

# Create the necessary framework for successfully creating the course

## Instructions

In this assignment we want to make sure that every student has successfully setup the runtime environment in order to successfully complete the course.

This involved the following steps:

1. Create an account on IBM Bluemix
2. Deploy the Watson IoT Starter Boilerplate
3. Export the sample flow to a file and submit it to the grader
4. Setup the ApacheSpark and Jupyter based Data Science Experience Workbench
5. Export the sample notebook to a file and submit it to the grader

## Create an account on IBM Bluemix

IBM Bluemix is the name for all IBM Cloud offerings. In this course we will concentrate on IBM's Platform as a Service (PaaS) cloud offering. The following components will be used:

- Cloudfoundry – a flexible, open standard, open source runtime environment for PaaS
- NodeRED – the open source data flow editor and runtime running on top of Node.js
- Cloudant – the IBM NoSQL database as a service (DBaaS) offering based on open source ApacheCouchDB

- ApacheSpark as a service
- Watson IoT Platform – among other functionalities it provides a scalable, open standard (MQTT) based publish-subscribe messaging hub for integration of IoT devices

Please follow these instructions:

1. Open the following URL to create a free IBM Bluemix account (not needed if you already have one)

<http://ibm.biz/joinIBMCloud>



Already signed up for Bluemix? [Log in](#)

## Sign up

Your 30-day trial is free, with no credit card required. You get access to 2 GB of runtime and container memory to run apps, unlimited IBM services and APIs, and complimentary support.

Email Address\*

First Name\*

Last Name\*

Company

Country or Region\*

Keep me informed of products, services, and offerings from IBM companies worldwide:

☐ By email ☐ By telephone

By clicking Create Account, I accept the [Bluemix privacy policy](#) and [Bluemix terms](#).

Phone Number\*

Password\*

Re-enter Password\*

Security Question\*

Security Answer\*

Create Account

2. Open the following URL and login with you newly created account

<http://bluemix.net/>

[and please accept the T&Cs](#)

# Terms and conditions



To continue, read and agree to the [Terms and Conditions](#) for your unified account.



I understand and agree to the terms and conditions

Cancel

Continue

[LOG OUT](#) | [SUPPORT](#)

3. When logging in for the first time you are asked to create an organization (we'll explain next week what this means)

!!! PLEASE MAKE SURE YOU'RE USING US South or United Kingdom as region since the Watson IoT Platform is not yet available in the other regions !!!

# Welcome to Bluemix



Before you start using Bluemix, you need to set up your environment.

To start, name your first organization. Think of an org as a project or team that shares resources, such as apps, databases, and other services. Orgs exist in geographic regions, so decide where you'd like to put your first one.

---

US South



thisIsMyEmailAddress@xyz.com

Create

Choose US South and enter your email id (e.g. thisIsMyEmailAddress@xyz.com, then click on create

4. When logging in for the first time you are also asked to create an virtual space (we'll explain next week what this means as well)

# Create Space



Now, let's get you set up with a space.

Spaces help you manage access and permissions for a set of resources, and map nicely to development stages like dev, test, and prod. Name your first space now—you can add more spaces later.

Org name: [thisIsMyEmailAddress@xyz.com](#)

Create

**NEED SOME SUGGESTIONS? TRY THESE**



Choose US South and enter dev, then click on create and you should see the last screen

# Summary



Good to Go!

You're up and running with your first org and space. Are you ready to get started with Bluemix?

Org name: **xyy.1ormium@spamgourmet.com**

Space name: **dev**

**I'm Ready**

Click on "I'm Ready"

5. Click on I'm ready, congratulations, you are done with the first part

## Deploy the Watson IoT Starter Boilerplate

1. Deploy the IBM IoT Starter Boilerplate by opening this link <https://console.ng.bluemix.net/catalog/starters/internet-of-things-platform-starter>

[View All](#)

### Create a Cloud Foundry Application

#### Internet of Things Platform Starter

Get started with IBM Watson IoT platform using the Node-RED Node.js sample application. With the Starter, you can quickly simulate an Internet of Things device, create cards, generate data, and begin analyzing and displaying data in the Watson IoT Platform dashboard.

