物聯網實務 HW10

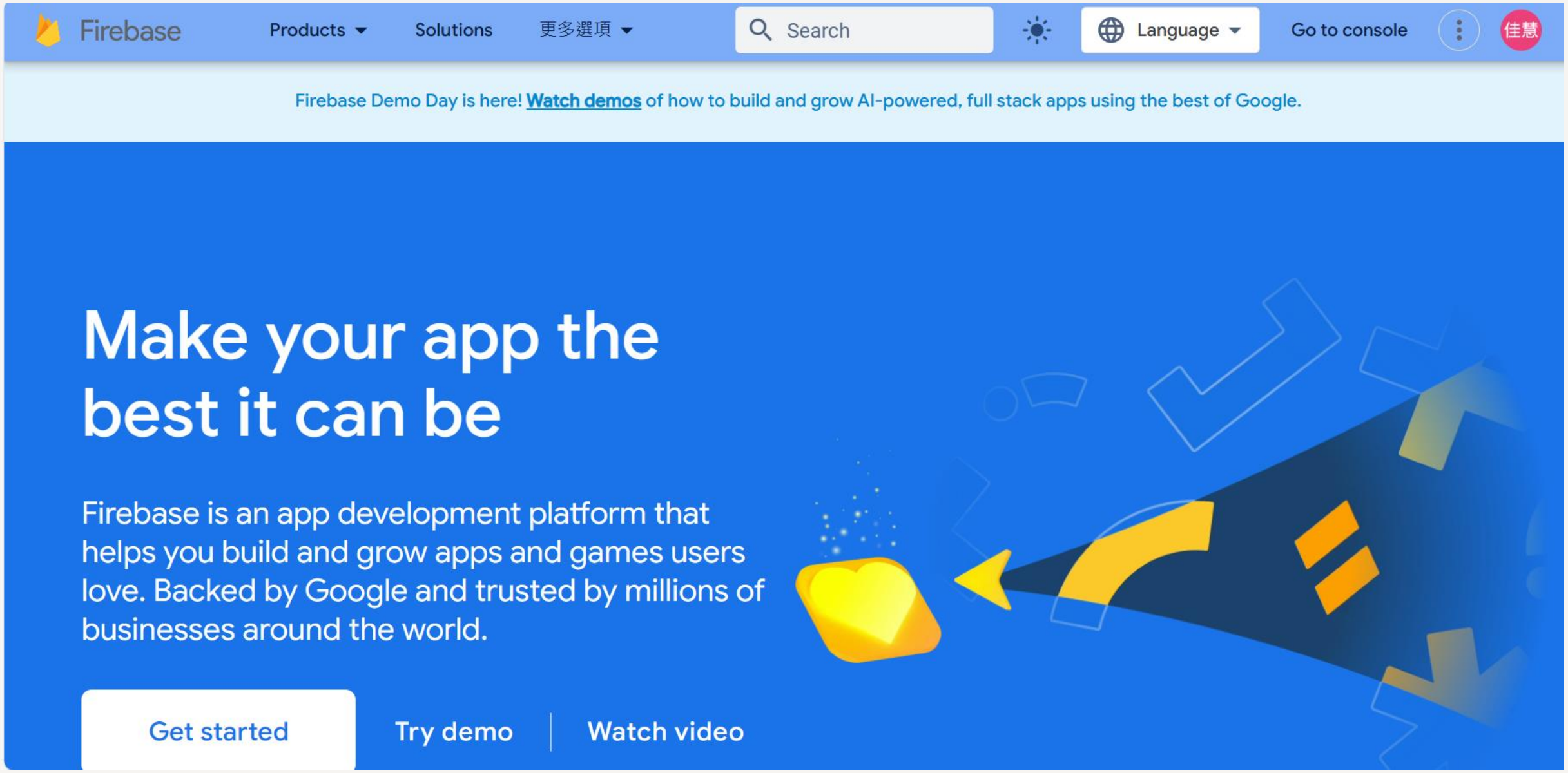
電機碩一 11278008 林佳慧

日期:2023/11/22

Exercise 10-1

Create a project

Firebase



https://firebase.google.com/

Create a project

× 建立專案(步驟 3 之 1)

首先，請輸入專案名稱

專案名稱

AIoTdemo

aiotdemo-f60d9

繼續

Analytics

建立專案(步驟 3 之 2)
適用於 Firebase 專案的 Google Analytics (分析)
Google Analytics (分析) 是免費且無使用限制的數據分析解決方案，能讓你在 Firebase Crashlytics、雲端通訊、應用程式內通訊、遠端設定、A/B 測試和 Cloud Functions 中執行指定目標和查看報表等動作。
Google Analytics (分析) 可讓你運用下列功能:
A/B 測試
以事件為基礎的 Cloud Functions 觸發條件
所有 Firebase 產品中的使用者區隔和指定目標功能
沒有使用限制的免費報表
不受當機影響的使用者
啟用這項專案的 Google Analytics (分析) 功能
建議做法
上一部分
繼續

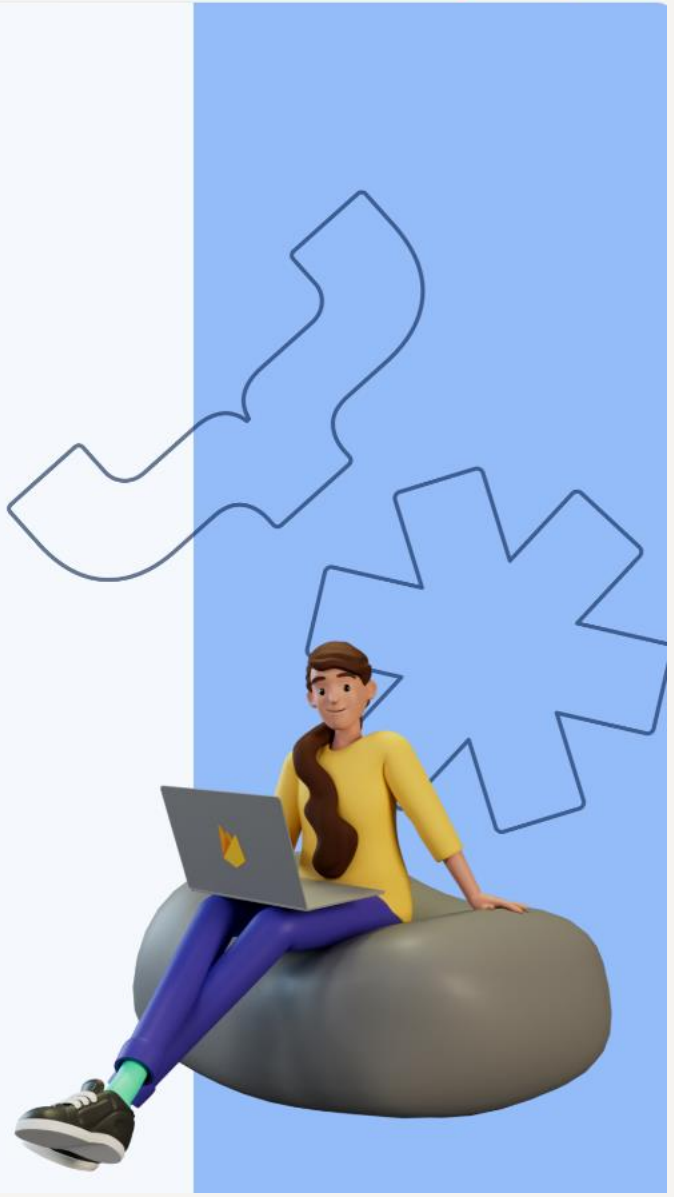
建立專案(步驟 3 之 3)
設定 Google Analytics (分析)
選取或建立 Google Analytics (分析) 帳戶
Default Account for Firebase
自動在這個帳戶中建立新資源
建立專案時，系統會在您選定的 Google Analytics (分析) 帳戶中建立新的 Google Analytics (分析) 資源，並將該資源連結至您的 Firebase 專案。連結完成後，資料就能在產品之間流通。從 Google Analytics (分析) 資源匯出到 Firebase 的資料需符合 Firebase《服務條款》的規定；而匯入 Google Analytics (分析) 的 Firebase 資料則需符合 Google Analytics (分析)《服務條款》的規定。
瞭解詳情
上一步
建立專案

Your new project is ready

AIoTdemo

新專案已準備就緒

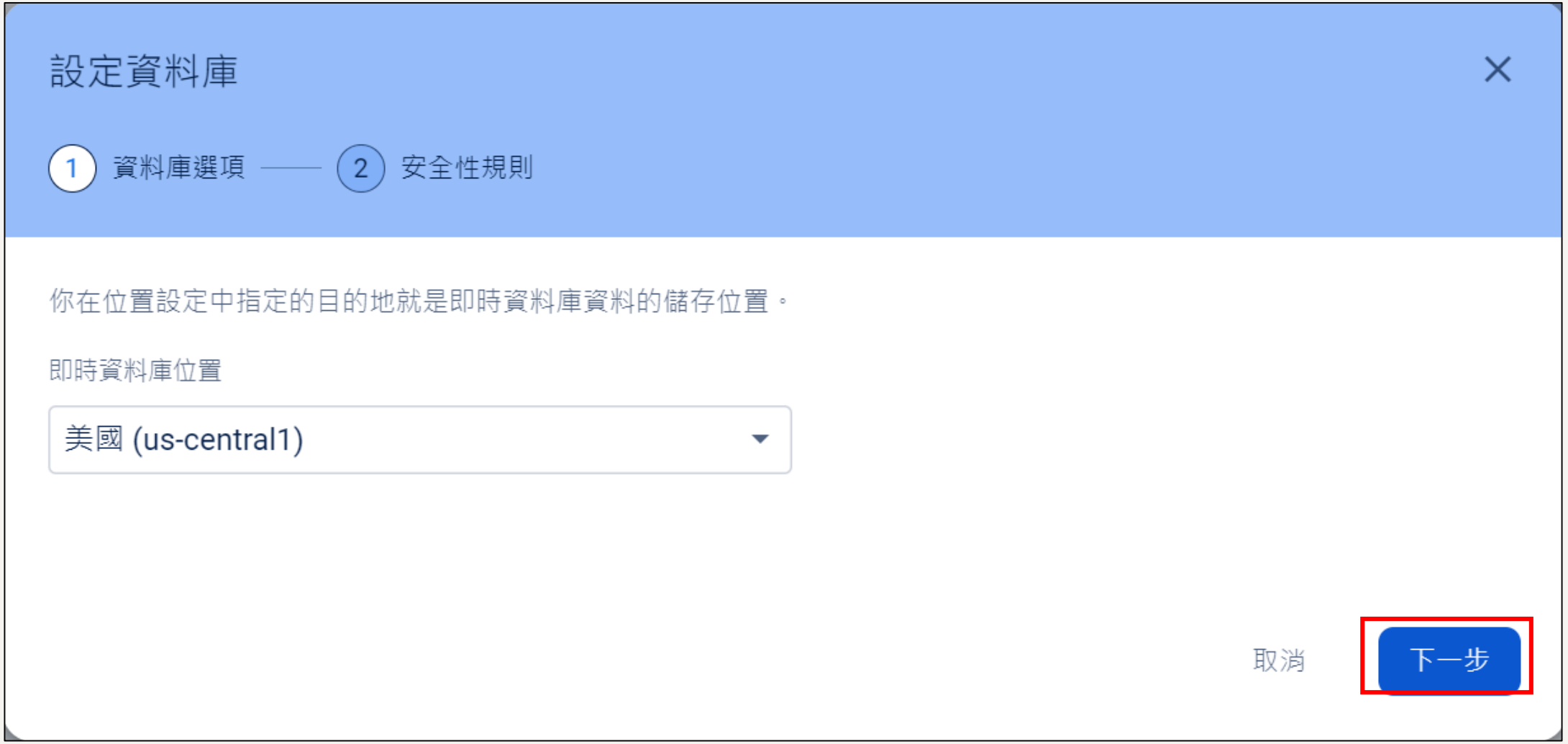
繼續



Project Desktop

Create Database

Set up database



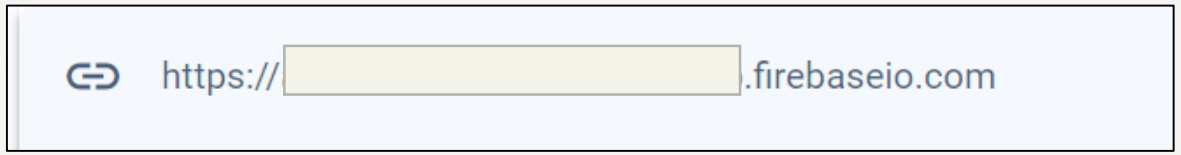
Start in test mode

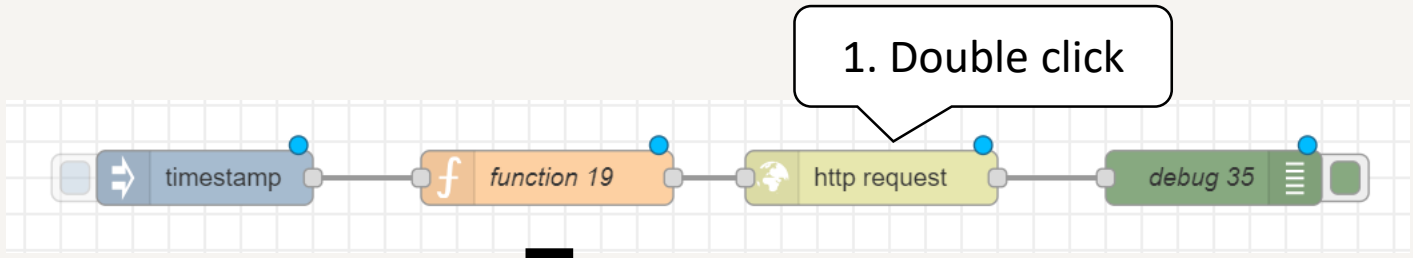
Firebase
專案總覽
專案捷徑
Realtime Database
產品類別
建構
發布及監控
數據分析
互動交流
所有產品
Spark
免付費 每月 $0 美元
升級
AIoTdemo
即時資料庫
資料
規則
備份
用量
擴充功能
保護 Realtime Database 資源，避免遭到帳單詐欺或網路詐騙等濫用行為影響
設定 App Check
https://aiotdemo-f60d9-default-rtdb.firebaseio.com
https://aiotdemo-f60d9-default-rtdb.firebaseio.com/: null
資料庫位置：美國 (us-central1)
佳慧

Setup the rules and Publish

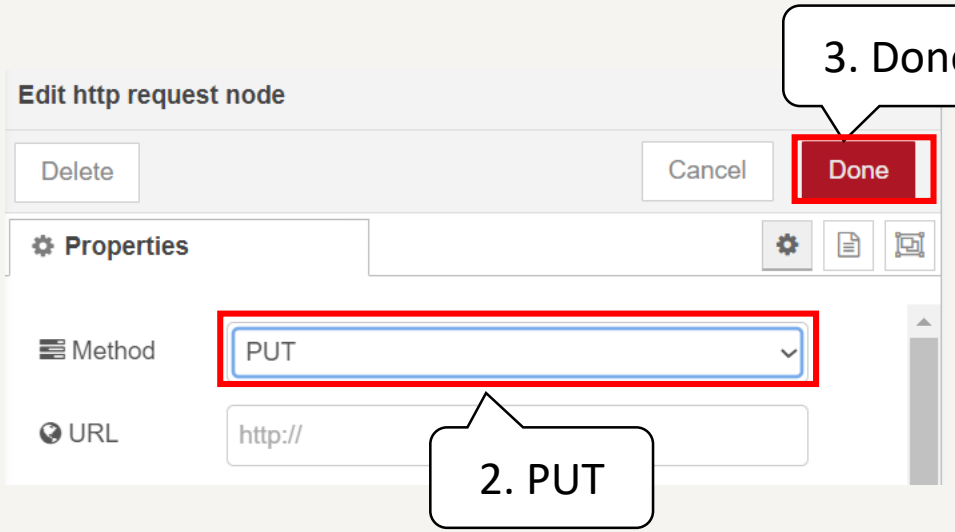
```
1 ▾ {
2 ▾   "rules": {
3       ".read": true,
4       ".write": true,
5     }
6 }
```

Copy reference url





1. Double click



3. Done

2. PUT

Your url

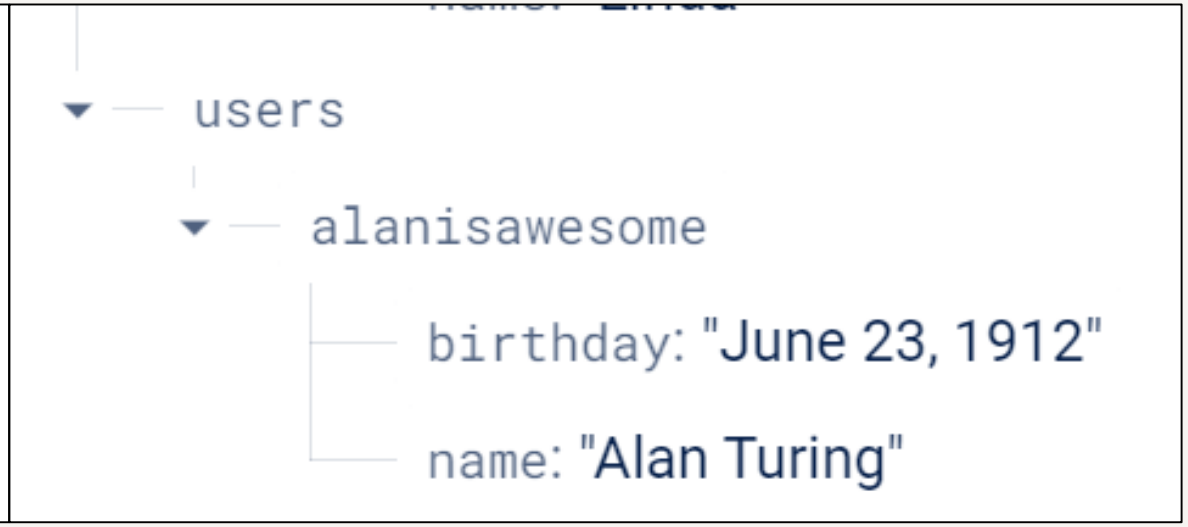
```
msg.url="https://aiotdemo-f60d9-default-rtdb.firebaseio.com/fireblog/users.json";
msg.payload={"alanisawesome": {"name": "Alan Turing", "birthday": "June 23, 1912"}};
return msg;
```

