Delivery

Continuous Delivery is not enabled for this app. Enable Continuous Delivery to automate builds, tests, and deployments through Delivery Pipeline, GitLab, and more.

Deploy your app

Getting started quickly

Configuring your app

To connect services and DevOps toolchains to your app:

1. Use the **Services** card to connect a service to your app. Select an existing service instance, or create a new one. [Learn more.](#)

2. If you want to view the code before your app is deployed, click **Download code** to obtain the .zip file.

3. Click **Deploy your app** in the **Deployment Automation** card to select the deployment target and configure the Continuous Delivery service. The deployment begins automatically.

4. After the deployment begins, you can view the status of the deployment, modify your app, view your app, or view the app URL.

FEEDBACK

ASK A QUESTION

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- Click on the “Deploy your app” button and then select your Deployment Target as “Cloud Foundry”

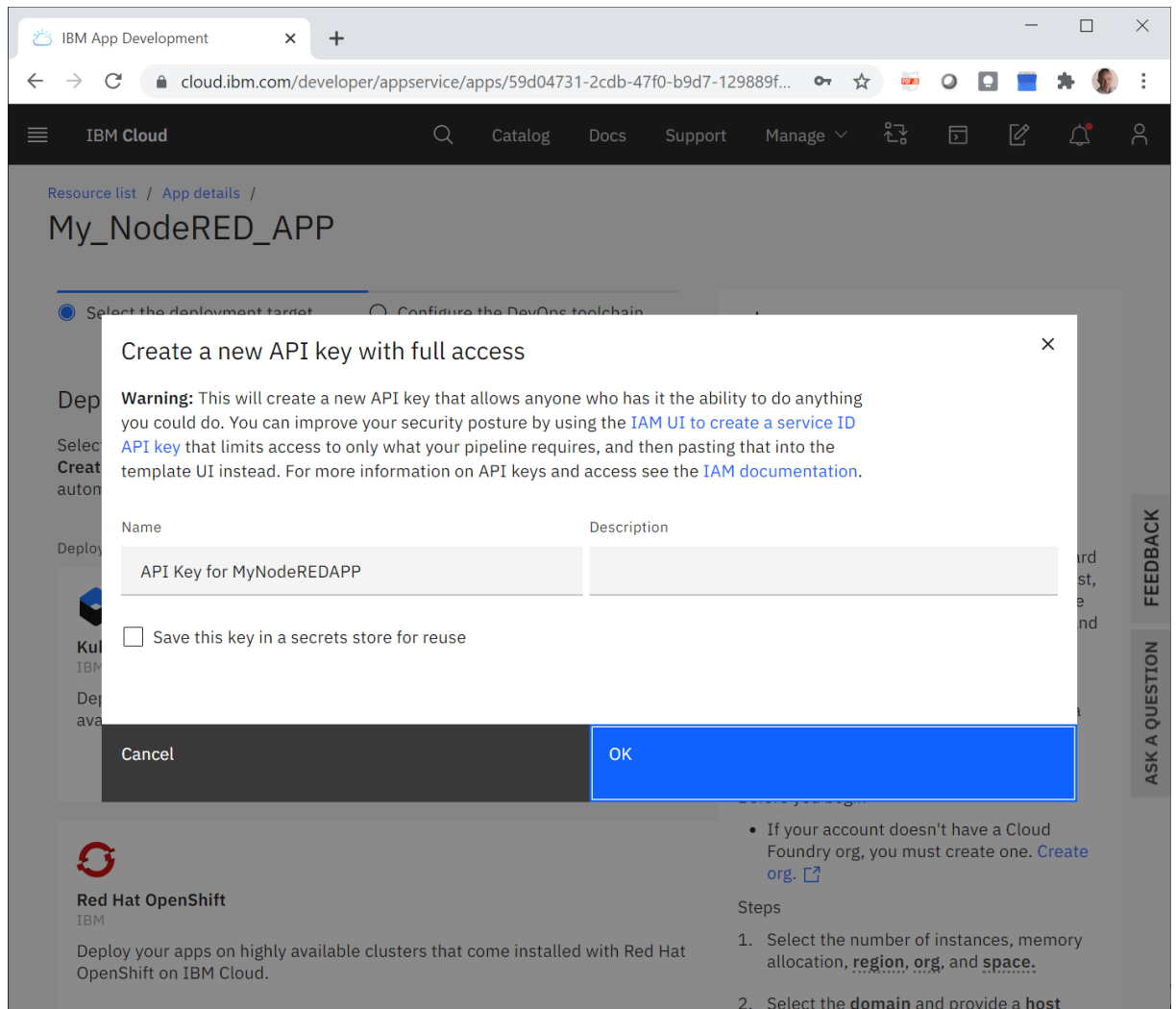
The screenshot shows the IBM App Development console interface. At the top, there's a navigation bar with "IBM Cloud" and various icons. The main heading is "My_NodeRED_APP". Below it, there are two tabs: "Select the deployment target" (active) and "Configure the DevOps toolchain". The "Deployment Automation" section explains the process. The "Deployment target" section displays four options: Kubernetes Service, Red Hat OpenShift, Cloud Foundry (selected), and Code Engine. The "Cloud Foundry" option is highlighted with a checkmark. Below this, there's a section for "IBM Cloud API key" with a text input field containing "IBM Cloud API key" and a "New +" button. A red border highlights the input field, and a message below it says "The value is required." Below the API key section, there are fields for "Number of instances" (set to 1), "Memory allocation per instance" (a slider from 64 MB to 2000 MB, currently at 256 MB), "Region" (a dropdown menu), "Organization" (a dropdown menu), and "Space" (a dropdown menu). On the right side, there's a "Getting started with apps" section with "Step 1. Select the deployment target" and instructions. A vertical sidebar on the far right contains "FEEDBACK" and "ASK A QUESTION" buttons.