IBM

[View Docs](#)

VERSION	0.5.02
TYPE	Boilerplate
REGION	US South

App name:

Host name:

Domain:

mybluemix.net

Selected Plan:

SDK for Node.js™


Default

Cloudant NoSQL DB


Lite

Internet of Things Platform


Standard



SDK for Node.js™



Cloudant NoSQL DB



Internet of Things Platform

[Need Help?](#)  
[Contact Bluemix Sales](#)

[Estimate Monthly Cost](#)  
[Cost Calculator](#)

Create

Enter a name for your app – take a name you can remember, as it becomes part of the URL your app is deployed. Note: Since all apps per default are sharing the same top level domain you name might have already been taken. In this case simply choose another name. Then click on create

2. You should see a screen like this:

The screenshot shows the IBM Bluemix Cloud Foundry Apps dashboard. The top navigation bar includes the IBM Bluemix logo, the text 'Cloud Foundry Apps', a user ID '244', and links for 'Catalog', 'Support', and 'Account'. The left sidebar contains a 'Dashboard' link and a 'Getting Started' section with sub-links for 'Overview', 'Runtime', 'Connections', 'Logs', and 'Monitoring'. The main content area displays the 'hereGoesYourUniqueAppName' app status as 'Your app is running'. Below this, the 'Getting started with Watson IoT Platform Starter' page is shown, featuring a title, a last updated date of '27 June 2016', and a link to 'Edit in GitHub'. The page content includes a paragraph about getting started with IBM Watson IoT Platform, a list of services deployed by the Starter (Watson IoT Platform, IBM SDK for Node.js, and IBM Cloudant), and sections for 'About Watson IoT Platform', 'About Node-RED', and 'Getting Around'.

IBM Bluemix Cloud Foundry Apps 244 Catalog Support Account

← Dashboard

hereGoesYourUniqueAppName Status: ● Your app is running View App

### Getting started with Watson IoT Platform Starter

Last updated: 27 June 2016 / [Edit in GitHub](#)

Get started with IBM® Watson™ IoT Platform by using the Watson IoT Platform Starter boilerplate. With the Starter, you can quickly simulate a device, create cards, generate data, and begin analyzing and displaying data in the Watson IoT Platform dashboard.

The Starter automatically deploys and connects these services:

- Watson IoT Platform - The platform gives you a versatile IoT toolkit that includes gateway devices, device management, and powerful application access. By using Watson IoT Platform, you can collect connected device data and perform analytics on real-time data from your organization.
- IBM® SDK for Node.js for Bluemix® - creates a runtime environment in which Node-RED runs.
- IBM® Cloudant® NoSQL DB for Bluemix® - a database in which Node-RED stores metadata.

#### About Watson IoT Platform

Watson IoT Platform provides powerful application access to IoT devices and data to help you rapidly compose analytics applications, visualization dashboards, and mobile IoT apps. Watson IoT Platform allows you to perform powerful device management operations, and store and access device data, connect a wide variety of devices and gateway devices. Watson IoT Platform provides secure communication to and from your devices by using MQTT and TLS.

#### About Node-RED

Node-RED is a tool for wiring together hardware devices, APIs, and online services in new and interesting ways. You can use Node-RED to create a simulated thermostat that sends simulated data to your Watson IoT Platform service. You can create cards to display real-time data in the Watson IoT Platform dashboard. For more information, see the [Node-RED documentation](#).

#### Getting Around

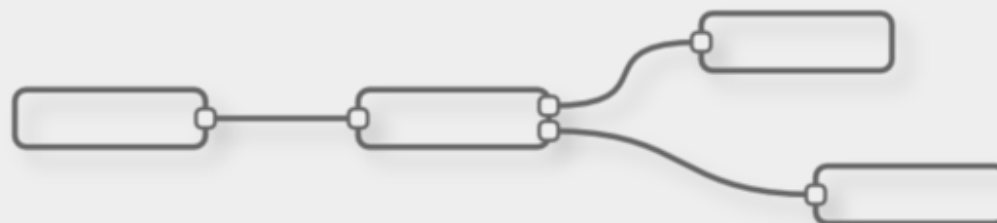
Click on “View App” (after deployment has been finished)

3. You now should see the welcome screen of NodeRED, the open source data flow editor, click on “Go to your Node-RED flow editor”

# Node-RED in Bluemix

A visual tool for wiring the Internet of Things

IBM Watson IoT Platform



Node-RED provides a browser-based editor that makes it easy to wire together flows that can be deployed to the runtime in a single click.