Change -> Deploy -> Triger

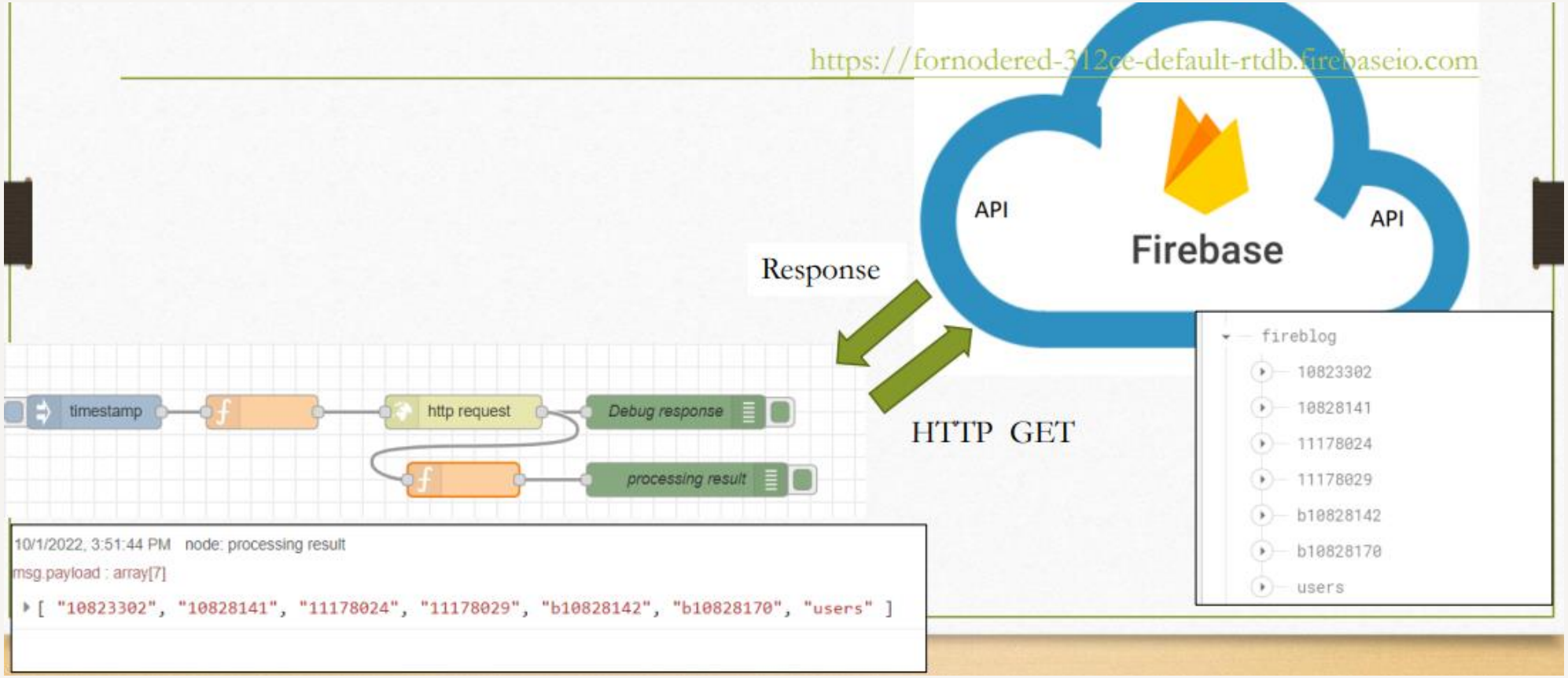
Student ID

```
msg.url="https://aiotdemo-f60d9-default-rtdb.firebaseio.com/fireblog/11278008.json";
msg.payload={"alanisawesome": {"name": "Linda", "birthday": "June 23, 2001"}};
return msg;
```

Name

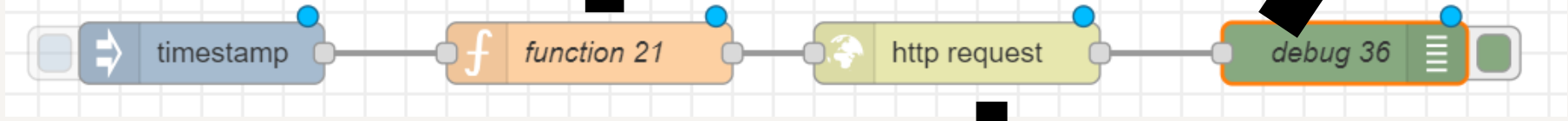


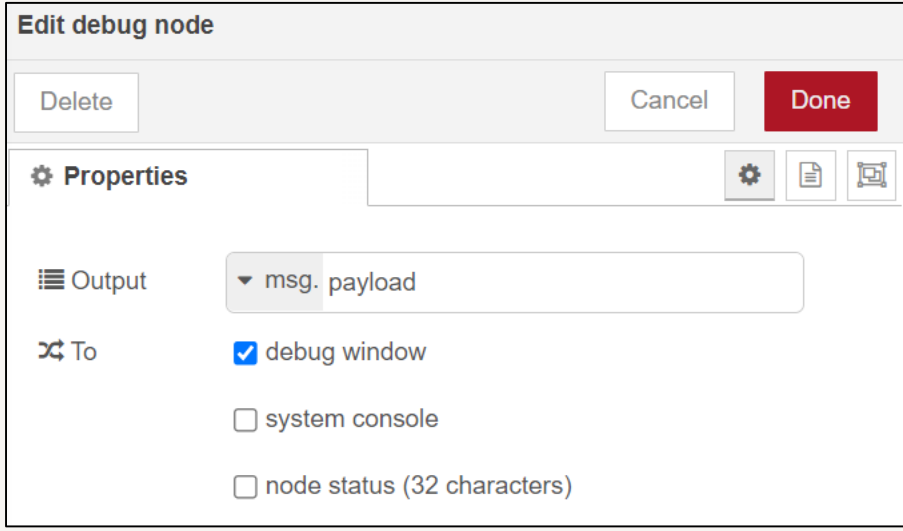
Exercise 10-2

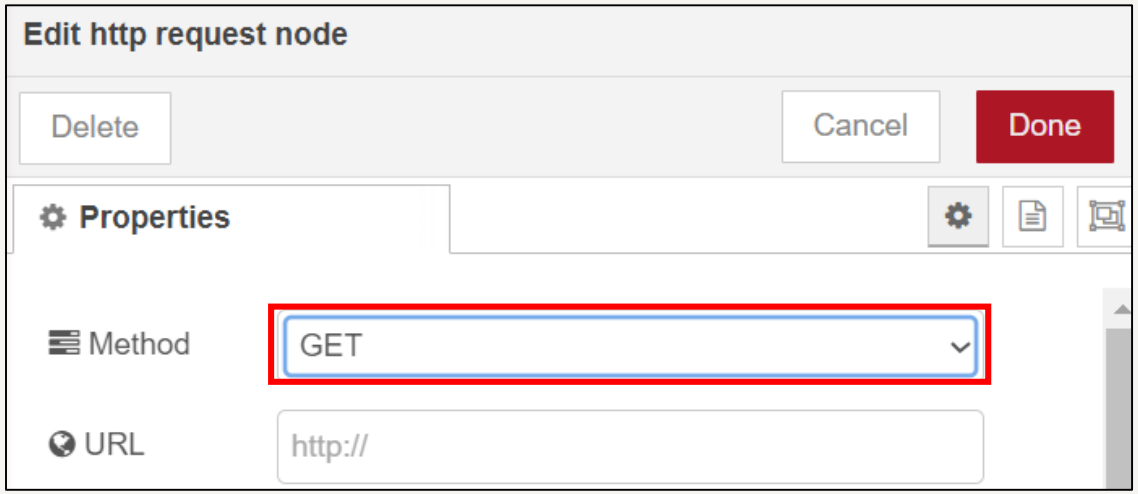


http GET

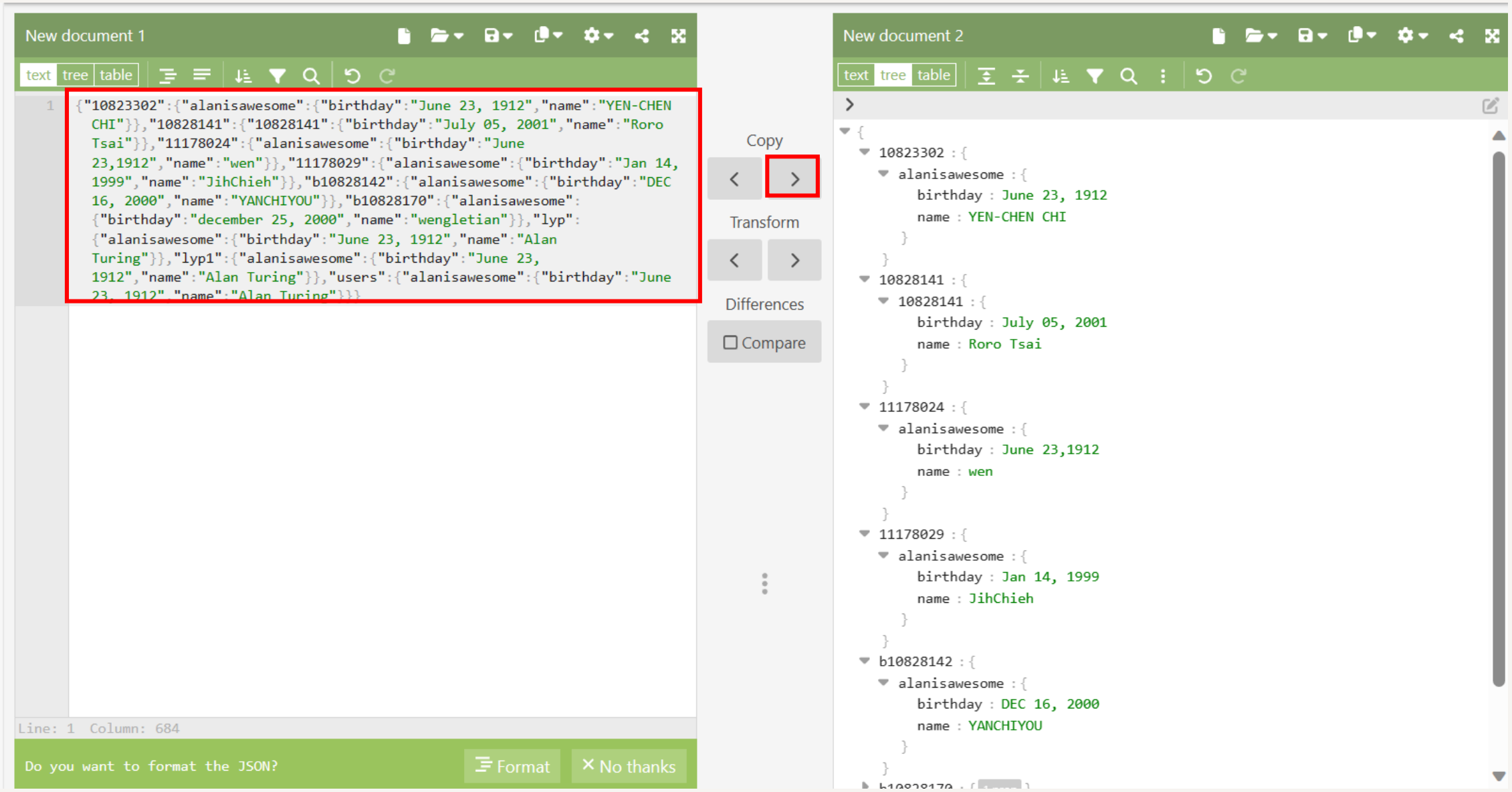
```
msg.url ="https://fornodered-312ce-default-rtdb.firebaseio.com/fireblog.json";
return msg;
```



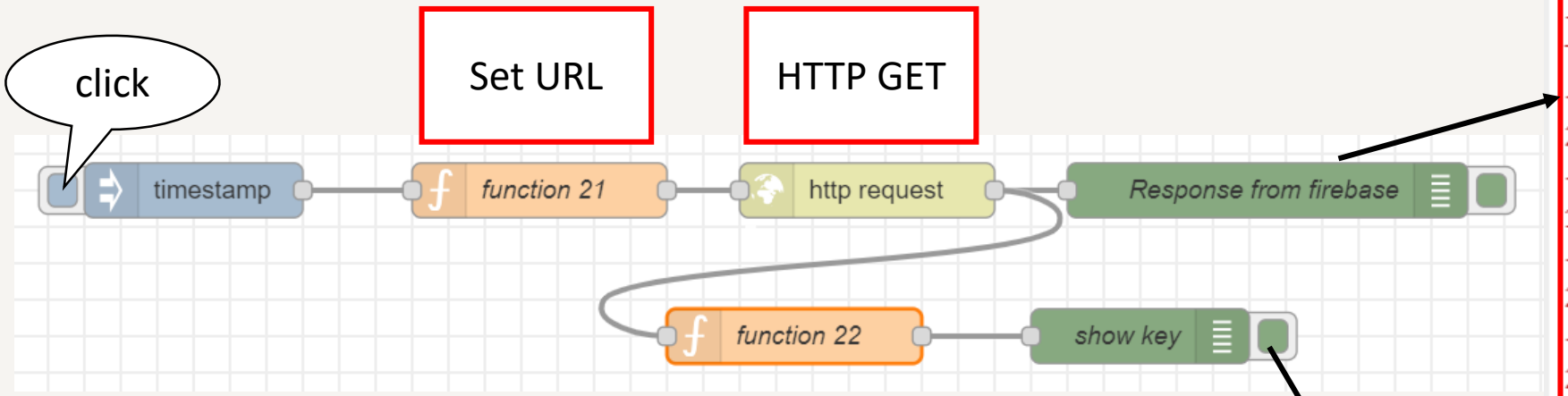




Observe the data



https://jsoneditoronline.org/#left=local.domori&right=local.xogeva




```
var result= msg.payload;
var obj=JSON.parse(result);
msg.payload=Object.keys(obj);
return msg;
```

Processing the response

msg.payload : string[683]


```
"{"10823302":{"alanisawesome":
{"birthday":"June 23, 1912","name":"YEN-
CHEN CHI"}},"10828141":{"10828141":
{"birthday":"July 05, 2001","name":"Roro
Tsai"}},"11178024":{"alanisawesome":
{"birthday":"June
23,1912","name":"wen"}},"11178029":
{"alanisawesome":{"birthday":"Jan 14,
1999","name":"JihChieh"}},"b10828142":
{"alanisawesome":{"birthday":"DEC 16,
2000","name":"YANCHIYOU"}},"b10828170":
{"alanisawesome":{"birthday":"december
25, 2000","name":"wengletian"}},"lyp":
{"alanisawesome":{"birthday":"June 23,
1912","name":"Alan Turing"}},"lyp1":
{"alanisawesome":{"birthday":"June 23,
1912","name":"Alan Turing"}},"users":
{"alanisawesome":{"birthday":"June 23,
1912","name":"Alan Turing"}}}"
```


2023/11/22 下午3:49:56 node: show key

msg.payload : array[9]


```
▸[ "10823302", "10828141", "11178024",
"11178029", "b10828142", "b10828170",
"lyp", "lyp1", "users" ]
```

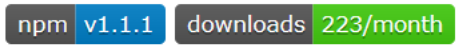
Exercise 10-3

Node-Red module for interacting with Firebase

node-red-contrib-firebase 1.1.1

Node-Red module for interacting with Firebase

```
npm install node-red-contrib-firebase
```



node-red nodes for interacting with Firebase.

The goal of this project is to provide an elegant GUI that allows you to interact with your Firebase data using Node-Red.

As a side benefit, these nodes should be a natural complement to the data explorer interface offered by the Firebase Forge and a faster/easier to use tool than diving straight into the programming libraries offered for all of the Firebase supported platforms.