- Click on the “New +” button next to the “IBM Cloud API key” field to generate a new API key.

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Click on the “OK” button.

9. Select a region for the deployment:

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IBM App Development

cloud.ibm.com/developer/appservice/apps/59d04731-2cdb-47f0-b9d7-129889f...

IBM Cloud

IBM Cloud API key

Number of instances

Memory allocation per instance

Region

Host

Domain

Cancel

Next

FEEDBACK

ASK A QUESTION

10. Write the chosen host name in the “Host” field and click on the “Next” button

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The screenshot shows the IBM Cloud Developer console interface. At the top, there's a navigation bar with 'IBM Cloud' and various links like 'Catalog', 'Docs', 'Support', and 'Manage'. Below this, the configuration form is displayed with the following fields:

- Region:** A dropdown menu currently showing 'London'.
- Organization:** A dropdown menu showing 'norbert.herbert@gmail.com'.
- Space:** A dropdown menu showing 'dev'.
- Host:** A text input field containing 'mynoderedapp-fot-TPL'.
- Domain:** A dropdown menu showing 'eu-gb.mybluemix.net'.

At the bottom of the form, there are two buttons: 'Cancel' (grey) and 'Next' (blue). On the right side of the form, there are two vertical buttons: 'FEEDBACK' and 'ASK A QUESTION'.

11. After you clicked on “Next”, select the region of your DevOps toolchain in and click on Create

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The screenshot shows the IBM App Development web interface. The browser address bar displays the URL: cloud.ibm.com/developer/appservice/apps/59d04731-2cdb-47f0-b9d7-129889f... The page title is 'My_NodeRED_APP'. Below the title, there are two tabs: 'Select the deployment target' (inactive) and 'Configure the DevOps toolchain' (active). The main content area is titled 'Configure the DevOps toolchain' and includes the instruction: 'Give your toolchain a name and select the region to create your toolchain in.' There are two input fields: 'DevOps toolchain name' with the value 'MyNodeREDAPP' and 'Region' with the value 'London'. Below these fields are 'Back' and 'Create' buttons. On the right side, there is a 'Getting started with apps' sidebar with a list of steps. The first step is 'Provide a name for your toolchain.' The second step is 'Select the region where your toolchain is created.' The third step is 'Select the resource group that has access to your new toolchain. Learn more.' The fourth step is 'After you're finished with your selections, click Create.' There are also 'FEEDBACK' and 'ASK A QUESTION' buttons on the right side of the sidebar.

IBM App Development

cloud.ibm.com/developer/appservice/apps/59d04731-2cdb-47f0-b9d7-129889f...

IBM Cloud

Resource list / App details /

My_NodeRED_APP

Select the deployment target Configure the DevOps toolchain

Configure the DevOps toolchain

Give your toolchain a name and select the region to create your toolchain in.

DevOps toolchain name

MyNodeREDAPP

Accept the default name, or enter a value up to 100 characters.

Region

London

Back Create

Getting started with apps

Step 2. Configure the DevOps toolchain

The DevOps toolchain includes a Delivery Pipeline tool where you can check the deployment status, start builds, manage deployment, and view logs and history.

1. Provide a name for your toolchain.
2. Select the region where your toolchain is created.
3. Select the resource group that has access to your new toolchain. [Learn more.](#)
4. After you're finished with your selections, click **Create**.

FEEDBACK

ASK A QUESTION

12. Wait until the deployment is finished (it may take a few min)

Once the deployment has been finished, you will see the following screen:

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Integration with Third Party NS - TTN - v3 - 23



The screenshot shows the IBM Cloud Developer console interface. The browser address bar displays the URL: cloud.ibm.com/developer/appservice/apps/59d04731-2cdb-47f0-b9d7-129889f970a5. The page title is "My_NodeRED_APP" with an "Add tags" link. The main content area is divided into several sections:

- Details:** A table showing application metadata.

App URL	https://myneredapp-fot-TPL.eu-gb.mybluemix.net
Source	https://eu-gb.git.cloud.ibm.com/norbert.herbert/MyNodeREDAPP
Resource group	Default
Deployment target	My_NodeRED_APP
Created	21/12/2020
- Services:** A section showing the "Cloudant" service with links to "Open dashboard" and "Documentation". Below this are buttons for "Connect existing services" and "Create service".
- Deployment Automation:** A section showing the deployment configuration.

Name	MyNodeREDAPP
Location	London
Tool integrations	[Icons for GitHub, Docker, etc.]
- Delivery Pipelines:** A section showing the pipeline status.