The version running here has been customized for the IBM Watson IoT Platform.

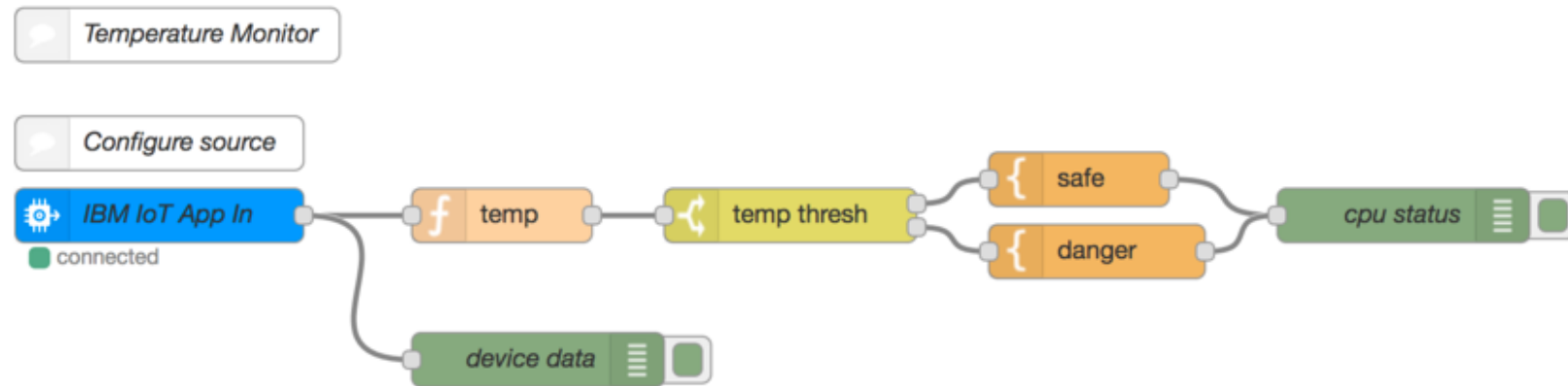
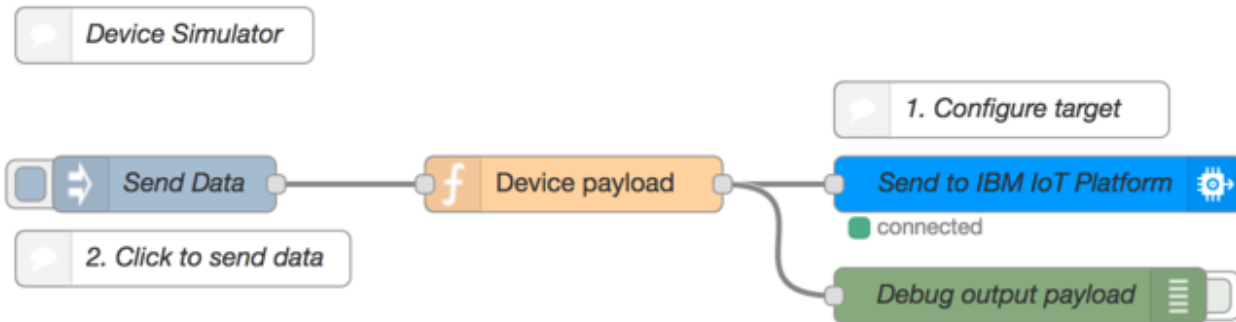
We strongly suggest you secure your Node-RED flow editor with a username and password, as otherwise anyone who can guess the URL of this application will be able to launch the flow editor and access your IoT device data.