Node Info

Version: 1.1.1

Updated 6 years, 2 months ago

License: MIT

Rating: 1.0 ★ 1

View on npm

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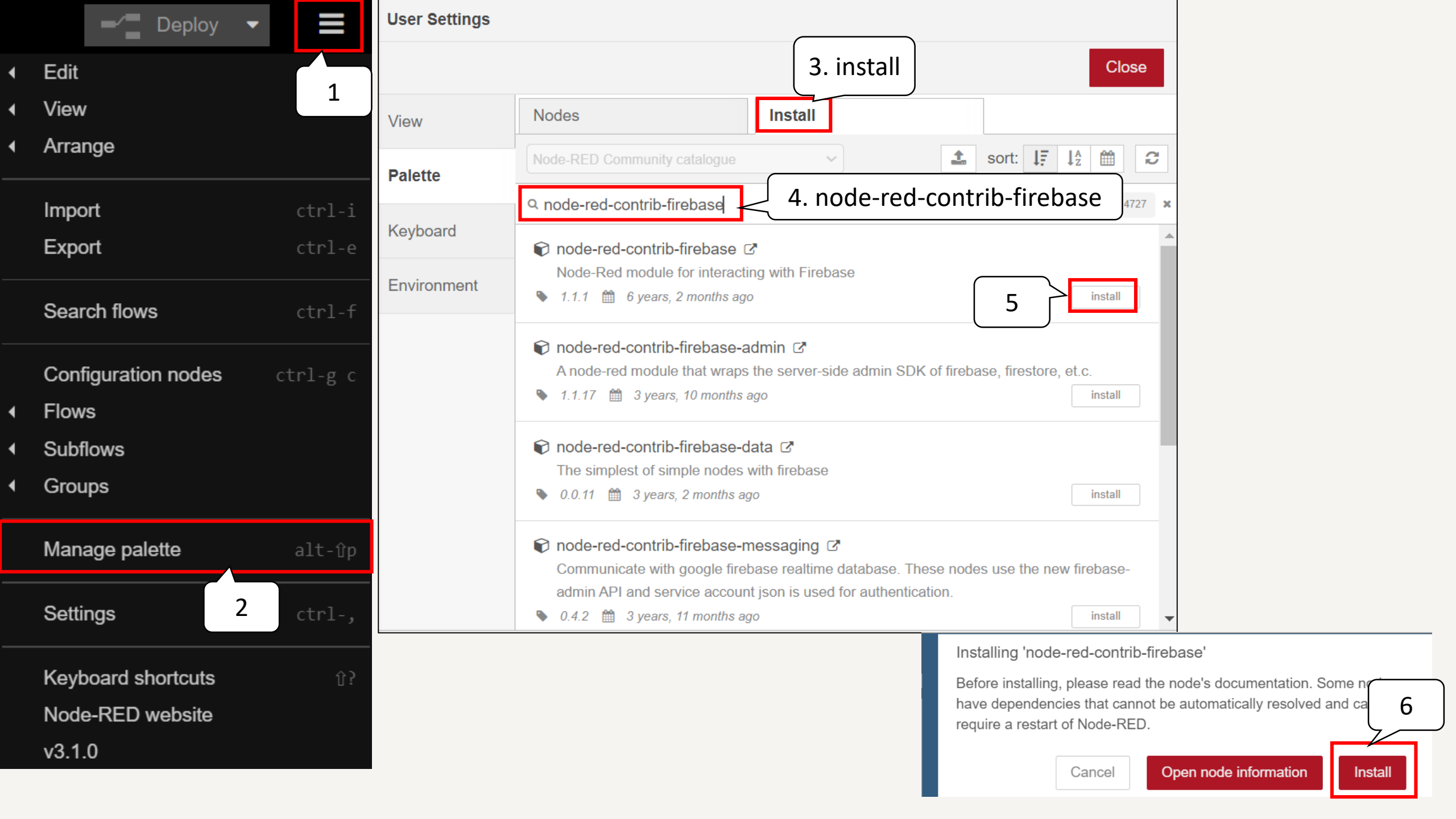
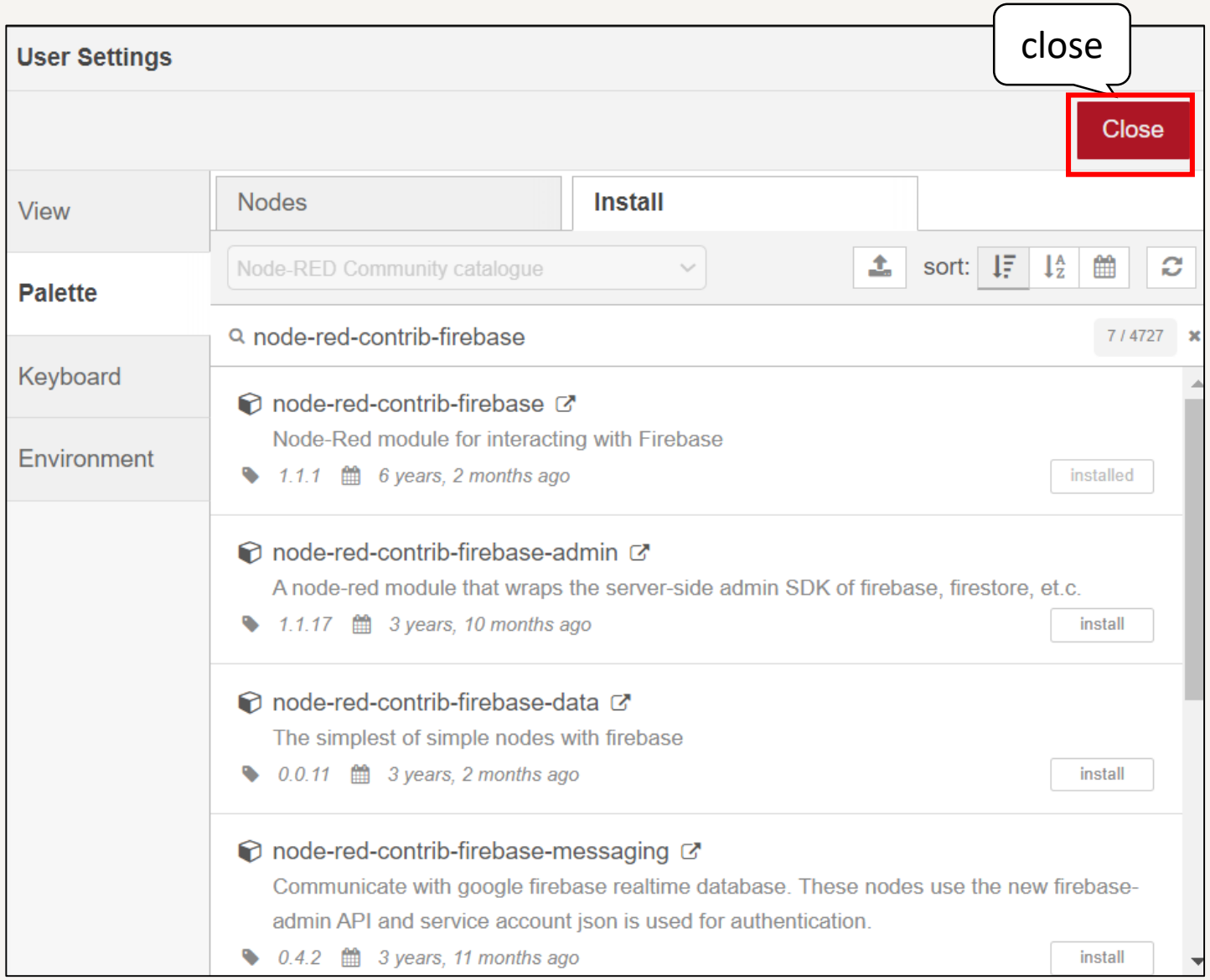
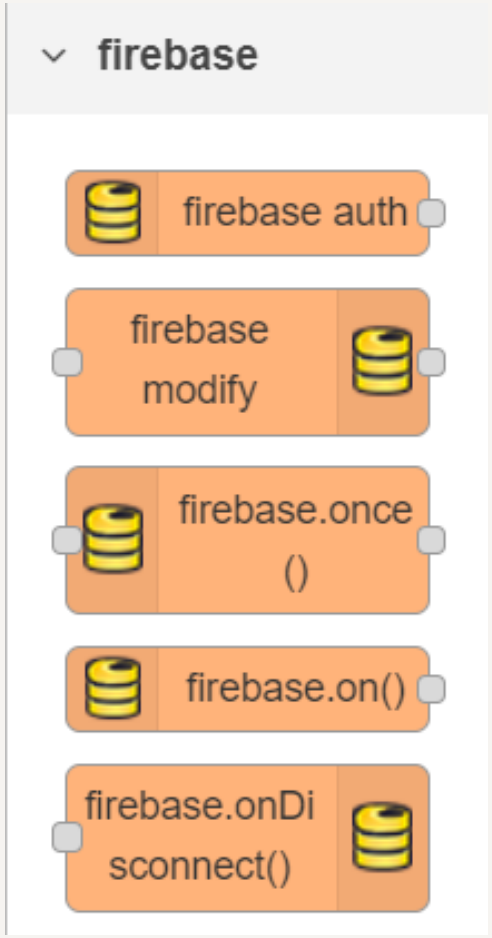
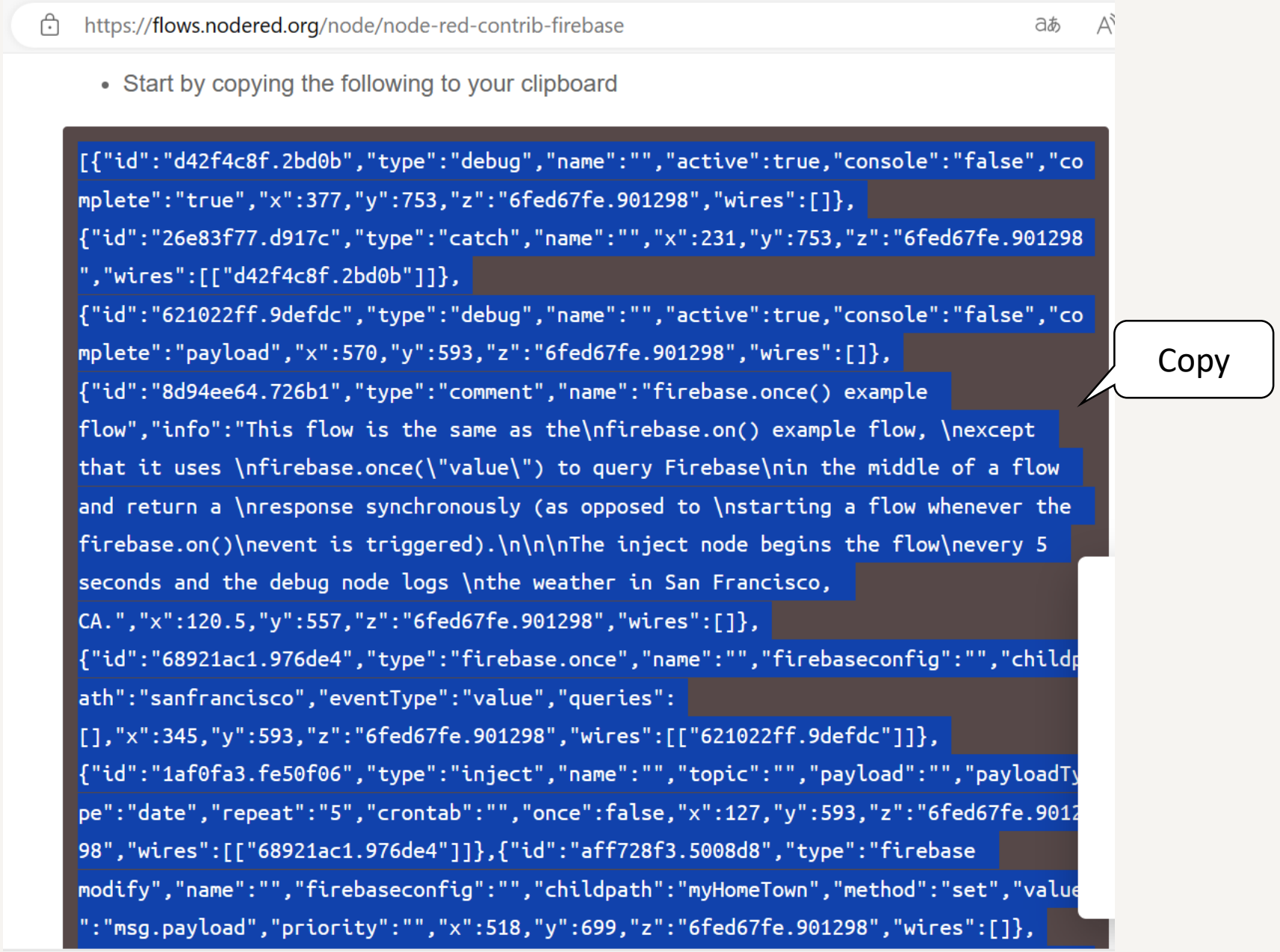
Accept Settings...


Deploy
1
Edit
View
Arrange
Import ctrl-i
Export ctrl-e
Search flows ctrl-f
Configuration nodes ctrl-g c
Flows
Subflows
Groups
Manage palette alt-⇧p
2
Settings ctrl-,
Keyboard shortcuts ⇧?
Node-RED website
v3.1.0
User Settings
3. install
Close
View
Palette
Keyboard
Environment
Nodes
Install
Node-RED Community catalogue
sort:
node-red-contrib-firebase
4. node-red-contrib-firebase
node-red-contrib-firebase
Node-Red module for interacting with Firebase
1.1.1 6 years, 2 months ago
5
install
node-red-contrib-firebase-admin
A node-red module that wraps the server-side admin SDK of firebase, firestore, et.c.
1.1.17 3 years, 10 months ago
install
node-red-contrib-firebase-data
The simplest of simple nodes with firebase
0.0.11 3 years, 2 months ago
install
node-red-contrib-firebase-messaging
Communicate with google firebase realtime database. These nodes use the new firebase-admin API and service account json is used for authentication.
0.4.2 3 years, 11 months ago
install
Installing 'node-red-contrib-firebase'
Before installing, please read the node's documentation. Some n
have dependencies that cannot be automatically resolved and ca
require a restart of Node-RED.
6
Cancel
Open node information
Install

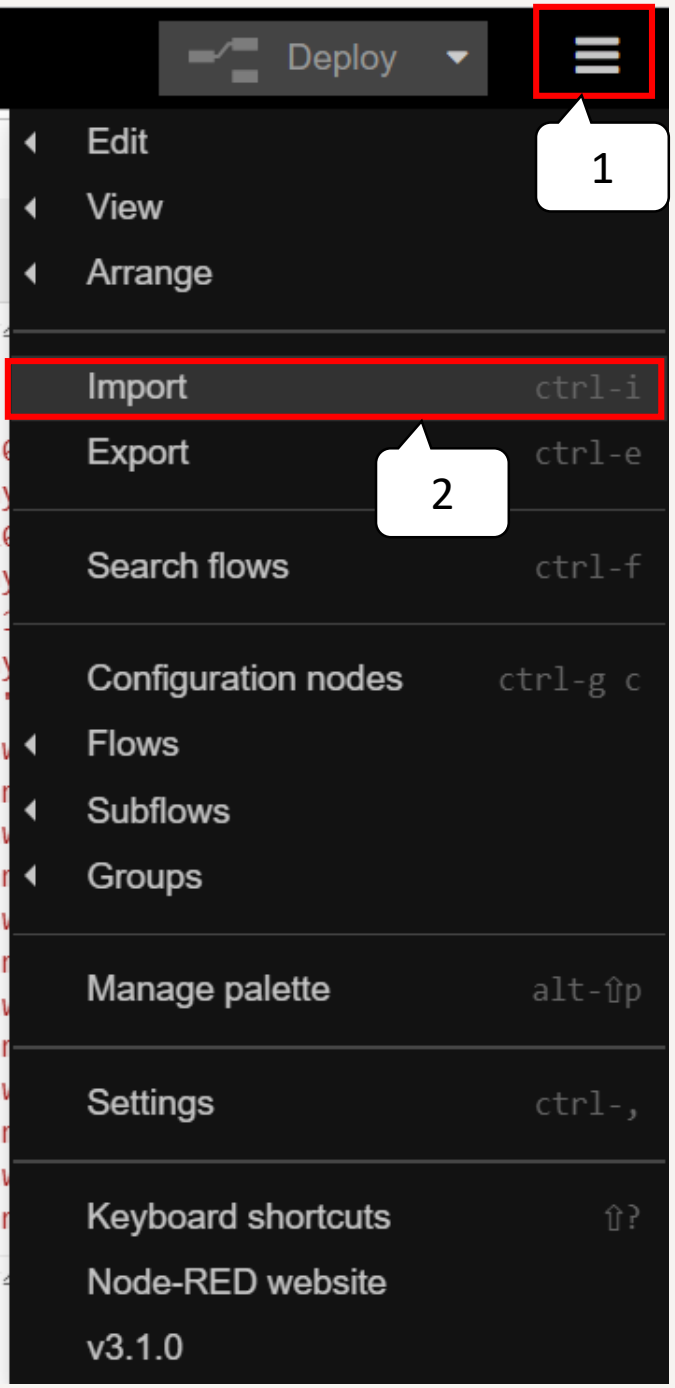

User Settings
close
Close
View
Palette
Keyboard
Environment
Nodes
Install
Node-RED Community catalogue
sort:
node-red-contrib-firebase
7 / 4727
node-red-contrib-firebase
Node-Red module for interacting with Firebase
1.1.1
6 years, 2 months ago
installed
node-red-contrib-firebase-admin
A node-red module that wraps the server-side admin SDK of firebase, firestore, et.c.
1.1.17
3 years, 10 months ago
install
node-red-contrib-firebase-data
The simplest of simple nodes with firebase
0.0.11
3 years, 2 months ago
install
node-red-contrib-firebase-messaging
Communicate with google firebase realtime database. These nodes use the new firebase-admin API and service account json is used for authentication.
0.4.2
3 years, 11 months ago
install