Name	MyNodeREDAPP
Status	Success
Last input	Last commit by IBM Cloud DevOps Services (31 minutes ago)

On the right side of the console, there are vertical buttons for "FEEDBACK" and "ASK A QUESTION".

Verify if “Status” under the “Delivery Pipelines” title is “Success” and there is a valid “App URL” field on the screen.

13. Click on the “App URL” URL on the screen.

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IBM App Development x Node-RED on IBM Cloud x +

← → ↻ mynoderedapp-fot-tpl.eu-gb.mybluemix.net/?_ga=2.203996624.1133119542.1... ☆

Welcome to your new Node-RED instance on IBM Cloud

We know you're eager to start wiring up your flows, but first there are a couple of tasks you should do:

- Secure your Node-RED editor
- Learn how to install additional nodes

Progress bar: 1 of 4 steps completed (indicated by a red bullseye in the first circle).

Previous Next

14. Click on the “Next” button and fill in the form

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Secure your Node-RED editor

☒ Secure your editor so only authorised users can access it

Username

Password weak

☒ Allow anyone to view the editor, but not make any changes

☐ *Not recommended:* Allow anyone to access the editor and make changes

☒ ☒ ☐ ☐

Previous Next

15. After you filled in the form with your selected Node-RED credentials click on the “Next” button

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IBM App Development x Node-RED on IBM Cloud x +

← → ↻ mynoderedapp-fot-tpl.eu-gb.mybluemix.net/?_ga=2.203996624.1133119542.1... ☆

Learn how to install additional nodes

Node-RED provides a **huge catalog of extra nodes** you can install into the editor.

Many of these nodes can be installed directly from the editor's palette manager feature. However that can cause issues due to the limited memory of the default Node-RED starter application.

The *recommended approach* is to edit your application's `package.json` file to include the additional node modules and then redeploy the application. This can be done using the Continuous Delivery feature on the application's IBM Cloud dashboard.

For more information, follow [this tutorial on IBM Developer](#).

Progress bar: 4 steps, 3rd step active. Buttons: Previous, Next.

16. Read the text and click on the “Next” button again

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Integration with Third Party NS - TTN - v3 - 27



IBM App Development x Node-RED on IBM Cloud x +

← → ↻ mynoderedapp-fot-tpl.eu-gb.mybluemix.net/?_ga=2.203996624.1133119542.1... ☆

Finish the install

You have made the following selections:

- Secure your editor so only authorised users can access it
- Allow anyone to view the editor, but not make any changes

You can change these settings at any time by setting the following environment variables via the IBM Cloud console:

- `NODE_RED_USERNAME` - the username
- `NODE_RED_PASSWORD` - the password
- `NODE_RED_GUEST_ACCESS` - if set to `'true'`, allows anyone read-only access to the editor

Progress indicator: 4 steps, 3rd step active.

[Previous](#) [Finish](#)

17. Read the text and click on the “Finish” button

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Node-RED on IBM Cloud

Node-RED

Flow-based programming for the Internet of Things

Node-RED is a programming tool for wiring together hardware devices, APIs and online services in new and interesting ways.

This instance is running as an IBM Cloud application, giving it access to the wide range of services available on the platform.

More information about Node-RED, including documentation, can be found at nodered.org.

[Go to your Node-RED flow editor](#)

[Learn how to customise Node-RED](#)

Customising your instance of Node-RED

This instance of Node-RED is enough to get you started creating flows.

You may want to customise it for your needs, for example replacing this introduction page with your own, adding http authentication to the flow editor or adding new nodes to the palette.

To start customising your instance of Node-RED, you can either download the application locally or use IBM DevOps Services to edit and deploy your changes directly.