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

[Learn how to password-protect your instance](#)

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

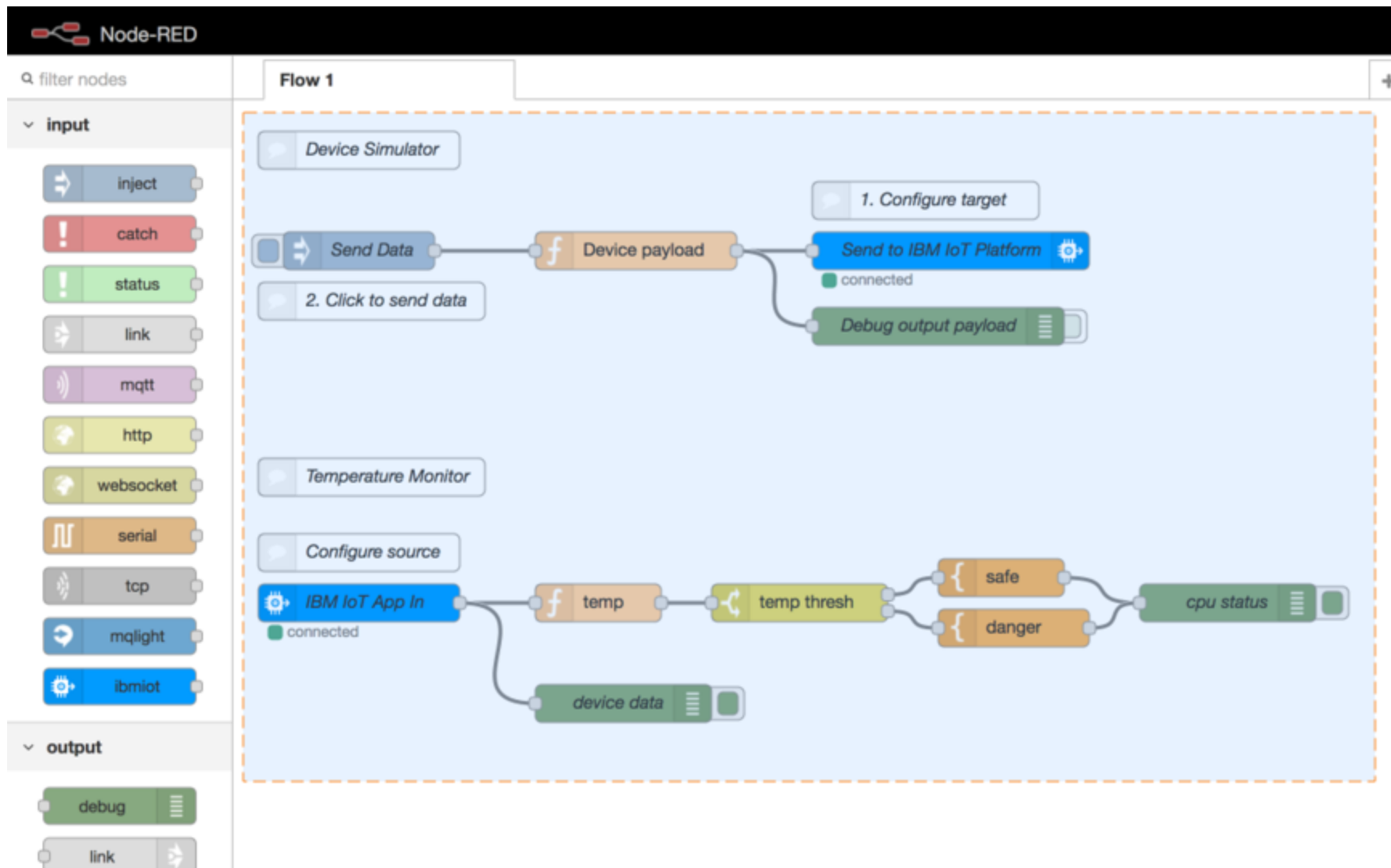
4. Now you can see the a sample flow – no worries – we won't ask any questions about this at this time