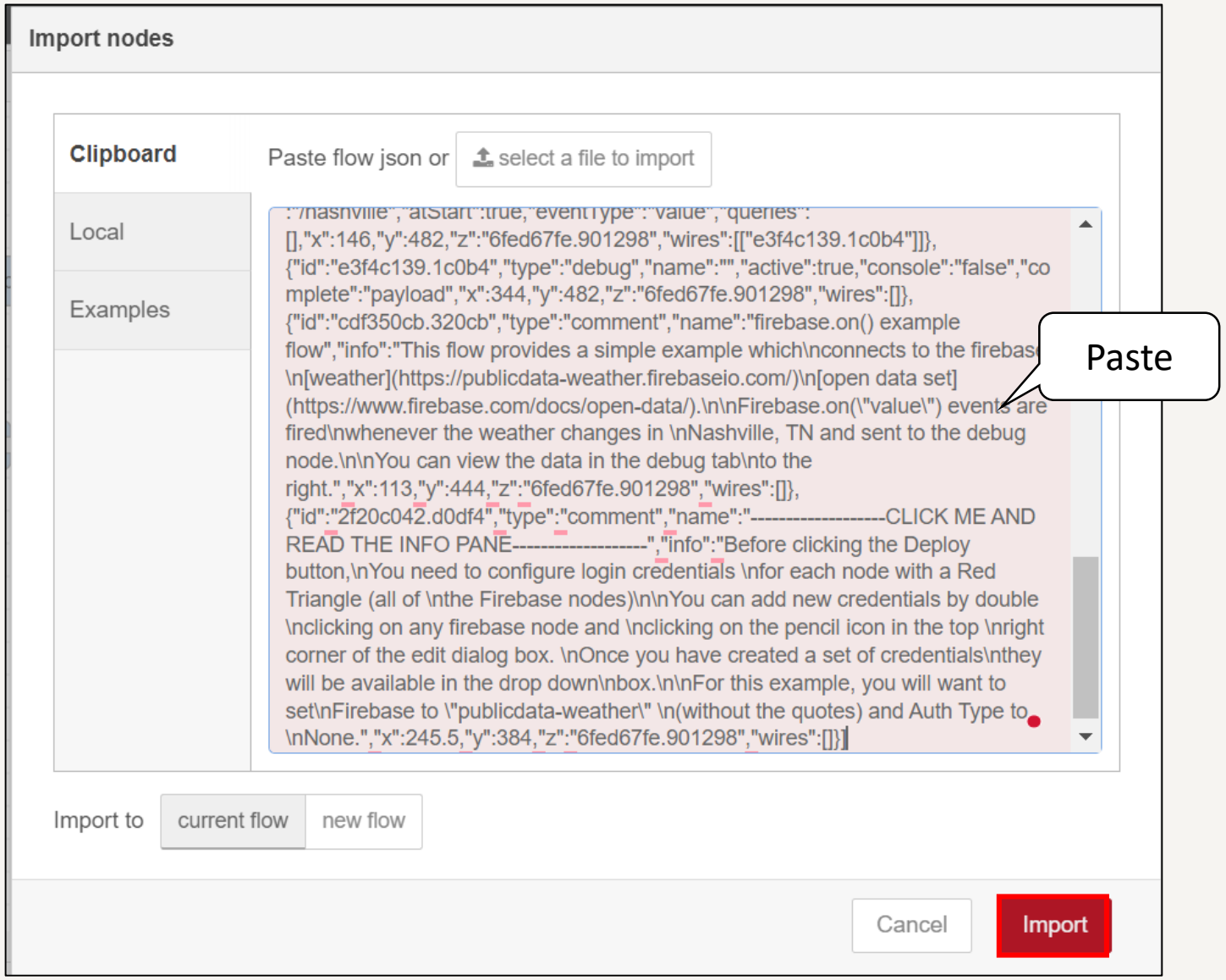

firebase
firebase auth
firebase modify
firebase.once ()
firebase.on()
firebase.onDisconnect()

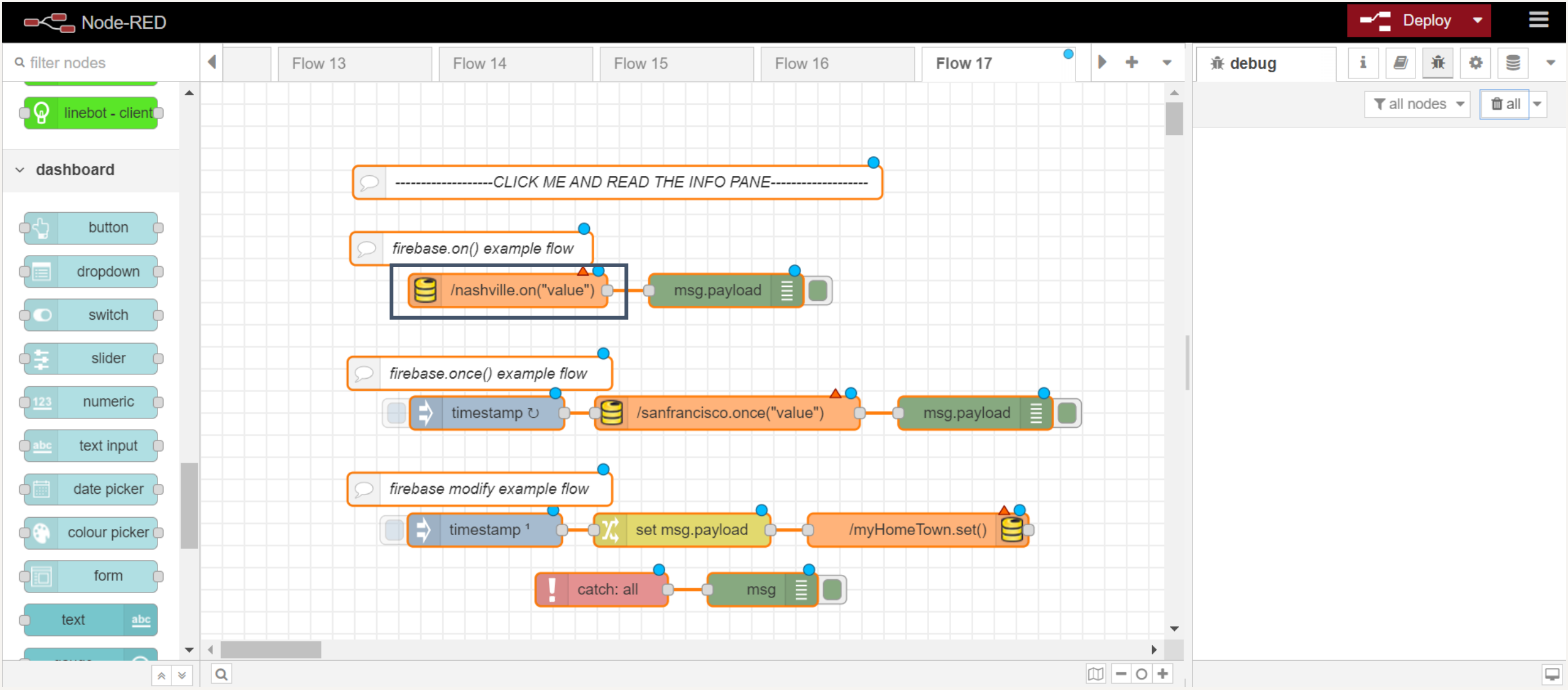
https://flows.nodered.org/node/node-red-contrib-firebase

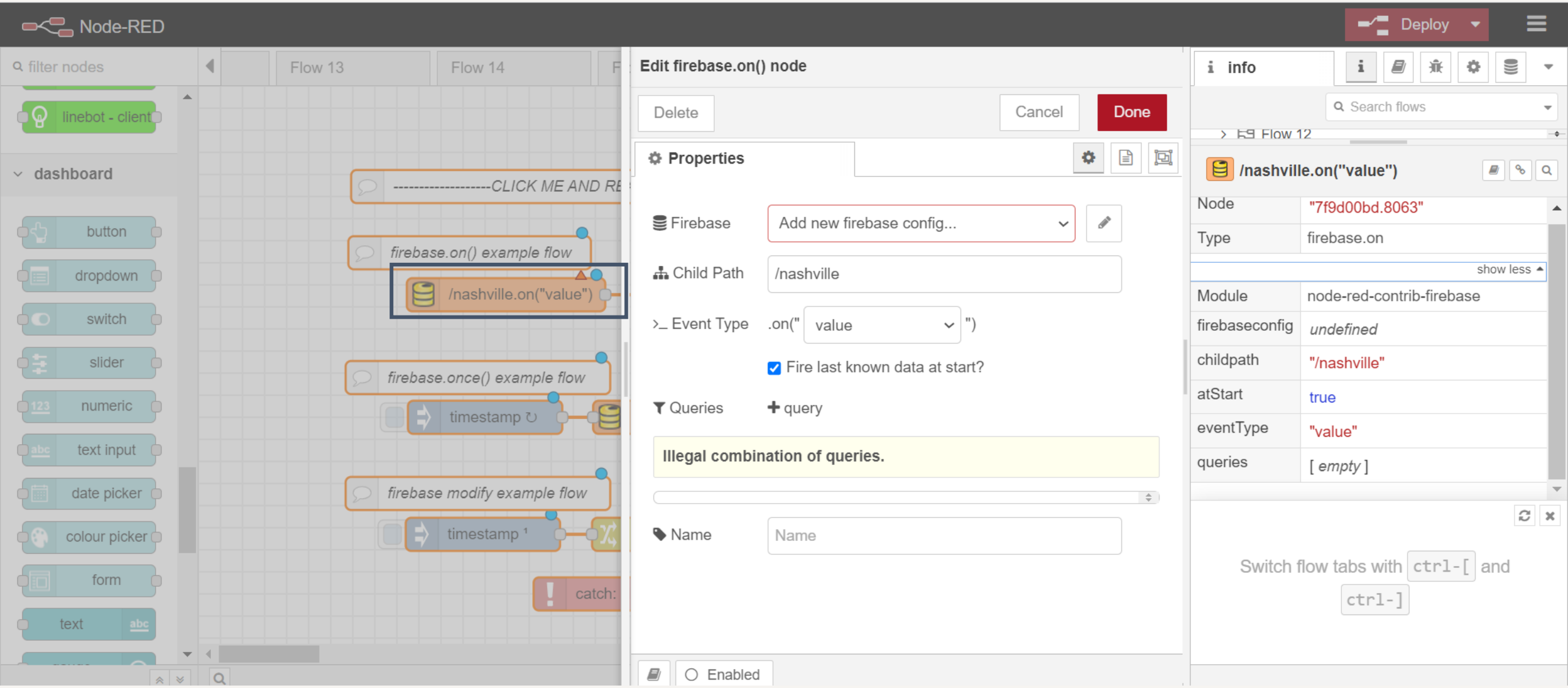


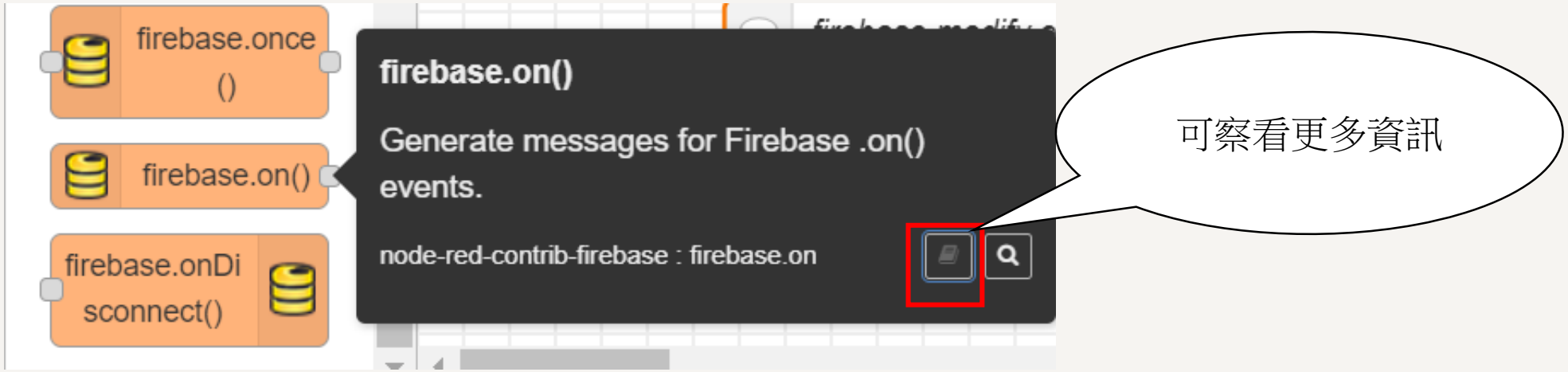
Import>Clipboard



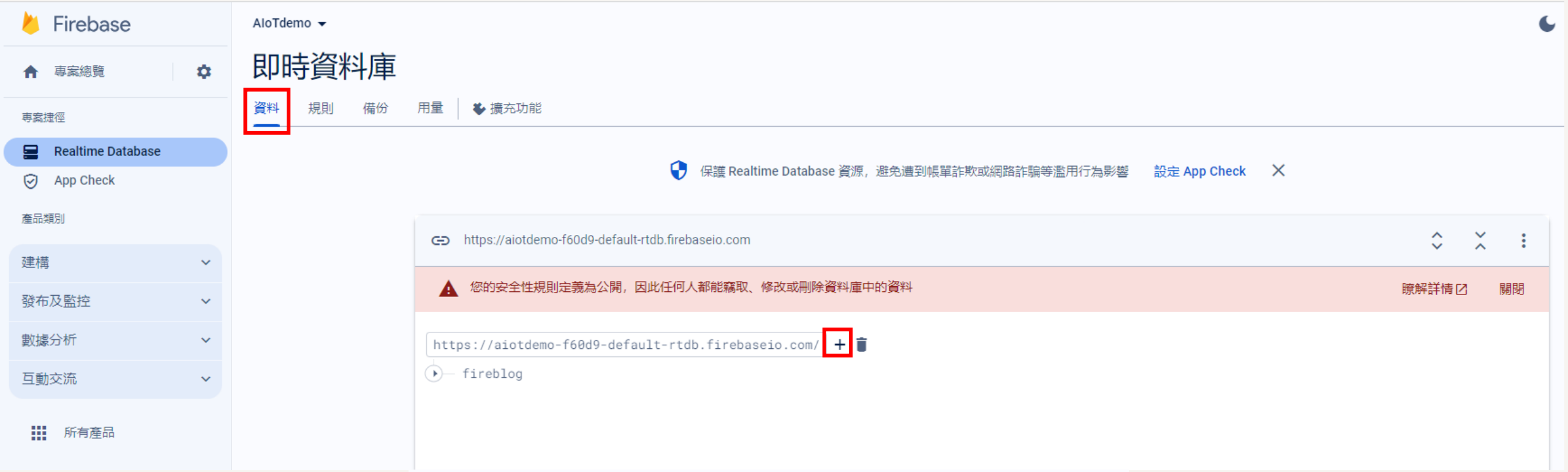



Node-RED
Deploy
filter nodes
Flow 13
Flow 14
Flow 15
Flow 16
Flow 17
debug
all nodes
all
linebot - client
dashboard
button
dropdown
switch
slider
numeric
text input
date picker
colour picker
form
text
----------CLICK ME AND READ THE INFO PANE----------
firebase.on() example flow
/nashville.on("value")
msg.payload
firebase.once() example flow
timestamp
/sanfrancisco.once("value")
msg.payload
firebase modify example flow
timestamp
set msg.payload
/myHomeTown.set()
catch: all
msg


Node-RED
Deploy
filter nodes
Flow 13
Flow 14
linebot - client
dashboard
button
dropdown
switch
slider
numeric
text input
date picker
colour picker
form
text
----------CLICK ME AND RE
firebase.on() example flow
/nashville.on("value")
firebase.once() example flow
timestamp
firebase modify example flow
timestamp
catch:
Edit firebase.on() node
Delete
Cancel
Done
Properties
Firebase
Add new firebase config...
Child Path
/nashville
Event Type
.on("
value
")
Fire last known data at start?
Queries
query
Illegal combination of queries.
Name
Name
Enabled
info
Search flows
Flow 12
/nashville.on("value")
Node
"7f9d00bd.8063"
Type
firebase.on
show less
Module
node-red-contrib-firebase
firebaseconfig
undefined
childpath
"/nashville"
atStart
true
eventType
"value"
queries
[empty]
Switch flow tabs with ctrl-[and ctrl-]


firebase.once
()
firebase.on()
firebase.onDi
sconnect()
firebase.on()
Generate messages for Firebase .on()
events.
node-red-contrib-firebase : firebase.on
可察看更多資訊

Data


Firebase
AIoTdemo
專案總覽
即時資料庫
專案捷徑
資料
規則
備份
用量
擴充功能
Realtime Database
App Check
保護 Realtime Database 資源，避免遭到帳單詐欺或網路詐騙等濫用行為影響
設定 App Check
產品類別
https://aiotdemo-f60d9-default-rtdb.firebaseio.com
建構
您的安全性規則定義為公開，因此任何人都能竊取、修改或刪除資料庫中的資料
瞭解詳情
關閉
發布及監控
https://aiotdemo-f60d9-default-rtdb.firebaseio.com/
數據分析
fireblog
互動交流
所有產品

https://aiotdemo-f60d9-default-rtdb.firebaseio.com
您的安全性規則定義為公開，因此任何人都能竊取、修改或刪除資料庫中的資料
https://aiotdemo-f60d9-default-rtdb.firebaseio.com/
nashville
0
123
取消
新增