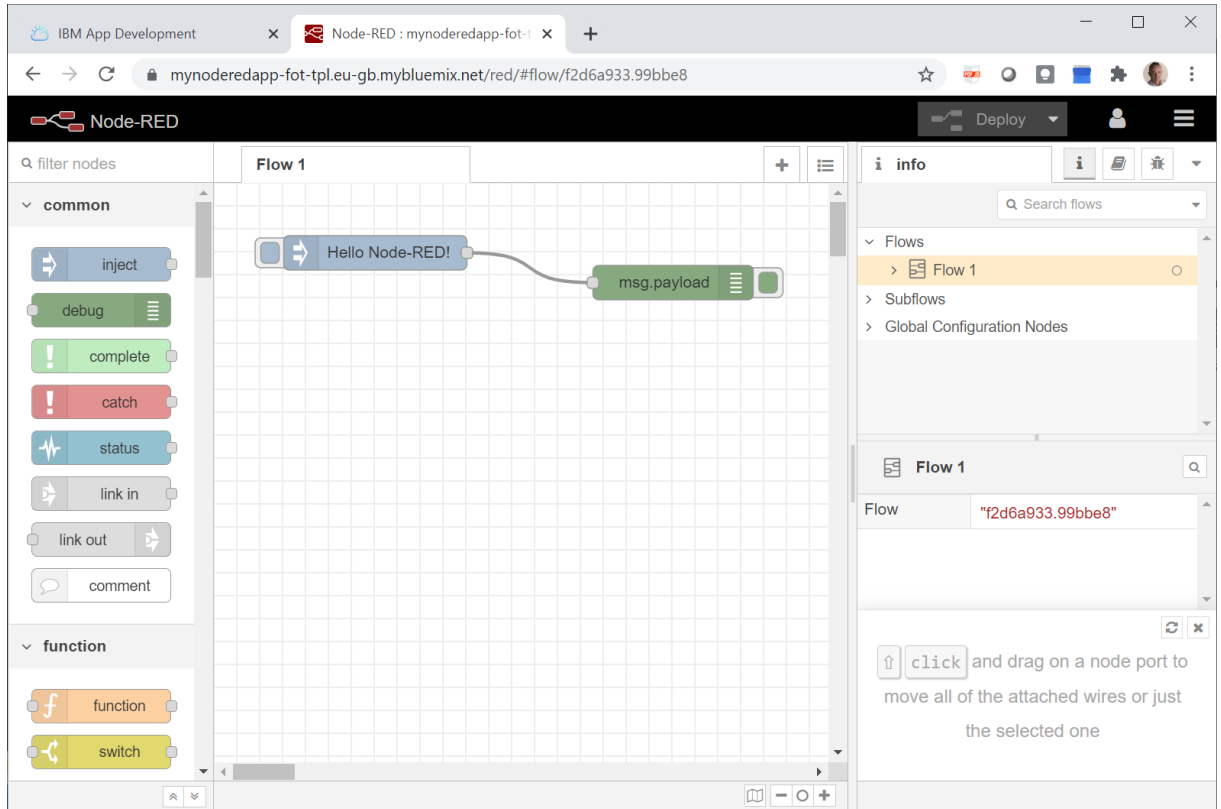
[+ Securing the editor](#)

18. Read the text and click on the “Go to your Node-RED flow editor”

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Step 2: Get the token for ThingPark X Location Engine

In this step, we need to ensure we can successfully login to ThingPark X Location Engine. You need a valid ThingPark account to access ThingPark X Location Engine. Here are the steps:

1. Create a free account on <https://community.thingpark.org/> if you do not have ThingPark account
2. Generate the token on [DX Admin API](#) and copy it as it will be used in the next step

Note: If you are using other ThingPark Platform, please refer here [1].

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POST

/oauth/token

Token generation

Implementation Notes

Generates and retrieves a token for a client.

Response Class (Status 200)

Token generated and retrieved successfully.

Model | Example Value

Token {
 access_token (string, optional): Value of the token.,
 token_type (string, optional): Type of the token.,
 expires_in (integer, optional): Time before expiral of the token (in seconds). Value of -1 means that the token will never expire (but can be revoked).,
 scope (string, optional): ThingPark scope allowed by the token.,
 jti (string, optional): Technical JWT unique identifier.,
 client_id (string, optional): Unique identifier of the client who requested the token.,
 provider_id (string, optional): Unique identifier of the JWT provider, in case it is not ThingPark.,
 customer_id (string, optional): Unique identifier of the customer associated with the client, either a ThingPark subscriber or a provider-specific customer.
}

Response Content Type

application/json

Parameters

Parameter	Value	Description	Parameter Type	Data Type
grant_type	<div>client_credentials</div>	Type of the OAuth2 grant workflow. Its value should always be 'client_credentials', which is the only workflow currently supported.	formData	string
client_id	<div>community-api/rohit.gupta+sub-community-tes</div>	Id of the client. Its format should be 'thingpark-profile/thingpark-login', e.g. 'dev1-api/john.smith@actility.com'.	formData	string
client_secret	<div>*****</div>	Secret of the client. Its value should be the password for the ThingPark login specified in the 'client_id' parameter.	formData	string
renewToken	<div>false</div>	Forces the token to be renewed. If false, and a token already exists for the client, it will be reused. If true, a new token is always returned. Default is false.	query	boolean
validityPeriod	<div>infinite</div>	Validity of the new token. Possible values are '5minutes', '12hours', '7days', '90days' or 'infinite' (never expires, until revocation). Default is '7days'. Note that in order to properly use an 'infinite' token, the user password MUST NOT be updated at any time (thus requiring an API-Only user account or a non-expiring-password security policy).	query	string

Try it out!

[Hide Response](#)