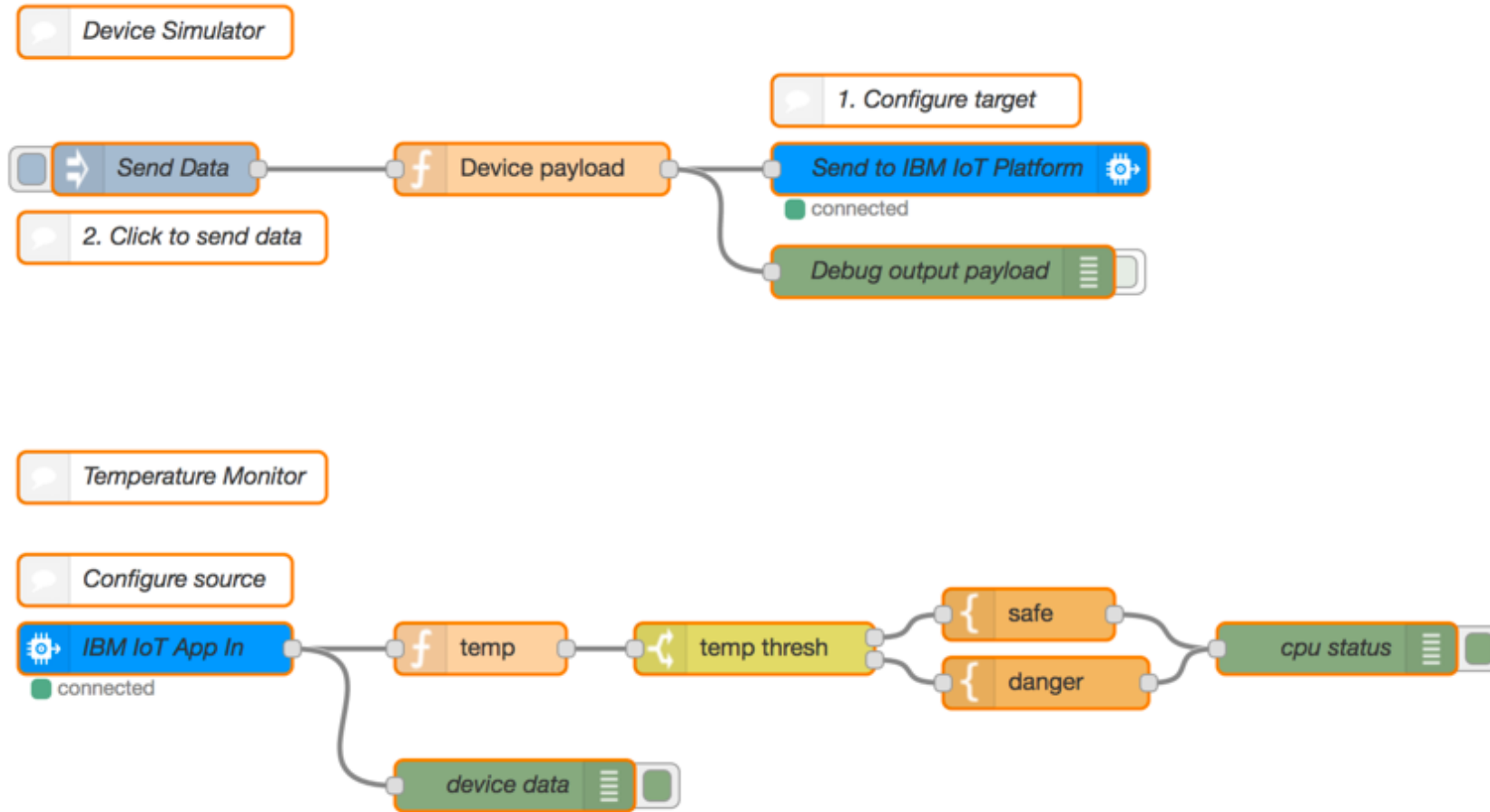
5. Just select the complete flow by positioning your mouse pointer at the top left corner of the flow, press the left mouse button and drag it diagonally to the bottom right corner, then release it. Make sure all elements of this flow are selected

Important hint: DON'T USE CTRL-A for selection, it returns a different JSON !!!