Firebase

AIoTdemo

專案總覽

專案捷徑

Realtime Database

App Check

產品類別

建構

發布及監控

數據分析

互動交流

所有產品

Spark
免付費 每月 $0 美元

升級

即時資料庫

資料 規則 備份 用量 擴充功能

保護 Realtime Database 資源，避免遭到帳單詐欺或網路詐騙等濫用行為影響 設定 App Check

https://aiotdemo-f60d9-default-rtdb.firebaseio.com

Paste

您的安全性規則定義為公開，因此任何人都能竊取、修改或刪除資料庫中的資料

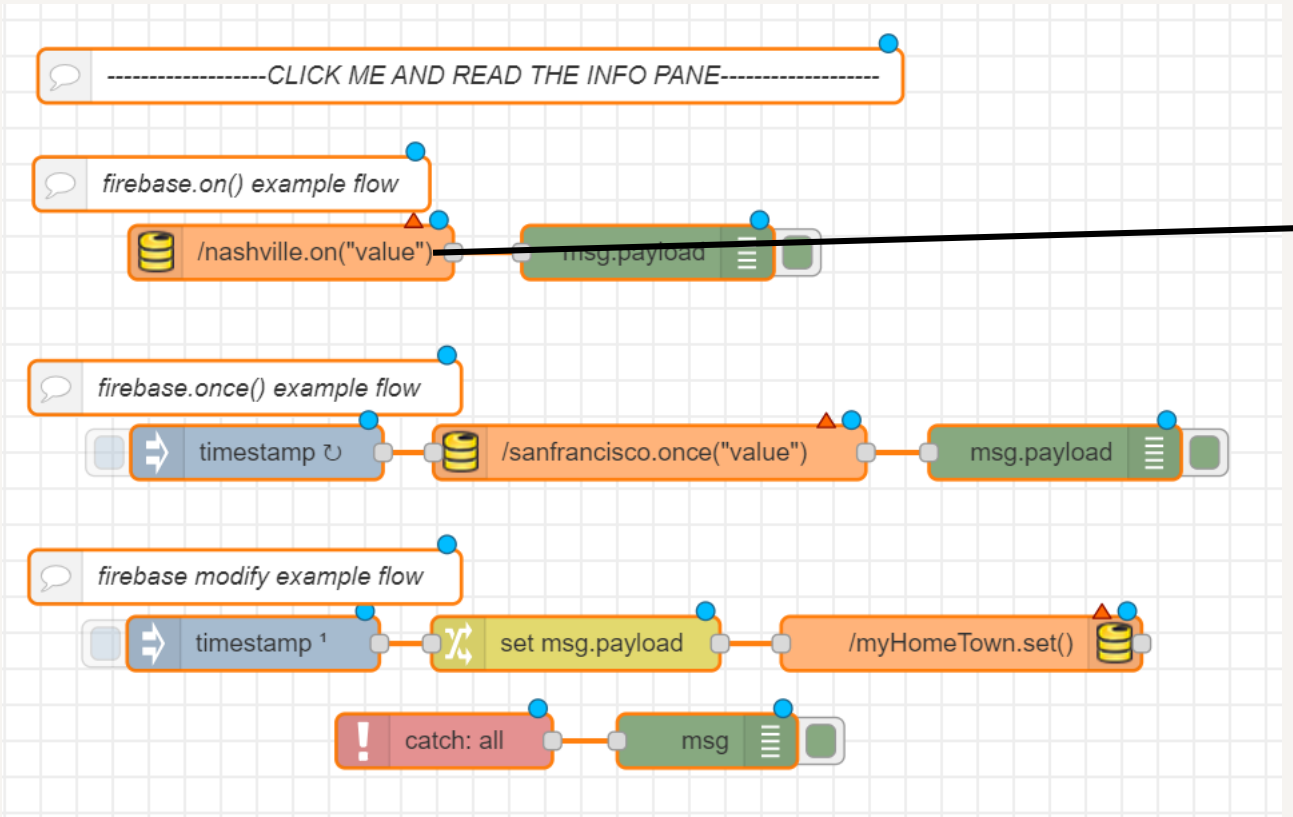
瞭解詳情 關閉

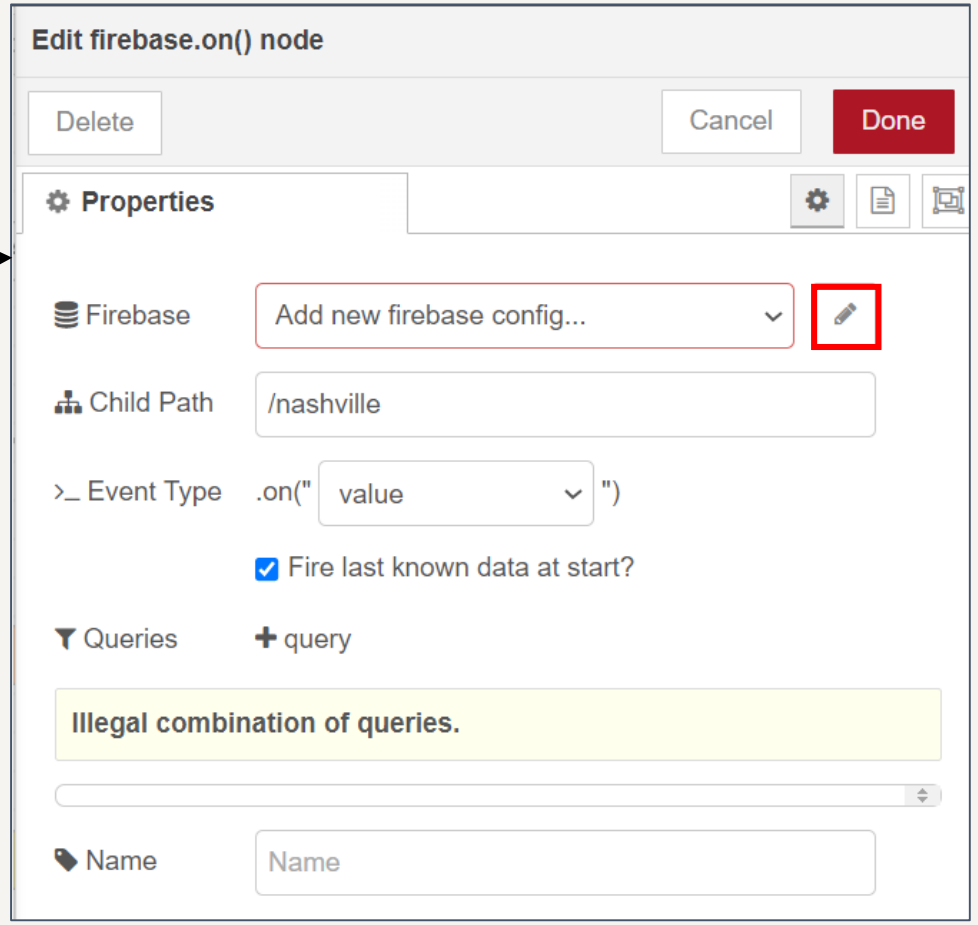
https://aiotdemo-f60d9-default-rtdb.firebaseio.com/

fireblog

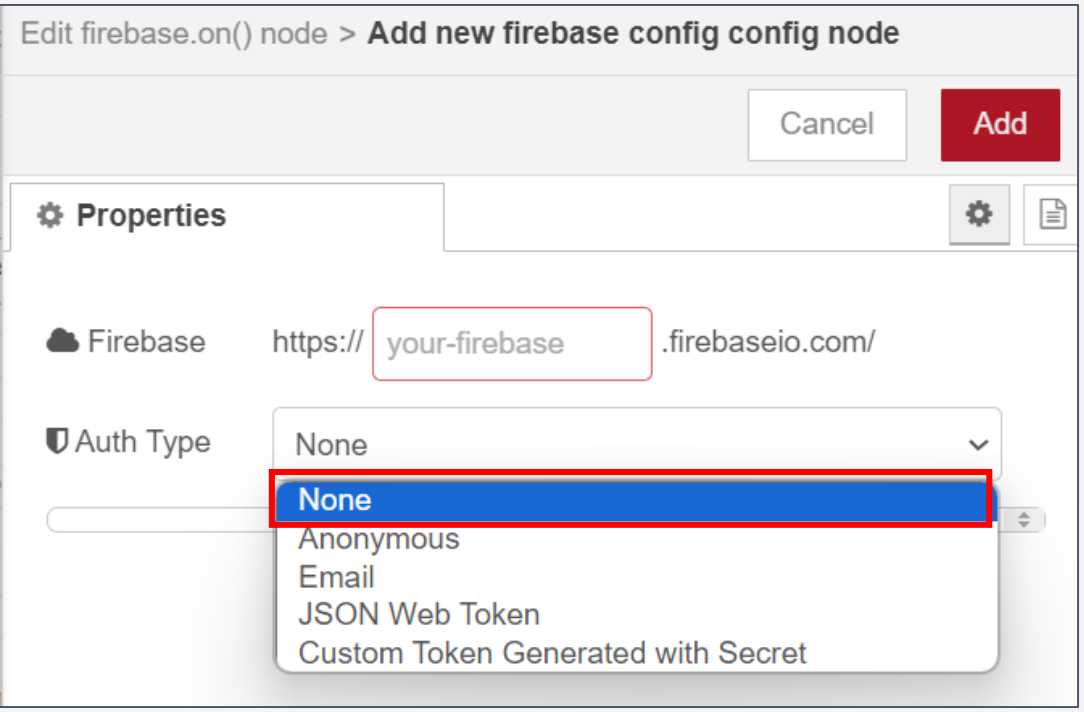
nashville: 0

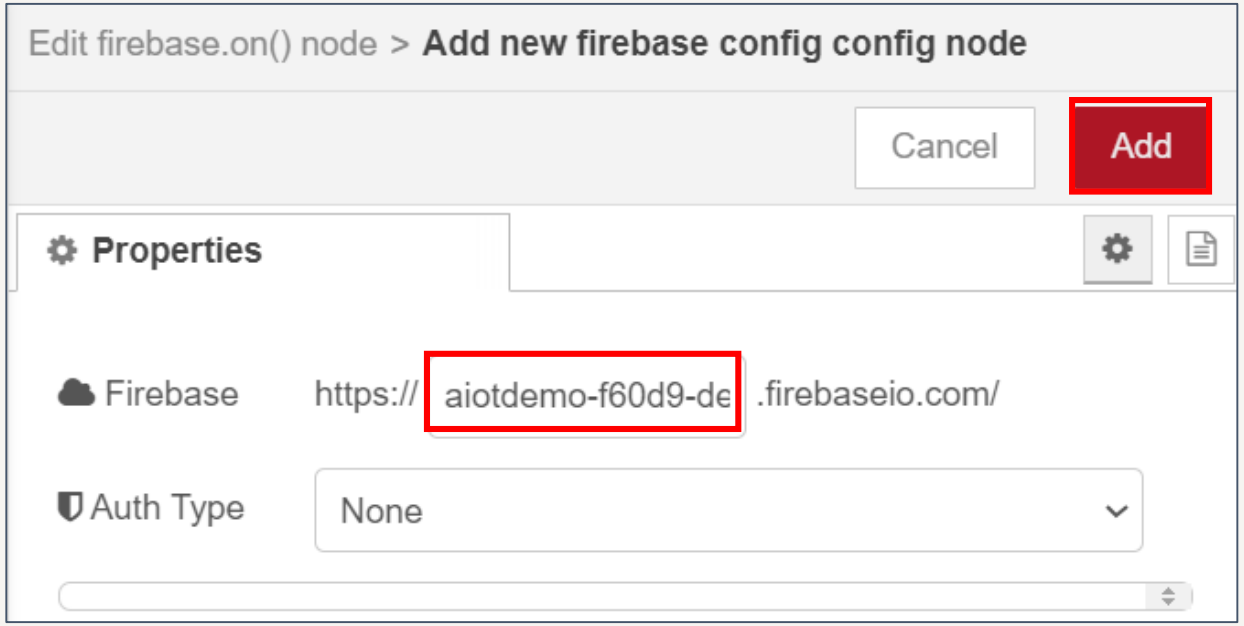
資料庫位置：美國 (us-central1)

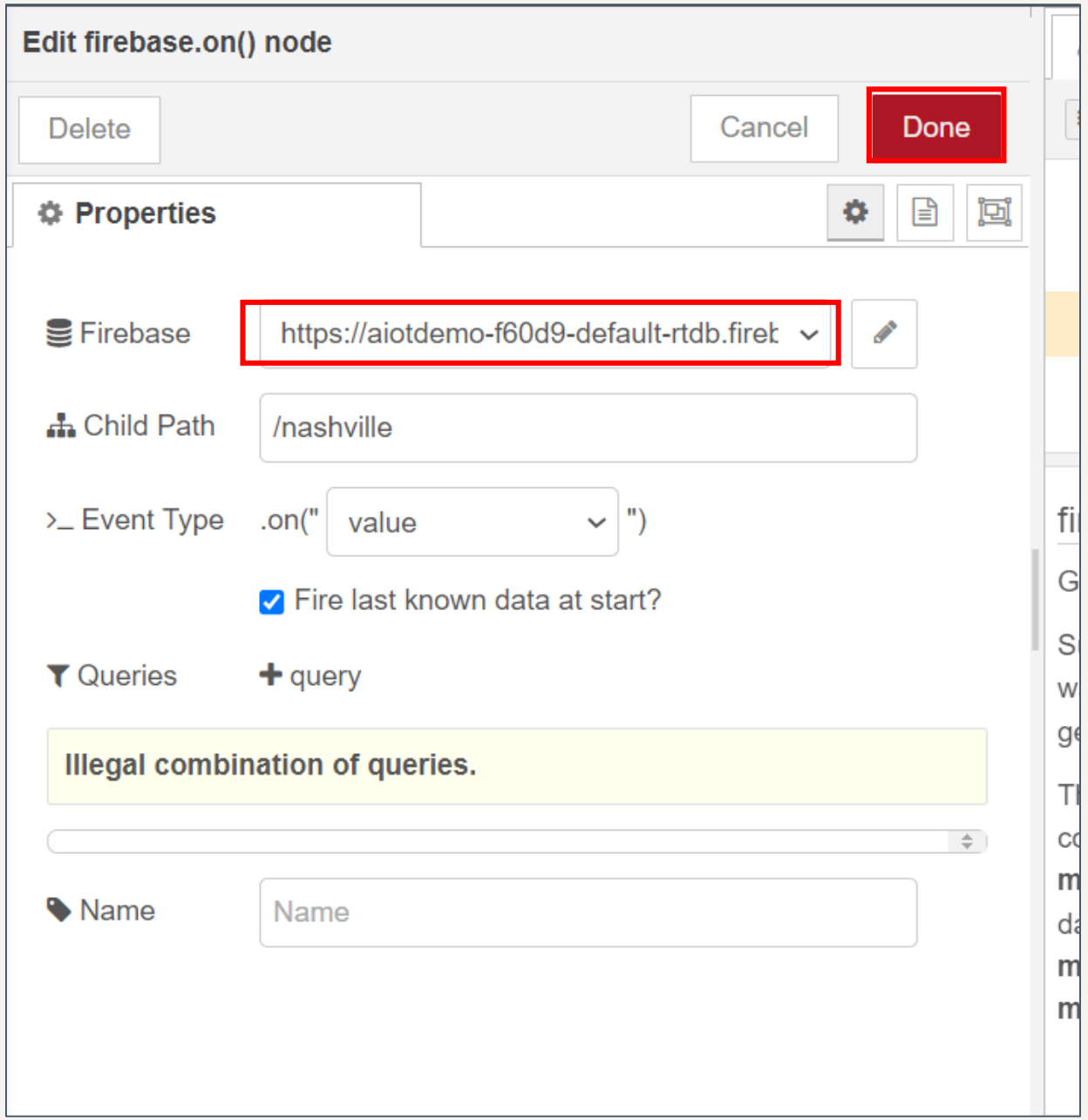

----------CLICK ME AND READ THE INFO PANE----------
firebase.on() example flow
/nashville.on("value")
msg.payload
firebase.once() example flow
timestamp ↻
/sanfrancisco.once("value")
msg.payload
firebase modify example flow
timestamp ¹
set msg.payload
/myHomeTown.set()
catch: all
msg

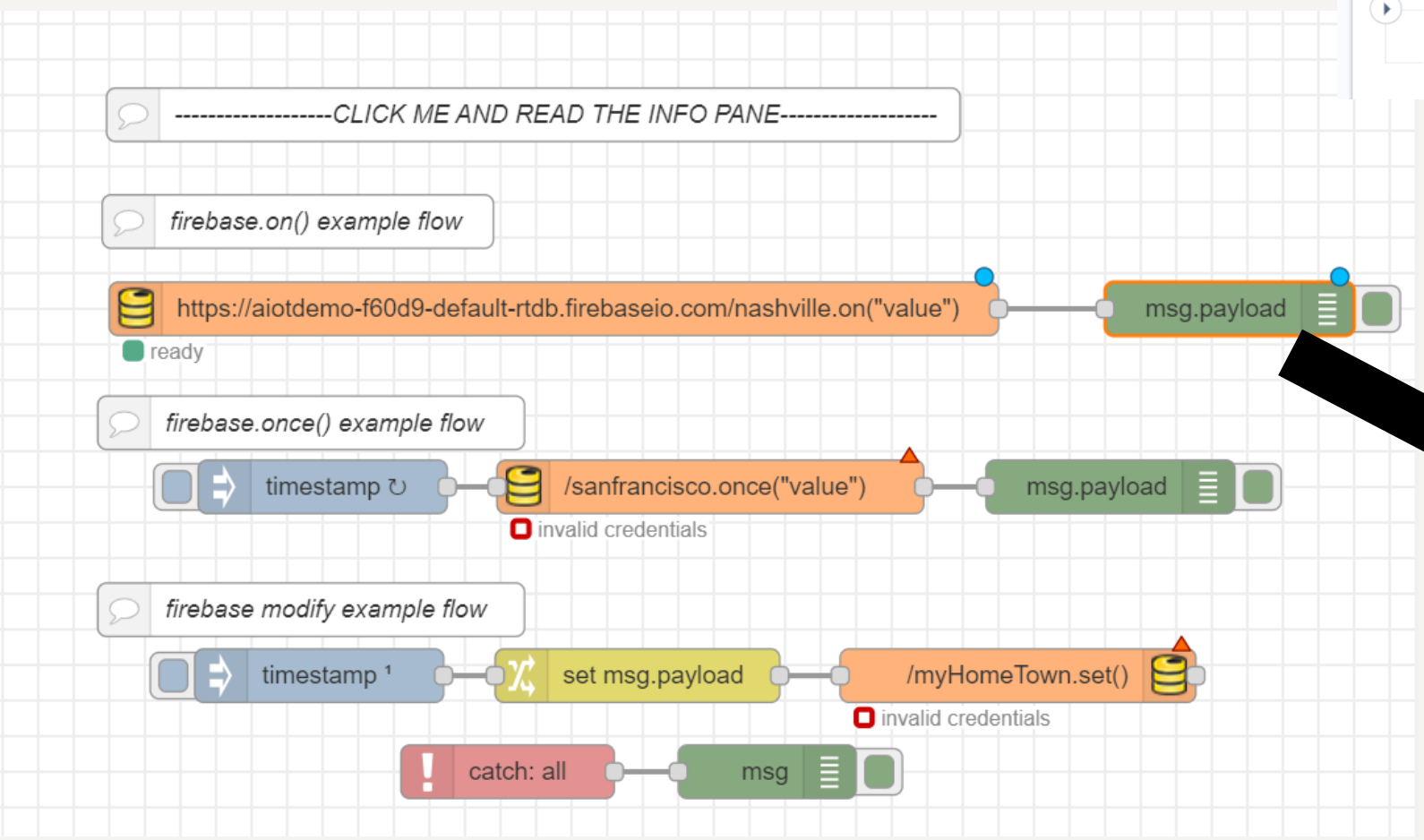

Edit firebase.on() node
Delete
Cancel
Done
Properties
Firebase
Add new firebase config...
Child Path
/nashville
Event Type
.on("
value
")
Fire last known data at start?
Queries
query
Illegal combination of queries.
Name
Name

https://xxxxxxxxxce-default-rtdb.firebaseio.com/

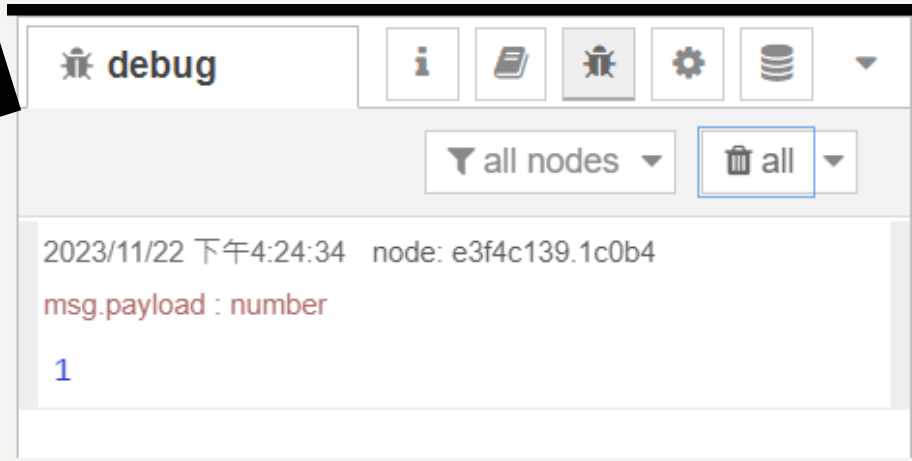





Edit firebase.on() node
Delete
Cancel
Done
Properties
Firebase
https://aiotdemo-f60d9-default-rtdb.firek
Child Path
/nashville
Event Type
.on("
value
")
Fire last known data at start?
Queries
query
Illegal combination of queries.
Name
Name