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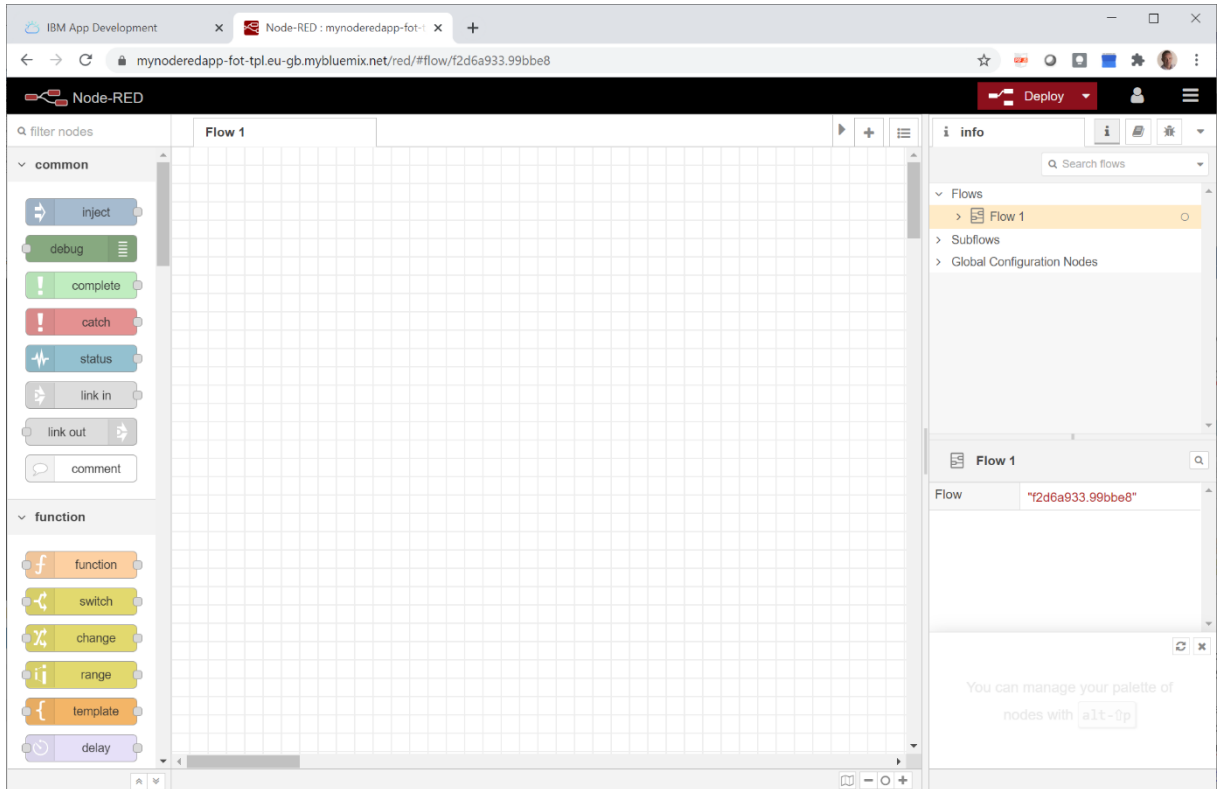
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In this step, we deploy the Node-RED flow to connect the Third Party Network server to ThingPark Location. The source code of several different Network Servers (NS) such as TTN, Senet, Kerlink, Lorient, etc is here:

1. Open the Node-RED flow manager application

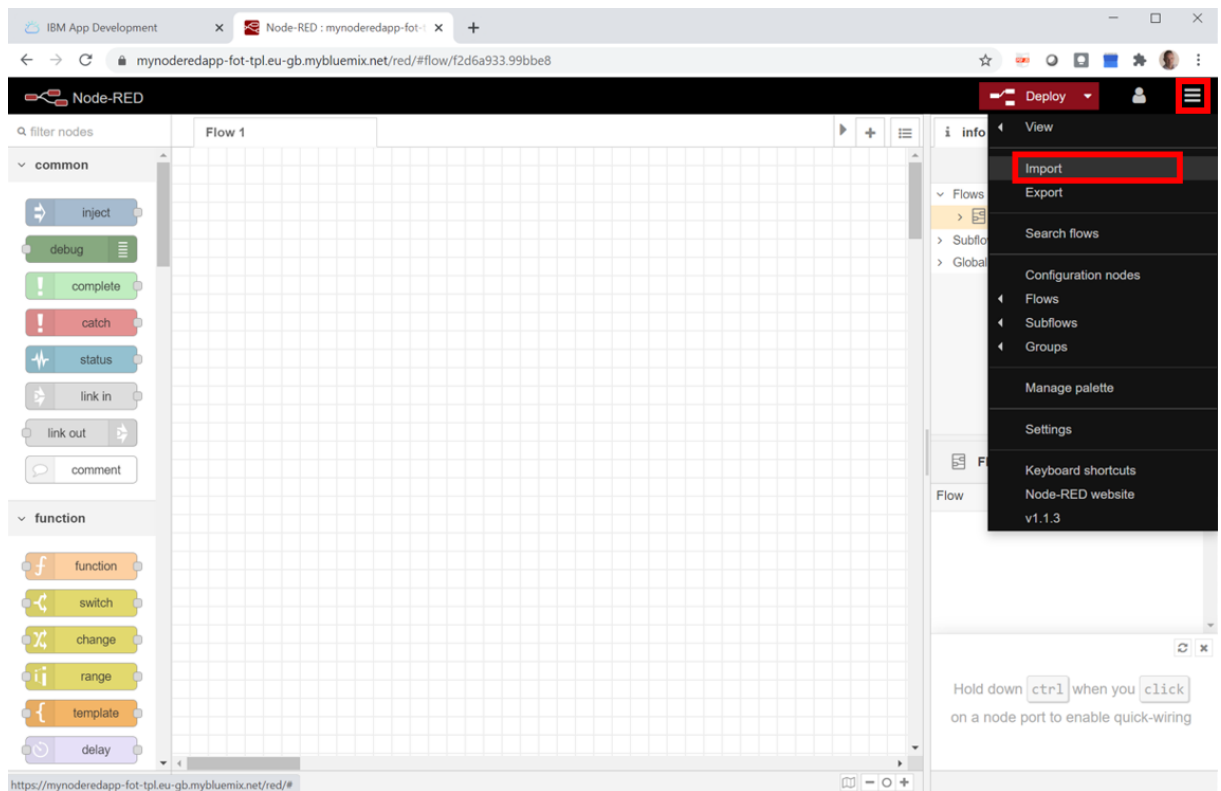


2. Click on the top-right icon on the screen (on the 3 horizontal bars) and select “import”.

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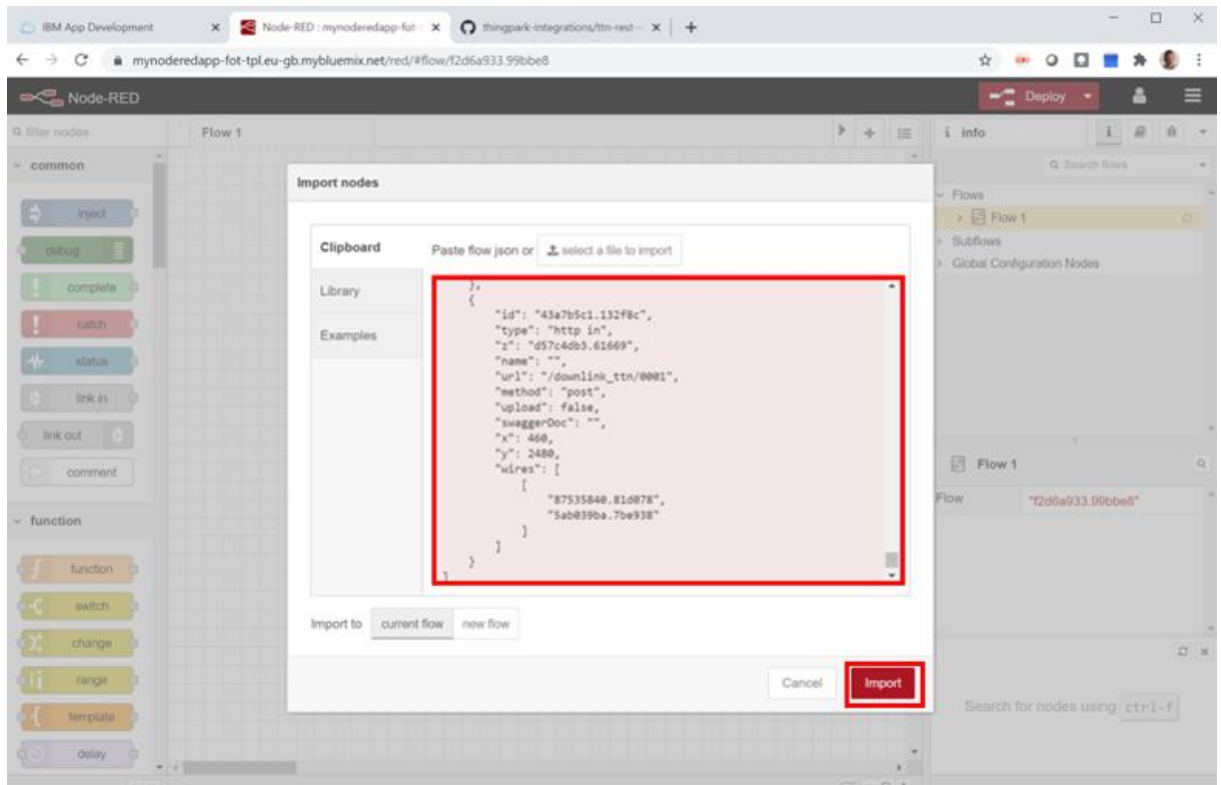


3. Paste the source code of the appropriate Network Server to the Text Area in the middle. The example below has the source code of TTN integration with ThingPark Location. Once the source code is copied, click on the “import” button.

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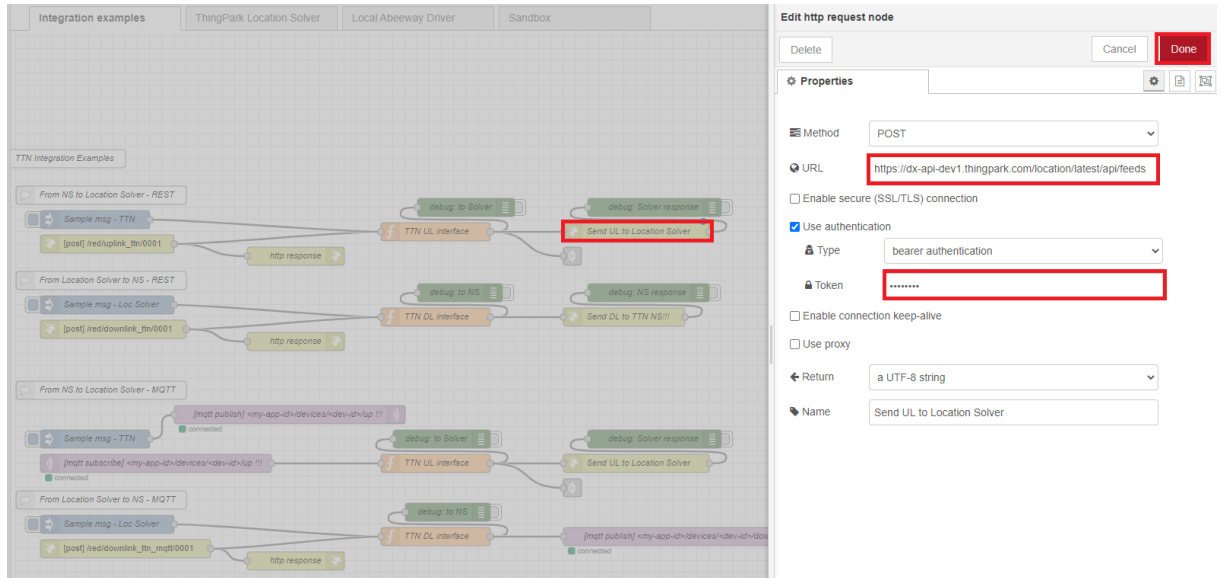