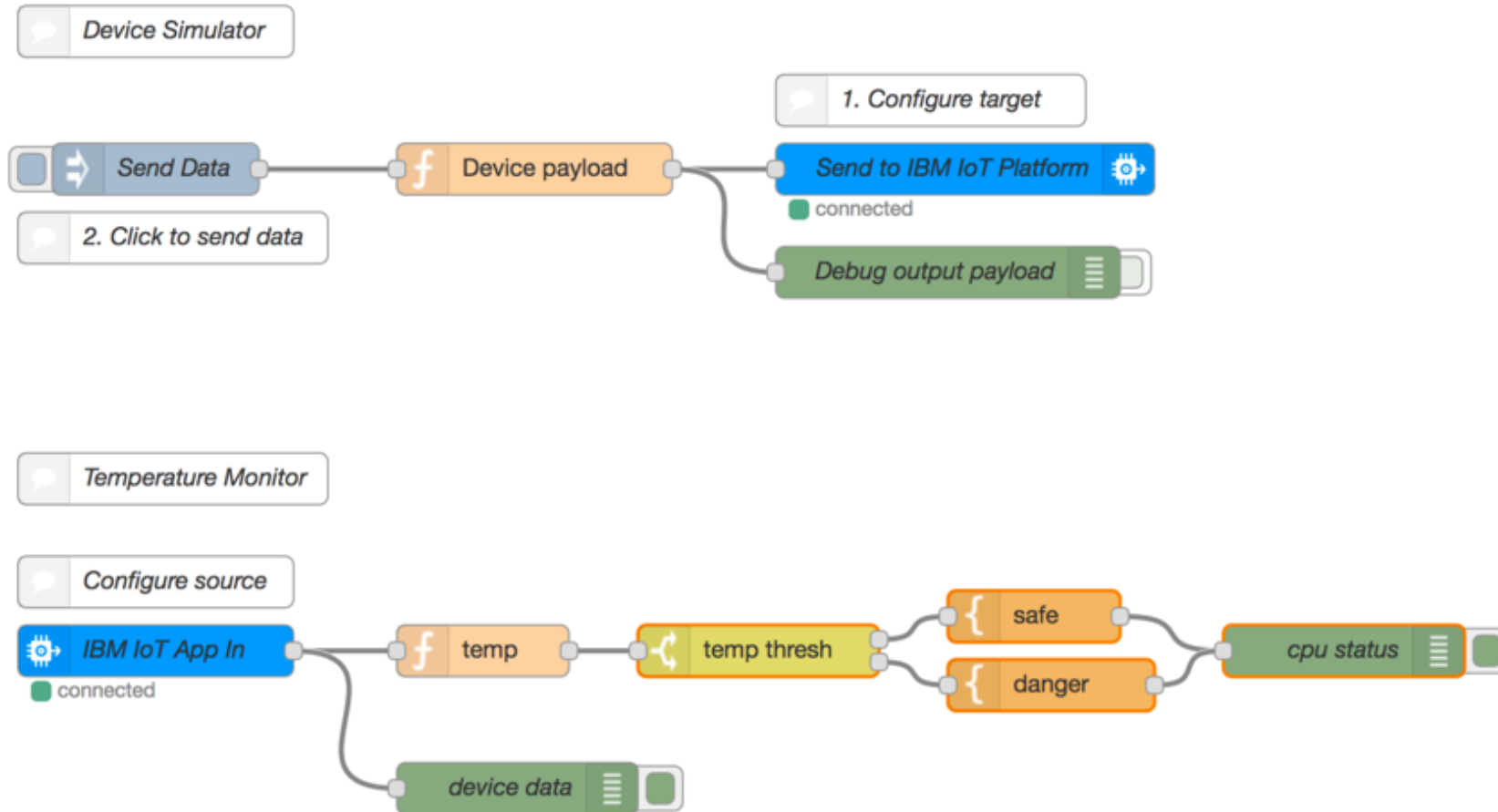




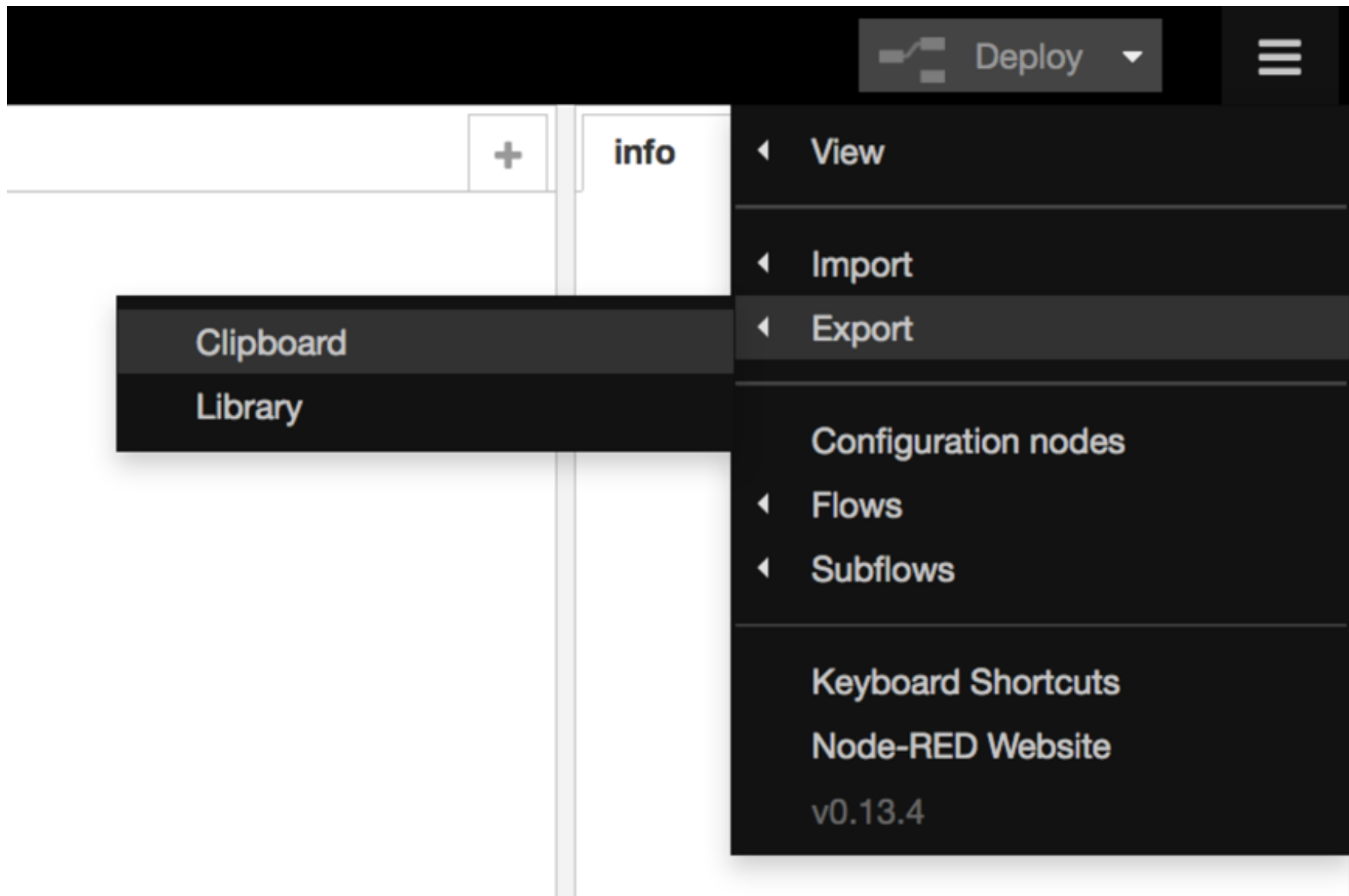
This is an example for a correct selection:



This is a wrong selection, not all nodes have been selected:



6. Now click on the menu symbol at the top right corner, then on Export->Clipboard



7. Select all the text you are seeing (maybe you have to scroll up and down), copy it and paste it to a text file in your favorite text editor

## Export nodes to clipboard

 Nodes:

```
action=\"distributeTransaction\" method=\"get\"> Transaction:
<input\\n\\t\\ttype=\"text\" name=\"transaction\">\\n\\t<p>\\n\\t\\tNonce:
<input type=\"text\" name=\"nonce\">\\n\\t<p>\\n\\t\\t<input
type=\"submit\">\\n\\t</form>\\n</body>
\\n</html>\", \"x\":338, \"y\":488.5, \"wires\":[[\"543fecce.4b422c\"]]]}
```

Select the text above and copy to the clipboard.