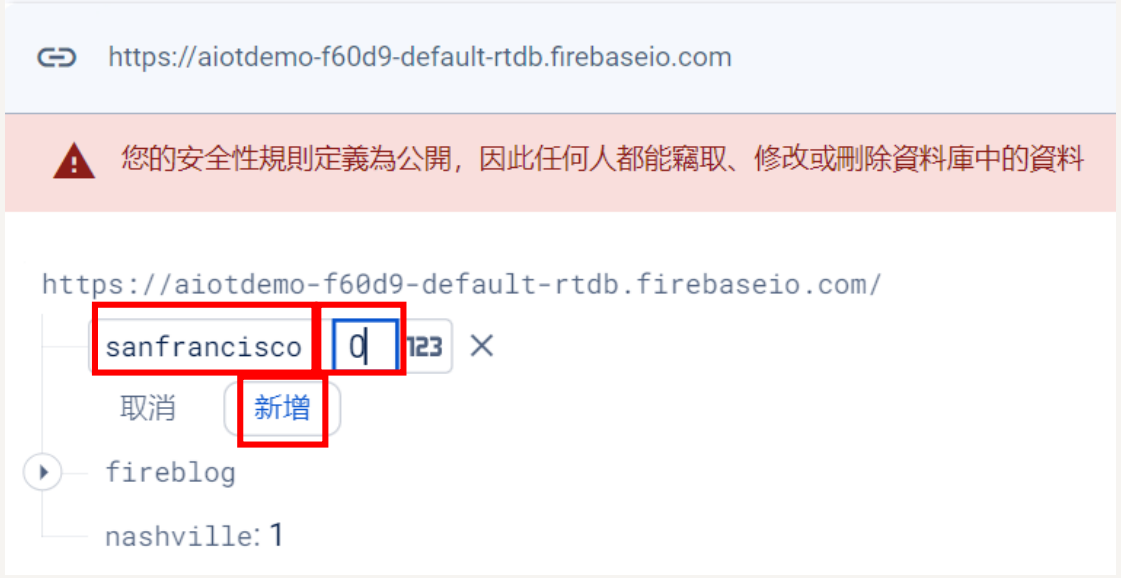

----------CLICK ME AND READ THE INFO PANE----------
firebase.on() example flow
https://aiotdemo-f60d9-default-rtdb.firebaseio.com/nashville.on("value")
ready
msg.payload
firebase.once() example flow
timestamp
/sanfrancisco.once("value")
invalid credentials
msg.payload
firebase modify example flow
timestamp
set msg.payload
/myHomeTown.set()
invalid credentials
catch: all
msg

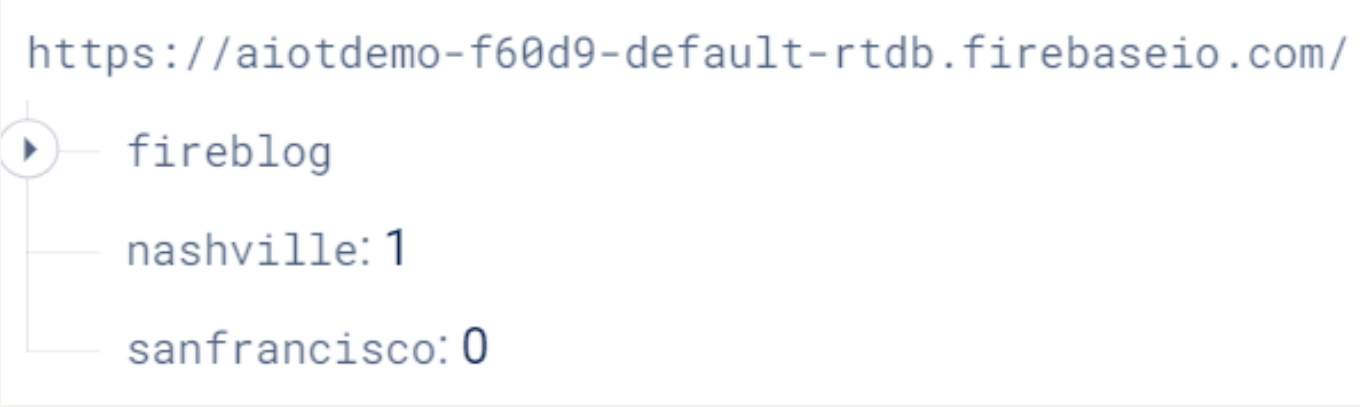
https://aiotdemo-f60d9-default-rtdb.firebaseio.com
複製參考網址
您的安全性規則定義為公開，因此任何人都能竊取、修改或刪除資料庫中的資料
https://aiotdemo-f60d9-default-rtdb.firebaseio.com/
fireblog
nashville: 1

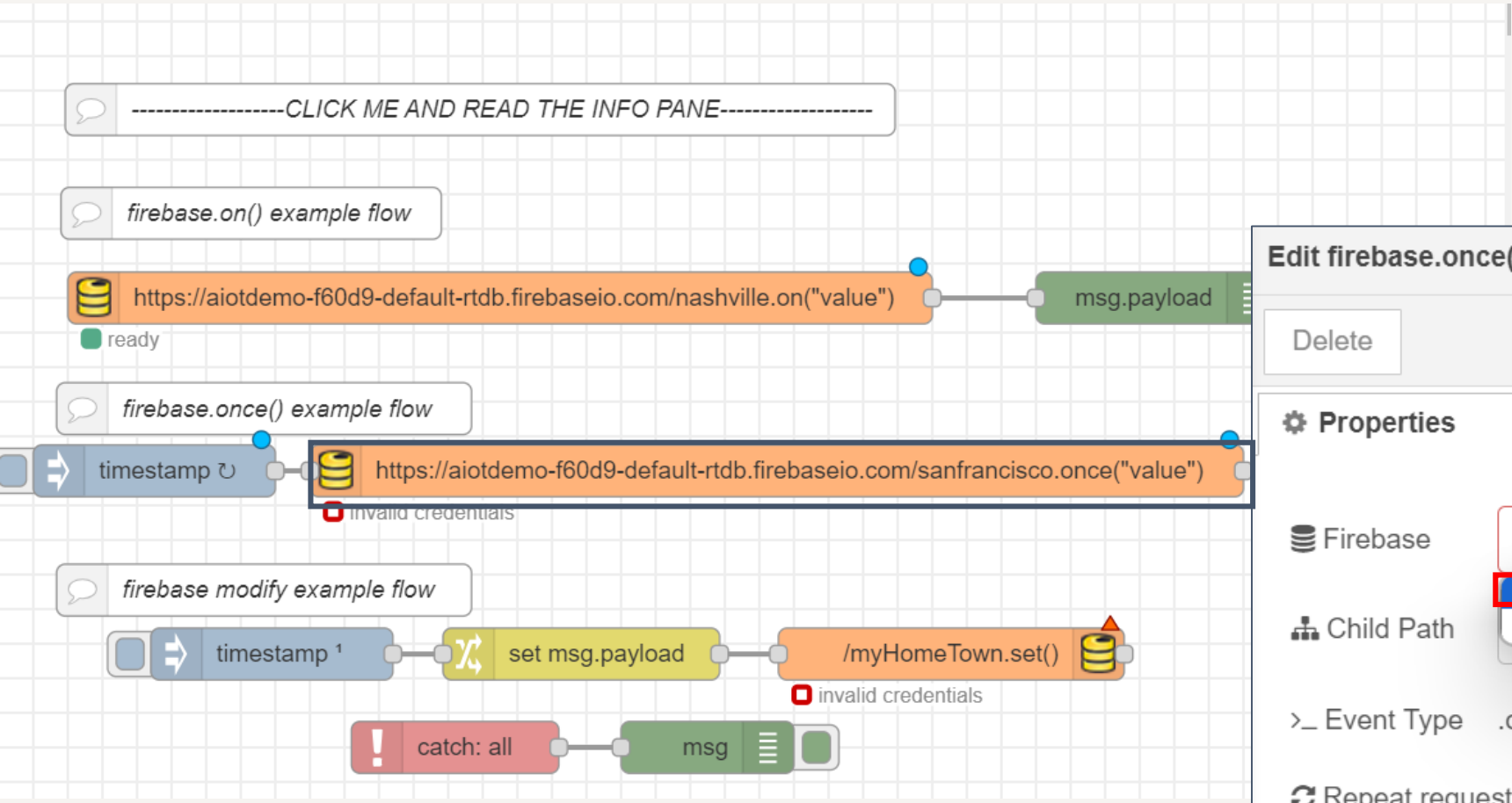

debug
all nodes
all
2023/11/22 下午4:24:34 node: e3f4c139.1c0b4
msg.payload : number
1

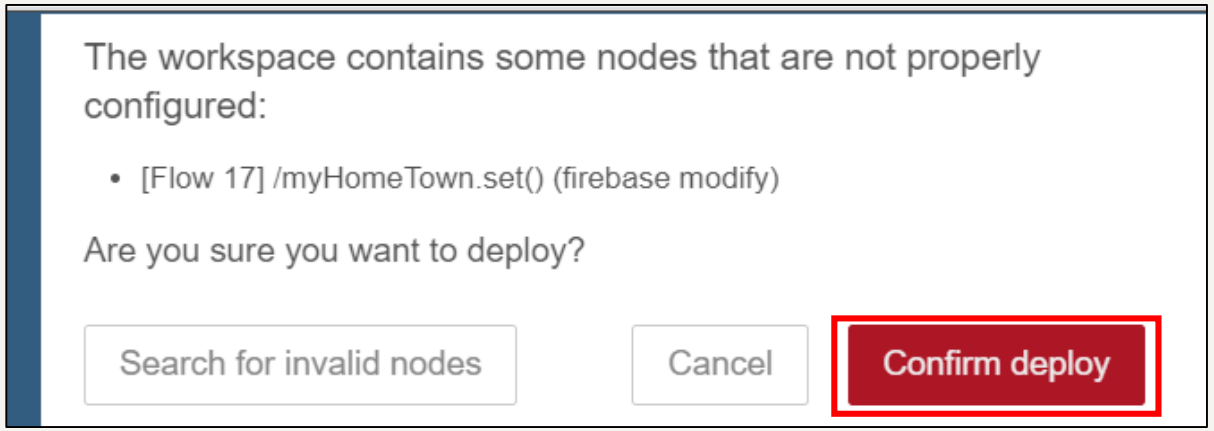
Add

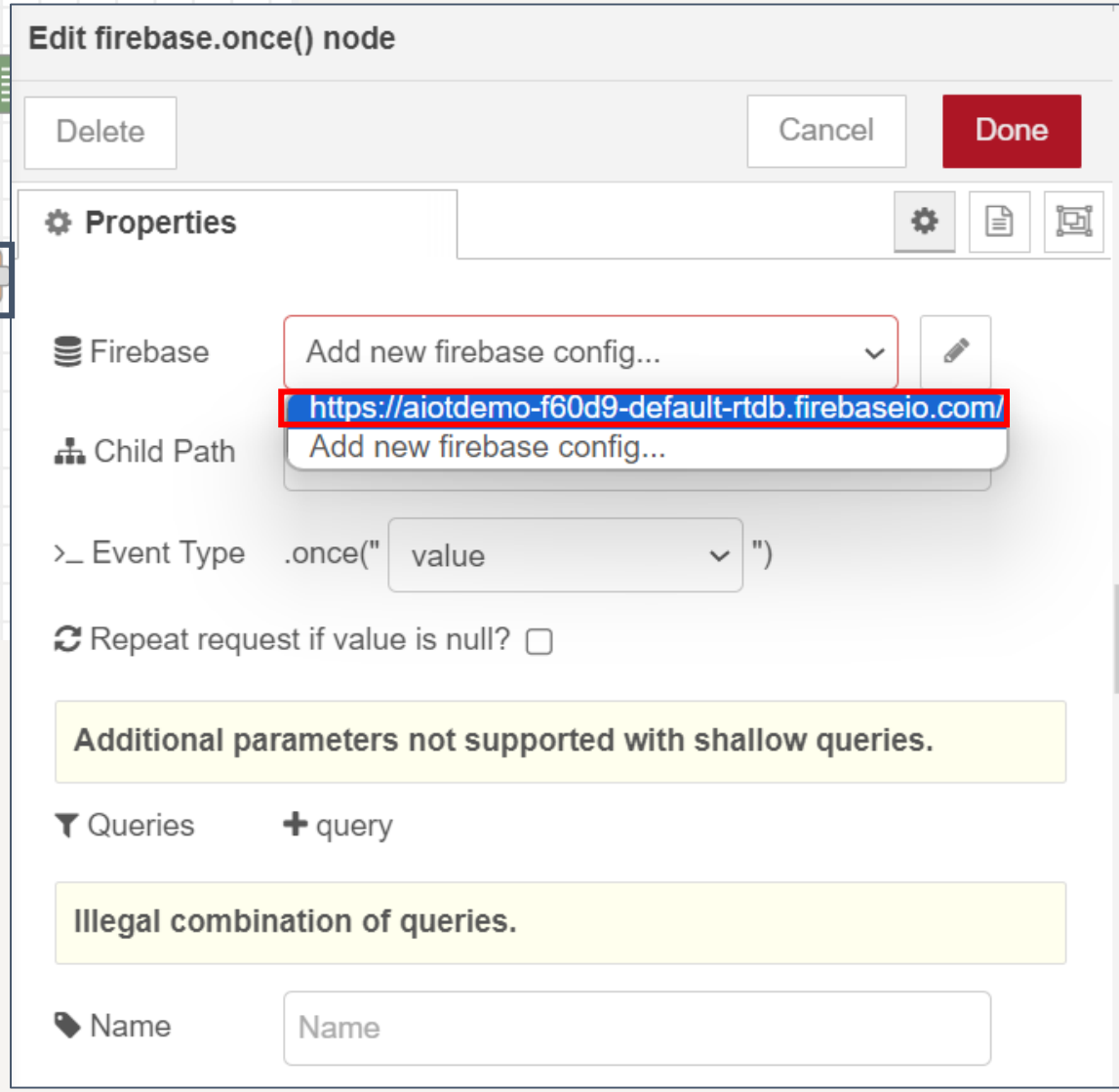
https://aiotdemo-f60d9-default-rtdb.firebaseio.com
您的安全性規則定義為公開，因此任何人都能竊取、修改或刪除資料庫中的
https://aiotdemo-f60d9-default-rtdb.firebaseio.com/
fireblog
nashville: 1