4. Double-click on the “Send_UL to Location Solver” node. Put your ThingPark X Location Engine Token into the “Token” field that you copied in the earlier Step. The authentication type should be set to “Bearer authentication” and the ThingPark Location URL should be set to, <https://dx-api-dev1.thingpark.com/location/latest/api/feeds>. Click on “Done” to update these settings.

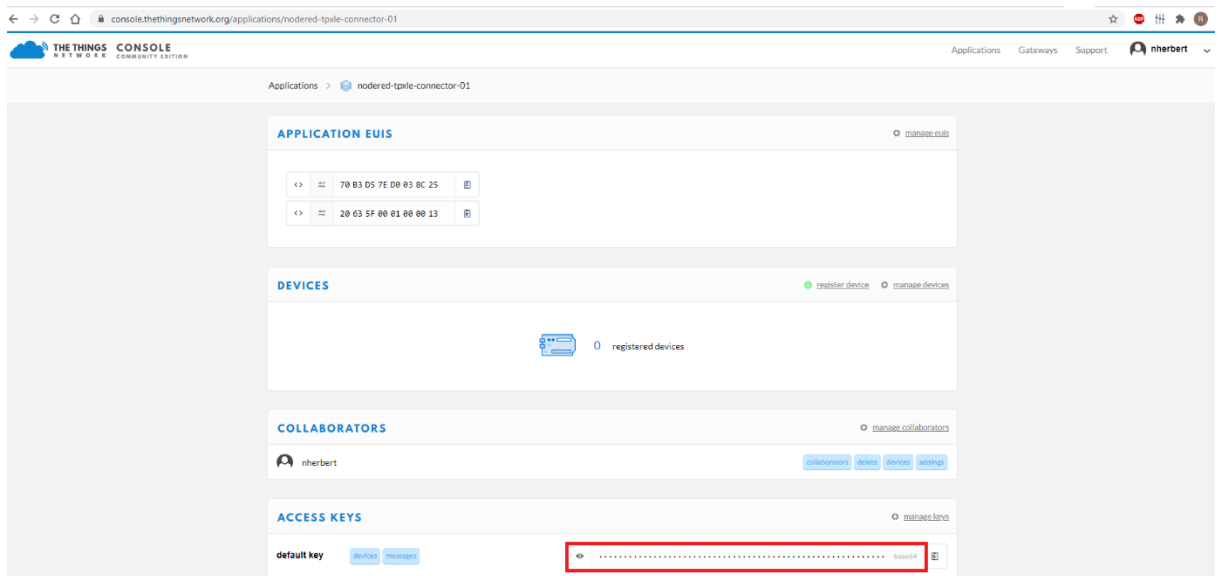
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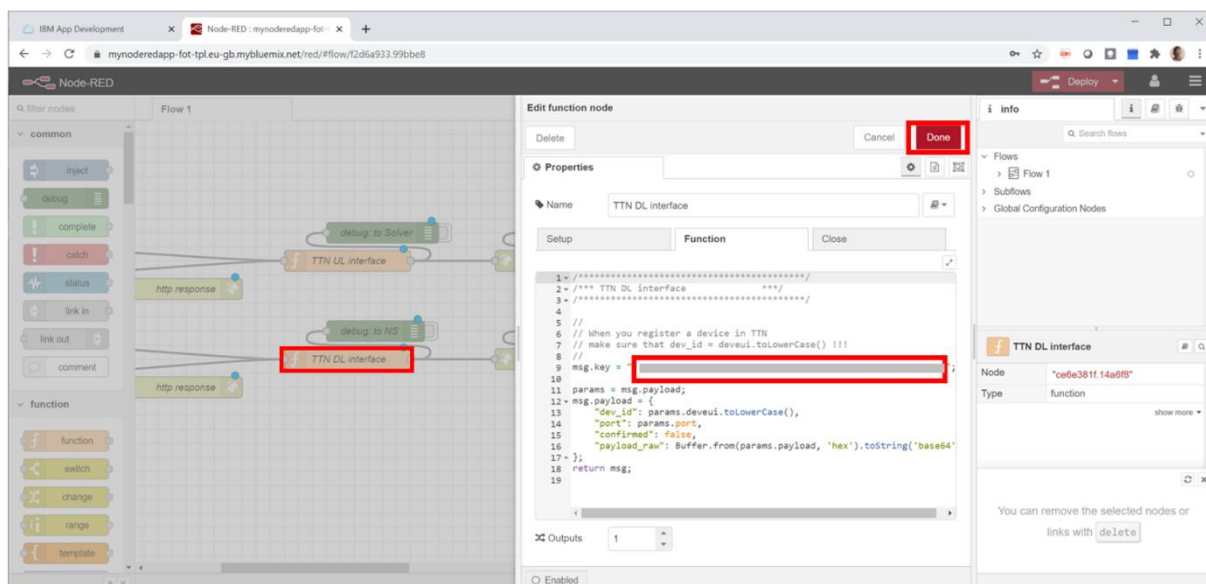
Integration with Third Party NS - TTN - v3 - 35