Close

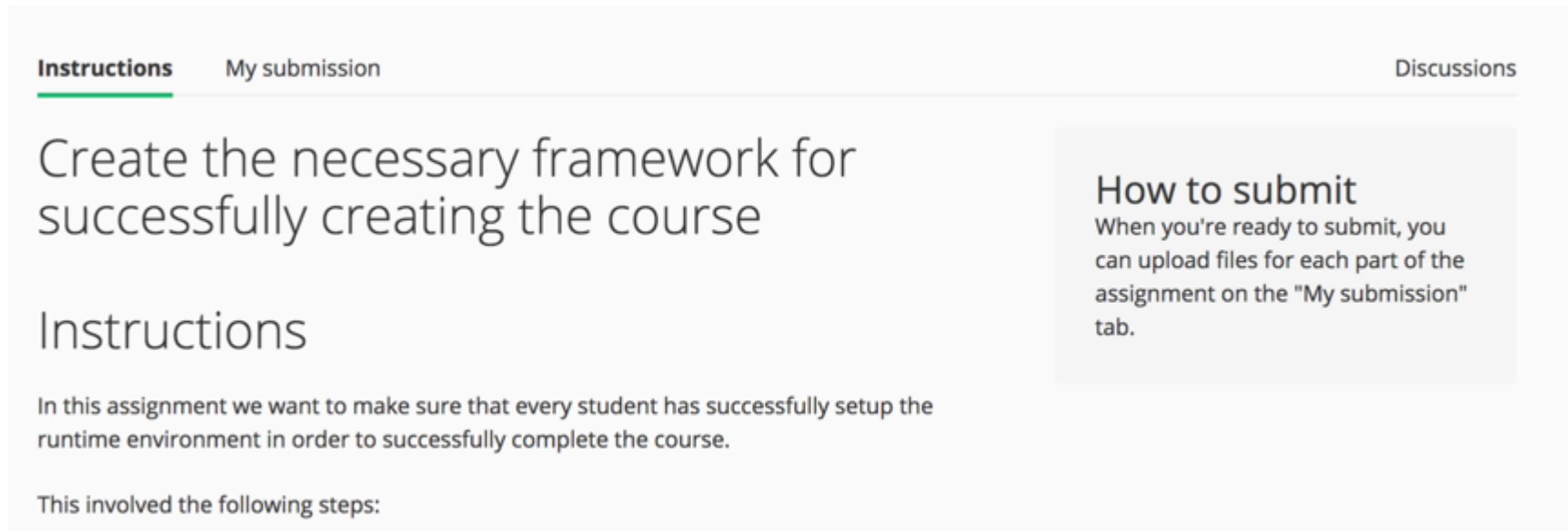
8. Save this file as assignment1.1.json

9. Submit it to the grader (see next section)

## Export the sample flow to a file and submit it to the grader

1. Take the assignment1.1.json file from the previous step and submit it to the grader

- Click on the “My submission” tab of this reading



The screenshot shows a web interface for a course assignment. At the top, there are three tabs: "Instructions" (which is selected and underlined in green), "My submission", and "Discussions". Below the tabs, the main heading reads "Create the necessary framework for successfully creating the course". Under this heading, the word "Instructions" is written in a large font. The text below states: "In this assignment we want to make sure that every student has successfully setup the runtime environment in order to successfully complete the course." followed by "This involved the following steps:". To the right of the main content area, there is a light gray box titled "How to submit" which contains the text: "When you're ready to submit, you can upload files for each part of the assignment on the 'My submission' tab."

- Click on “Create submission”



[Instructions](#)[My submission](#)[Discussions](#)

[+ Create submission](#)

## Your Submissions

Date	Score	Passed?
▼ 25 November 2016 at 1:29 PM	1/1	Yes

- Upload assignment1.1.json and click on “Submit”

**test test**

1 points

assignment1.1.json  
Not Submitted

Submit

You now have to wait for some time until the grader finishes the grading process.