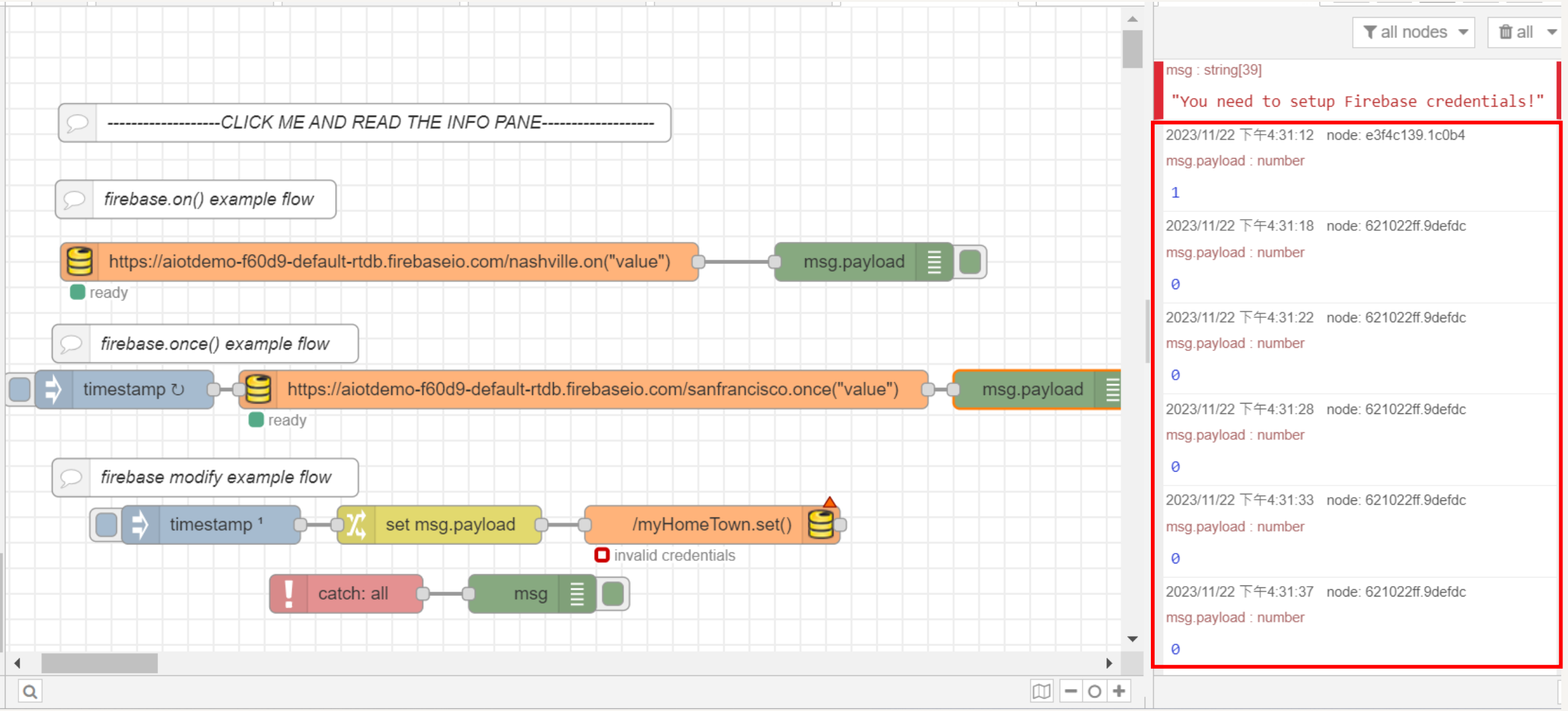

https://aiotdemo-f60d9-default-rtdb.firebaseio.com
您的安全性規則定義為公開，因此任何人都能竊取、修改或刪除資料庫中的資料
https://aiotdemo-f60d9-default-rtdb.firebaseio.com/
sanfrancisco
0
123
取消
新增
fireblog
nashville: 1


https://aiotdemo-f60d9-default-rtdb.firebaseio.com/
fireblog
nashville: 1
sanfrancisco: 0


----------CLICK ME AND READ THE INFO PANE----------
firebase.on() example flow
https://aiotdemo-f60d9-default-rtdb.firebaseio.com/nashville.on("value")
msg.payload
ready
firebase.once() example flow
timestamp
https://aiotdemo-f60d9-default-rtdb.firebaseio.com/sanfrancisco.once("value")
invalid credentials
firebase modify example flow
timestamp
set msg.payload
/myHomeTown.set()
invalid credentials
catch: all
msg


The workspace contains some nodes that are not properly configured:
[Flow 17] /myHomeTown.set() (firebase modify)
Are you sure you want to deploy?
Search for invalid nodes
Cancel
Confirm deploy

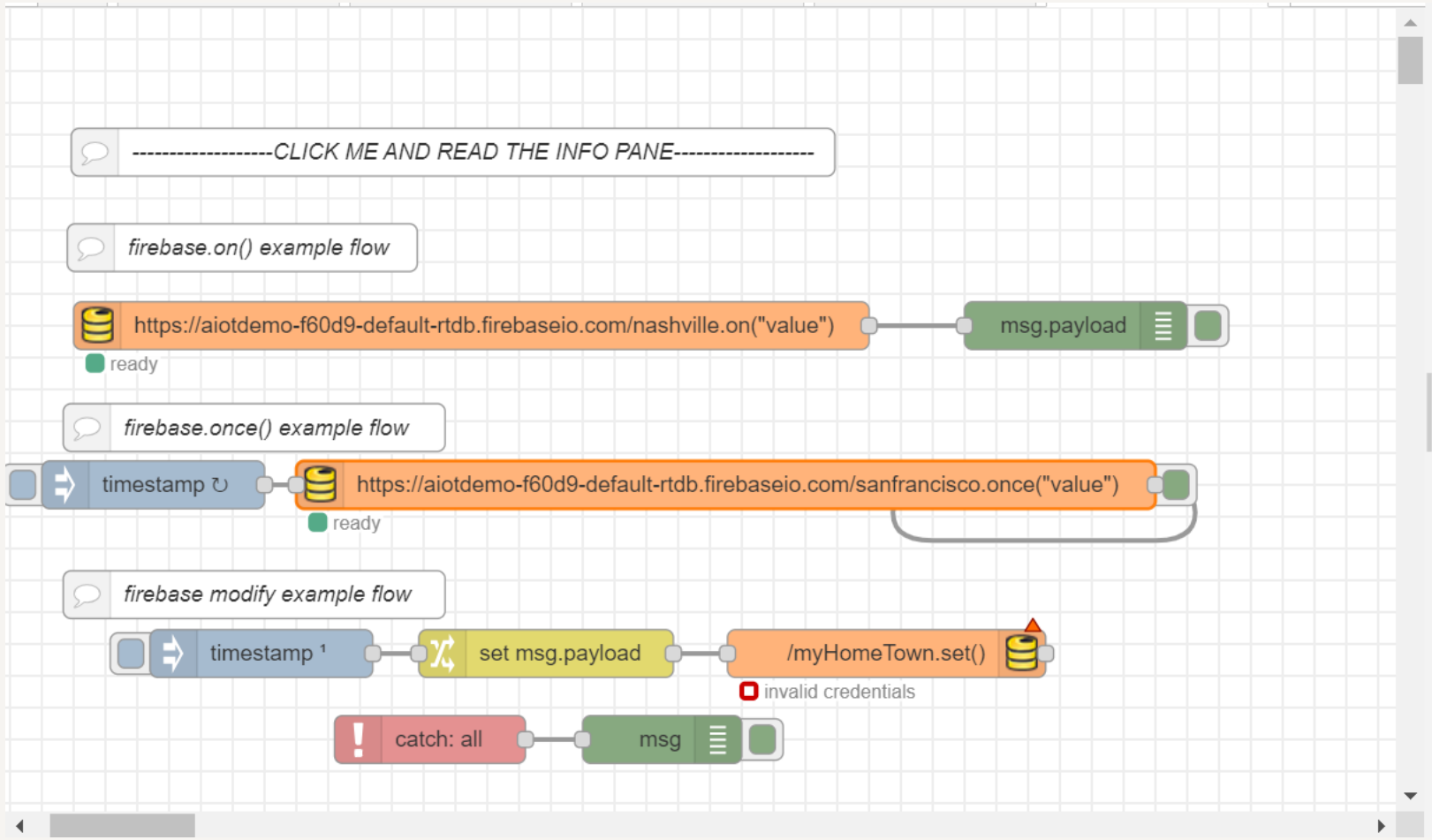

Edit firebase.once() node
Delete
Cancel
Done
Properties
Firebase
Add new firebase config...
https://aiotdemo-f60d9-default-rtdb.firebaseio.com/
Add new firebase config...
Child Path
Event Type
.once("
value
")
Repeat request if value is null?
Additional parameters not supported with shallow queries.
Queries
query
Illegal combination of queries.
Name
Name

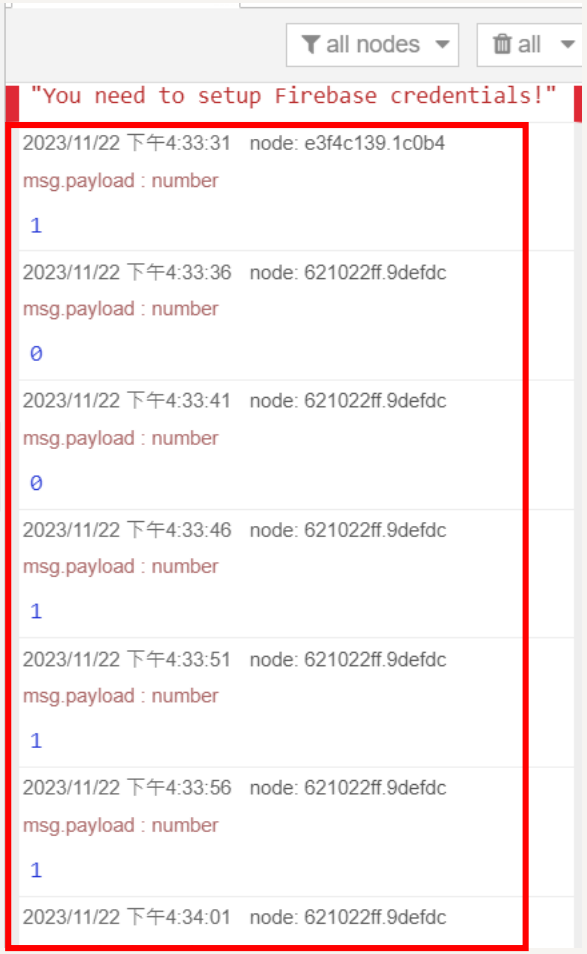

----------CLICK ME AND READ THE INFO PANE----------
firebase.on() example flow
https://aiotdemo-f60d9-default-rtdb.firebaseio.com/nashville.on("value")
msg.payload
ready
firebase.once() example flow
timestamp
https://aiotdemo-f60d9-default-rtdb.firebaseio.com/sanfrancisco.once("value")
msg.payload
ready
firebase modify example flow
timestamp
set msg.payload
/myHomeTown.set()
invalid credentials
catch: all
msg
all nodes
all
msg : string[39]
"You need to setup Firebase credentials!"
2023/11/22 下午4:31:12 node: e3f4c139.1c0b4
msg.payload : number
1
2023/11/22 下午4:31:18 node: 621022ff.9defdc
msg.payload : number
0
2023/11/22 下午4:31:22 node: 621022ff.9defdc
msg.payload : number
0
2023/11/22 下午4:31:28 node: 621022ff.9defdc
msg.payload : number
0
2023/11/22 下午4:31:33 node: 621022ff.9defdc
msg.payload : number
0
2023/11/22 下午4:31:37 node: 621022ff.9defdc
msg.payload : number
0

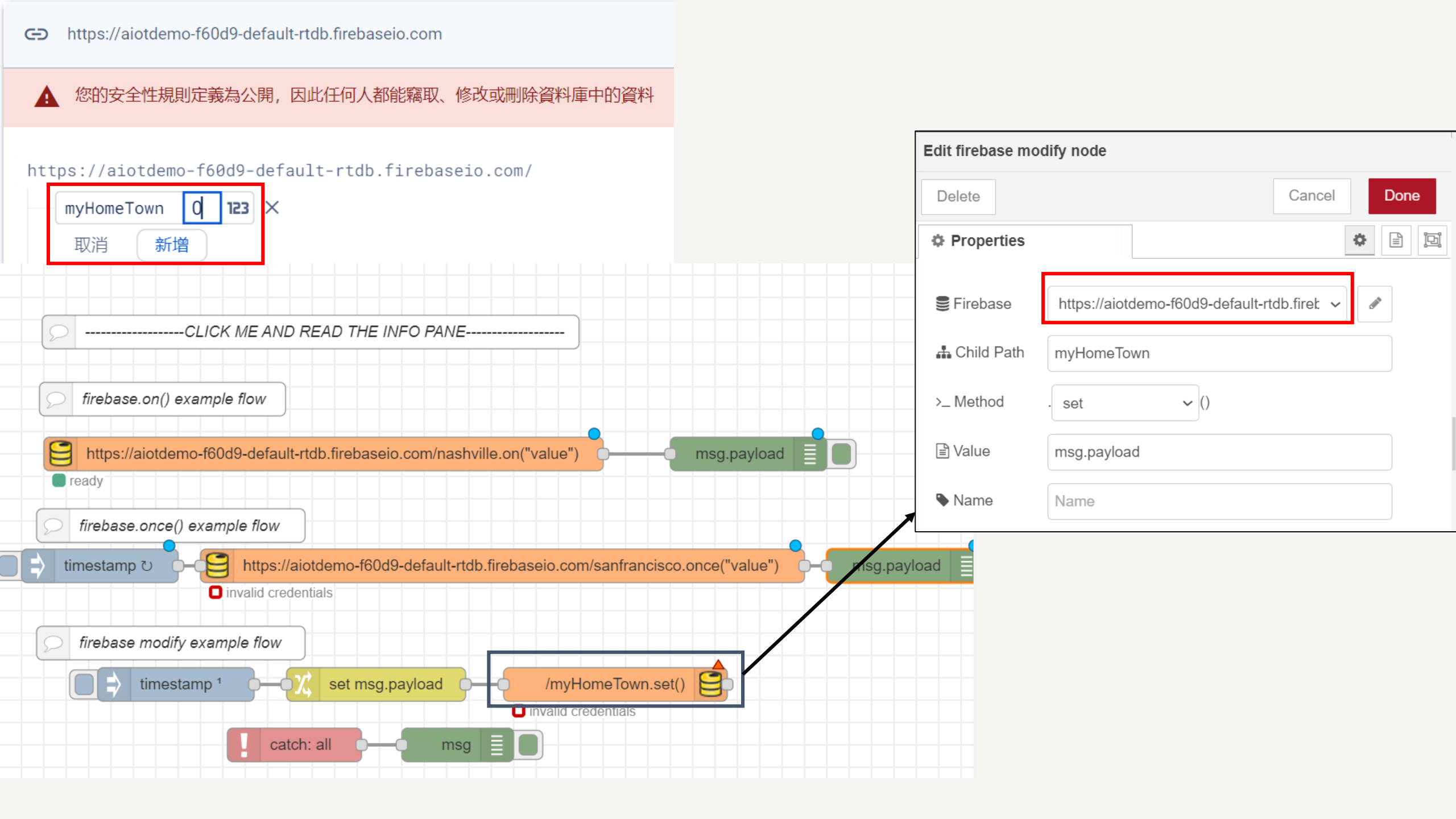
https://aiotdemo-f60d9-default-rtdb.firebaseio.com/

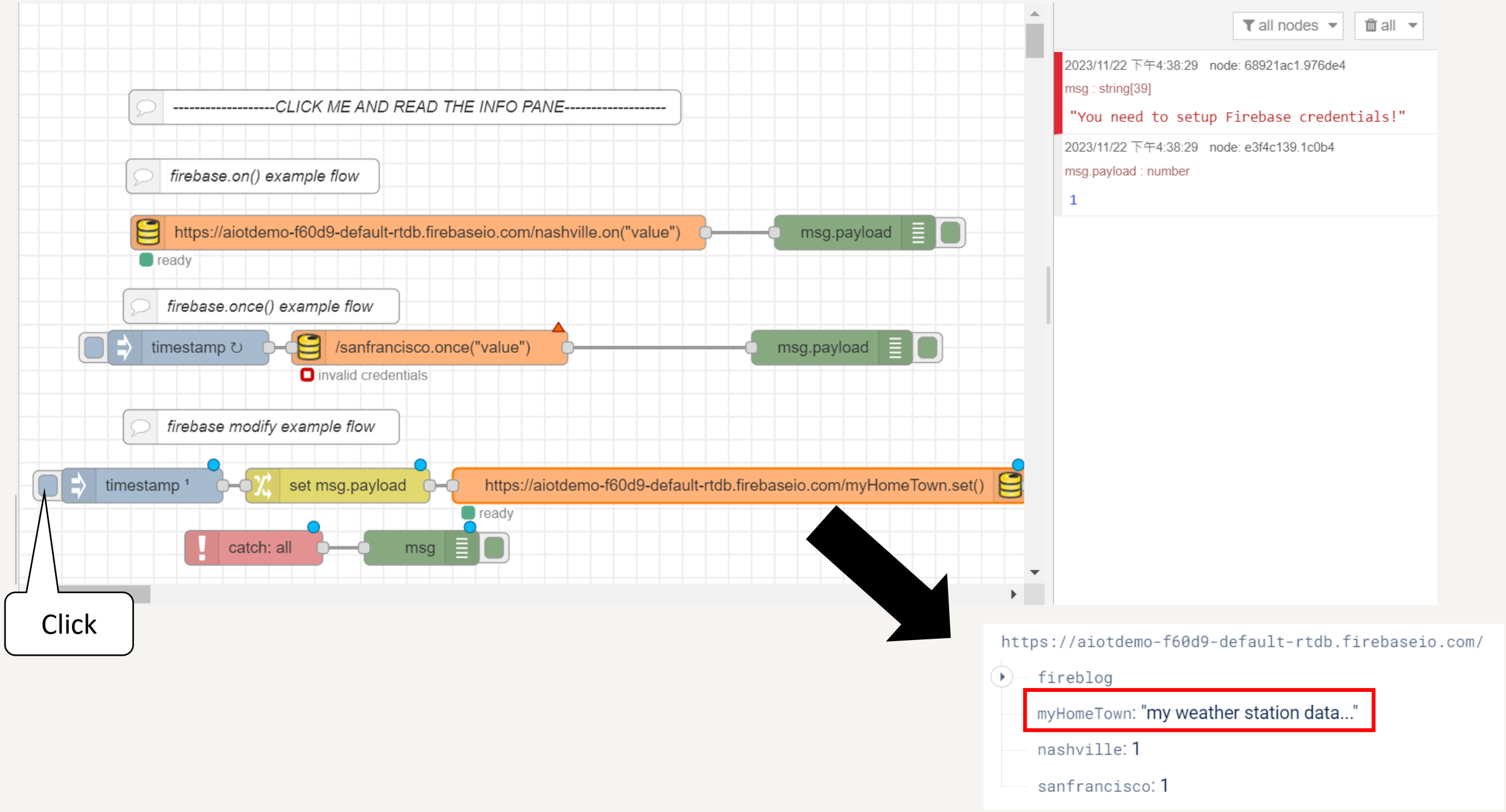
- fireblog
  - nashville: 1
  - sanfrancisco: 1