5. Copy the Access Key in TTN Console. The Access Key will be needed in the next step for ThingPark X Location Engine to be able to send downlinks



6. In case you use TTN NS, double-click on the “TTN DL Interface” node and edit the emerging code so that the `msg.key = ""` is defining the TTN access key. Then click on the “Done” button



7. Click on the red “Deploy” button on top of the screen.
If you are requested to log in, click on the user icon on the top right of the screen and log in to your Node-RED credentials you created earlier.

Step 4: Route the uplinks from the Network Server to the Network Interface Converter

In this step, we need to route the uplinks from the network server to the Network Interface Converter. The routing URLs for different network servers are shown below:

Third Party Network Server	Routing URL
Kerlink	[URL_Interface_Converter]/uplink_kerlink/0001 Interface: REST
Loriot	[URL_Interface_Converter]/uplink_loriot/0001 Interface: REST

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Multitech	<p>Multitech only supports the MQTT interface. The NS is publishing uplink messages in the “/lor/<DEV-EUI>/up” MQTT topic.</p> <p>On NodeRED server you have to set the Hostname of your MQTT broker by opening the “[mqtt subscribe] lor/<DEV-EUI>/up” node.</p> <p>Interface: MQTT</p>
Senet	<p>[URL_Interface_Converter]/uplink_senet/0001</p> <p>Interface: REST</p>
Senra	<p>[URL_Interface_Converter]/uplink_senra/0001</p> <p>Interface: REST</p>
TTN	<p>[URL_Interface_Converter]/uplink_ttn/0001</p> <p>Interface: REST</p>
Helium	<p>[URL_Interface_Converter]/uplink_helium/0001</p> <p>Interface: REST</p>

Here is the example routing that needs to be set for TTN. Note, that the URL needs to be adapted based on where Network Interface converter is deployed.

console.thethingsnetwork.org/applications/nodered-for-tpde/integrations/http-ttn-nodered

Applications > nodered-for-tpde > integrations > ttn-nodered

Overview > Devices > Paired Devices > **Integrations** > Data > Settings

INTEGRATION OVERVIEW

Process ID: **ttn-nodered**

Status: **Running**

Platform: **HTTP Integration (v0.4.0)** [documentation](#)

Author: The Things Industries BV

Description: Sends uplink data to an endpoint and receives downlink data over HTTP

SETTINGS

Access Key: **everything** (everything, devices, integrations, profile)

URL: **https://my.noderedapp-40e3p4u-gb.mqtt.thingsnetwork.net/uplink_dev/0001**

Method: **POST**

Authorization:

Custom Header Name:

Custom Header Value:

Save

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Step 5: Verifying the integration with Abeeway Device Manager (ADM)

Abeeway device manager [2] is a very useful ThingPark Location application to manage and configure Abeeway trackers.

Once the integration is successful, you can login to Abeeway Device Manager and see the information about the trackers.

The screenshot shows the Abeeway Device Manager (ADM) interface. At the top, there's a navigation bar with tabs: Devices, Map, Performance monitor, Device configuration, Uplinks Data Log, and Contact Tracing. Below the navigation bar, there's a 'Device Analysis Dashboard' section with a date range selector (From 2020-12-01 09:50 To) and a 'Reload' button. The main part of the dashboard is a table with the following columns: Device Name, MCU Firmware, BLE Firmware, Uplink frames, PER, First Position, Last Position, First Packet, Last Packet, Last Mode, and Battery. Two devices are listed in the table:

Device Name	MCU Firmware	BLE Firmware	Uplink frames	PER	First Position	Last Position	First Packet	Last Packet	Last Mode	Battery
20635F01E100018C	2.1.0	3.2.2	188	4.08%	No data	No data	2020-12-14 12:46:11	2020-12-21 14:04:43	OFF	SHUTDOWN USER_ACTION
20635F01E1000193	2.1.0	3.2.2	180	6.25%	No data	No data	2020-12-14 12:46:04	2020-12-21 14:03:48	OFF	SHUTDOWN USER_ACTION

Note: The device must send at least one uplink to ThingPark location successfully for ADM to show the trackers

References:

[1] ThingPark Location Platform URLs: <https://docs.thingpark.com/thingpark-location/Content/D-Reference/ThingParkLocationURLs.htm>

[2] Abeeway Device Manager User Guide: https://docs.thingpark.com/thingpark-location/Content/B-Feature-Topics/AbeewayDeviceManager_C.htm

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