Change the value





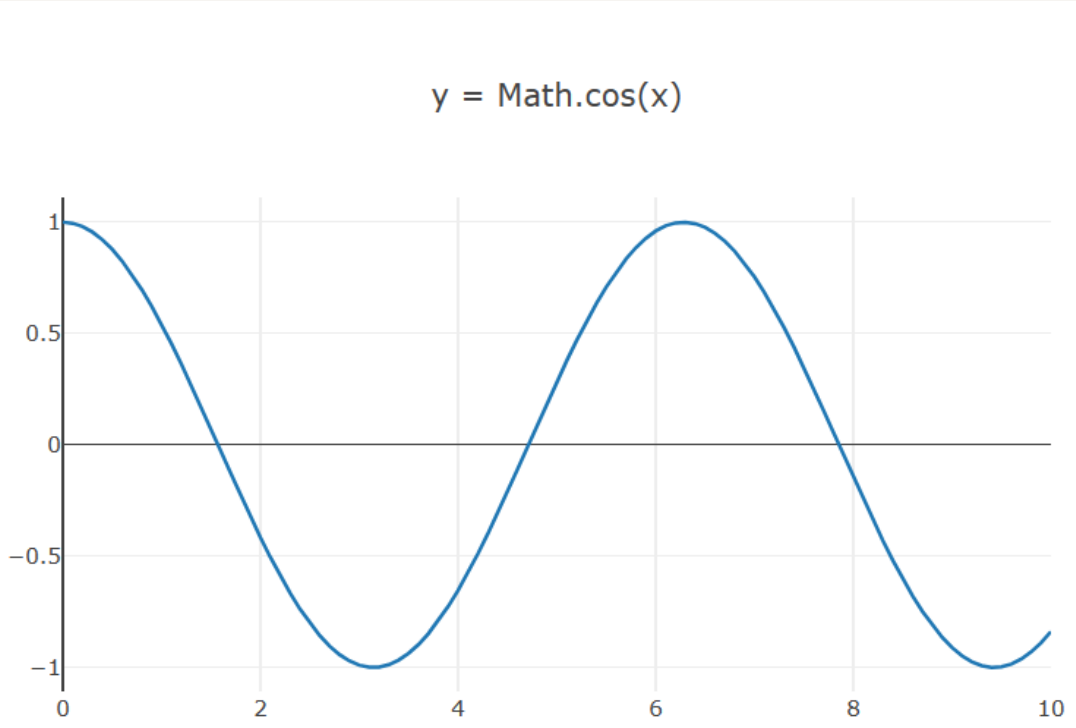

https://aiotdemo-f60d9-default-rtdb.firebaseio.com
您的安全性規則定義為公開，因此任何人都能竊取、修改或刪除資料庫中的資料
https://aiotdemo-f60d9-default-rtdb.firebaseio.com/
myHomeTown
0
123
取消
新增
----------CLICK ME AND READ THE INFO PANE----------
firebase.on() example flow
https://aiotdemo-f60d9-default-rtdb.firebaseio.com/nashville.on("value")
msg.payload
ready
firebase.once() example flow
timestamp
https://aiotdemo-f60d9-default-rtdb.firebaseio.com/sanfrancisco.once("value")
msg.payload
invalid credentials
firebase modify example flow
timestamp
set msg.payload
/myHomeTown.set()
invalid credentials
catch: all
msg
Edit firebase modify node
Delete
Cancel
Done
Properties
Firebase
https://aiotdemo-f60d9-default-rtdb.firek
Child Path
myHomeTown
Method
set
()
Value
msg.payload
Name
Name


----------CLICK ME AND READ THE INFO PANE----------
firebase.on() example flow
https://aiotdemo-f60d9-default-rtdb.firebaseio.com/nashville.on("value")
msg.payload
ready
firebase.once() example flow
timestamp ↻
/sanfrancisco.once("value")
msg.payload
invalid credentials
firebase modify example flow
timestamp ¹
set msg.payload
https://aiotdemo-f60d9-default-rtdb.firebaseio.com/myHomeTown.set()
ready
catch: all
msg
Click
all nodes
all
2023/11/22 下午4:38:29 node: 68921ac1.976de4
msg : string[39]
"You need to setup Firebase credentials!"
2023/11/22 下午4:38:29 node: e3f4c139.1c0b4
msg.payload : number
1
https://aiotdemo-f60d9-default-rtdb.firebaseio.com/
fireblog
myHomeTown: "my weather station data..."
nashville: 1
sanfrancisco: 1

Exercise 10-4

Plotly.js

```html
<!DOCTYPE html>
<html>
<script src="https://cdn.plot.ly/plotly-latest.min.js"></script>

<body>
<div id="myPlot" style="width:100%;max-width:700px"></div>

<script>
let exp = "Math.cos(x)";

// Generate values
const xValues = [];
const yValues = [];
for (let x = 0; x <= 10; x += 0.1) {
  xValues.push(x);
  yValues.push(eval(exp));
}

// Display using Plotly
const data = [{x:xValues, y:yValues, mode:"lines"}];
const layout = {title: "y = " + exp};
Plotly.newPlot("myPlot", data, layout);
</script>

</body>
</html>
```

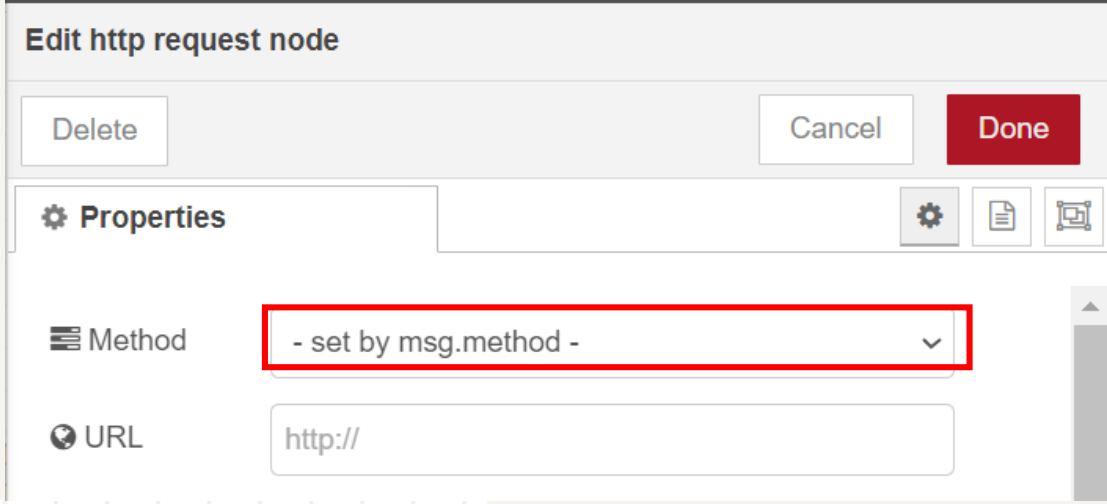


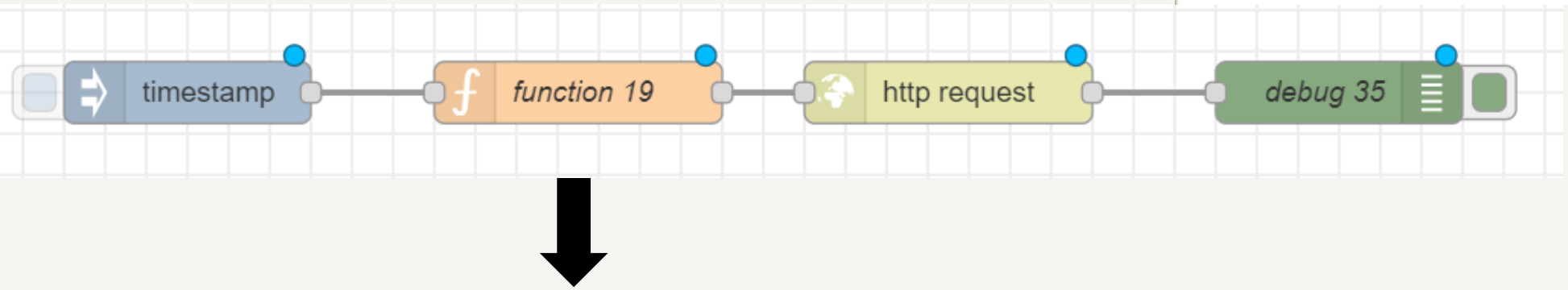
Homework 10-1

- Try PATCH and POST methods to write data to your database.

https://firebase.google.com/docs/database/rest/save-data?hl=zh-tw

PATCH

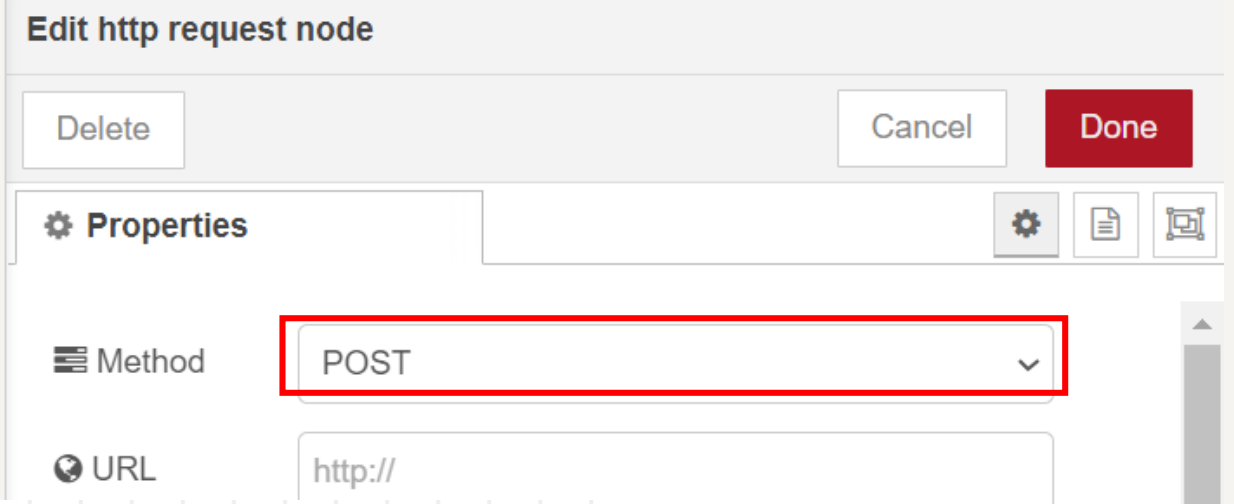


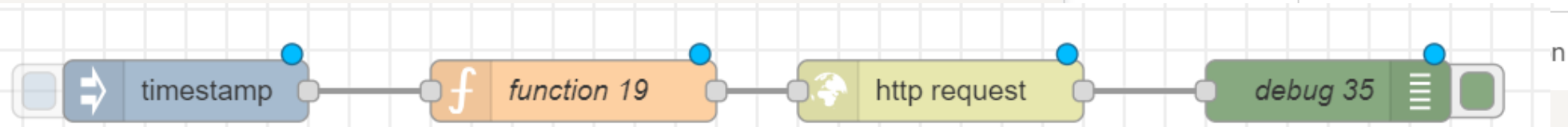



```
msg.url ="https://aiotdemo-f60d9-default-
rtdb.firebaseio.com/fireblog/users/alanisawesome.json";
msg.method = "PATCH";
msg.payload = { "date_of_birth": "June 23, 1912" };
return msg;
```

fireblog
users
-Njpw8avFhaNmj_-MRfl
alanisawesome
alanisawesome
date_of_birth: "June 23, 1912"
nickname: "piglet"
並不會因為增加這項內容而替換所有資料

POST

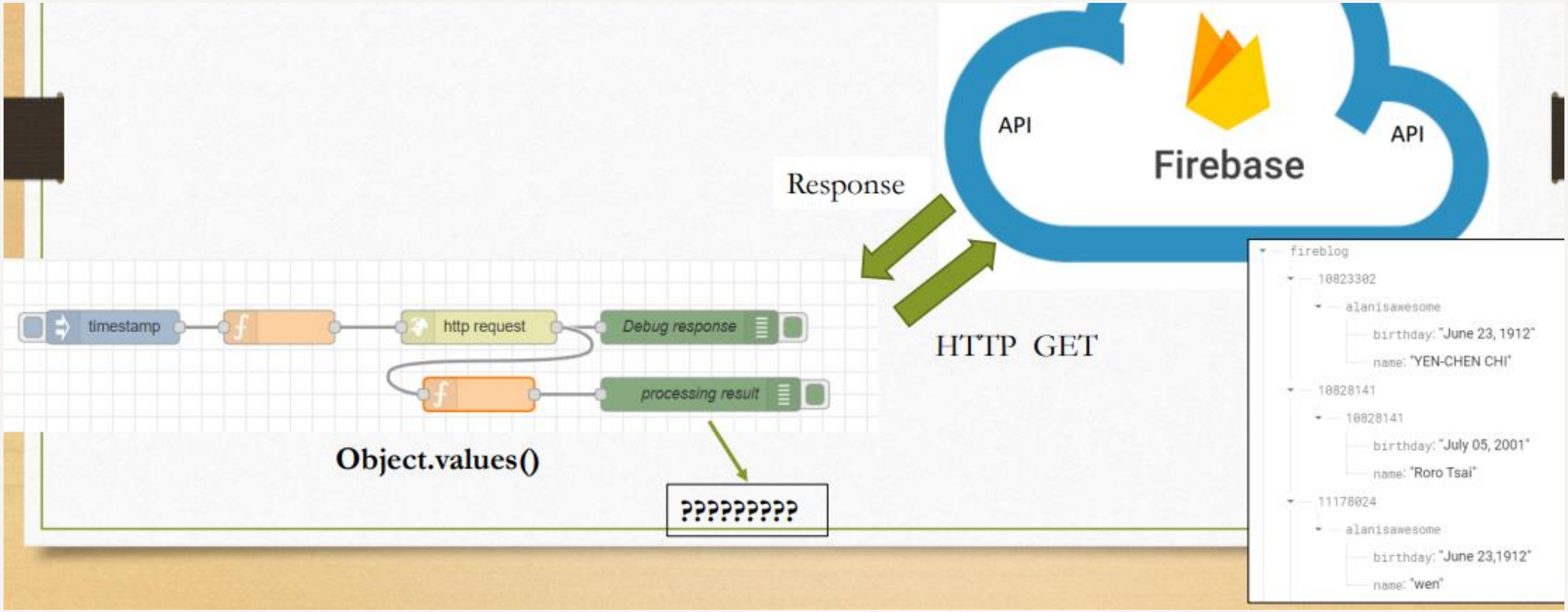





```
msg.url="https://aiotdemo-f60d9-default-
rtdb.firebaseio.com/fireblog/users.json";
// msg.method = "PATCH";
msg.payload={"alanisawesome": {"name":
"Jackson", "birthday": "August 23, 2001"}};
return msg;
```

fireblog
users
-Njpw8avFhaNmj_-MRfl
Unique key
alanisawesome
birthday: "August 23, 2001"
name: "Jackson"
alanisawesome
birthday: "June 23, 1912"
name: "Alan Turing"

Homework 10-2

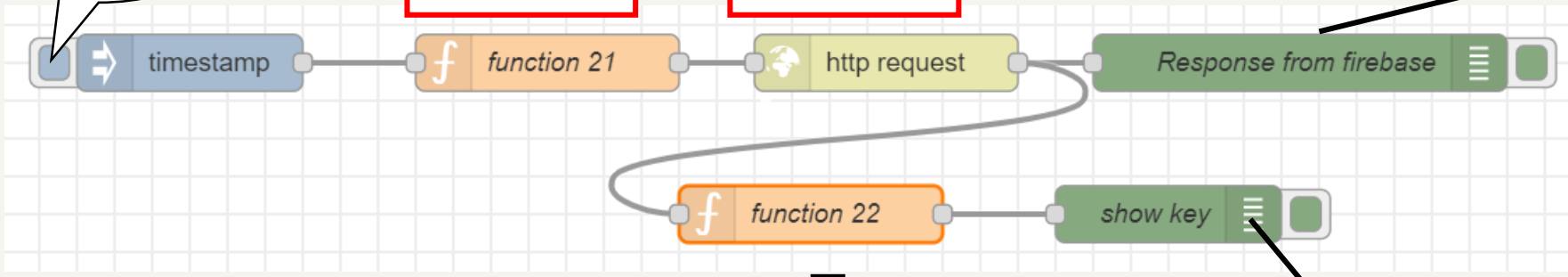


```
msg.url ="https://fornodered-312ce-default-rtdb.firebaseio.com/fireblog.json";
return msg;
```

Set URL

HTTP GET

click




```
var result= msg.payload;
var obj=JSON.parse(result);
msg.payload=Object.values(obj);
return msg;
```

Processing the response

msg.payload : string[683]


```
"{"10823302":{"alanisawesome":
{"birthday":"June 23, 1912","name":"YEN-CHEN
CHI"}},"10828141":{"10828141":
{"birthday":"July 05, 2001","name":"Roro
Tsai"}},"11178024":{"alanisawesome":
{"birthday":"June
23,1912","name":"wen"}},"11178029":
{"alanisawesome":{"birthday":"Jan 14,
1999","name":"JihChieh"}},"b10828142":
{"alanisawesome":{"birthday":"DEC 16,
2000","name":"YANCHIYOU"}},"b10828170":
{"alanisawesome":{"birthday":"december 25,
2000","name":"wengletian"}},"lyp":
{"alanisawesome":{"birthday":"June 23,
1912","name":"Alan Turing"}},"lyp1":
{"alanisawesome":{"birthday":"June 23,
1912","name":"Alan Turing"}},"users":
{"alanisawesome":{"birthday":"June 23,
1912","name":"Alan Turing"}}}"
```


2023/11/22 下午3:52:24 node: show key

msg.payload : array[9]

▸ [*object*, *object*, *object*, *object*, *object*, *object*, *object*, *object*, *object*]

Expand

msg.payload : string[683]


```
"{"10823302":{"alanisawesome":
{"birthday":"June 23, 1912","name":"YEN-CHEN
CHI"}},"10828141":{"10828141":
{"birthday":"July 05, 2001","name":"Roro
Tsai"}},"11178024":{"alanisawesome":
{"birthday":"June
23,1912","name":"wen"}},"11178029":
{"alanisawesome":{"birthday":"Jan 14,
1999","name":"JihChieh"}},"b10828142":
{"alanisawesome":{"birthday":"DEC 16,
2000","name":"YANCHIYOU"}},"b10828170":
{"alanisawesome":{"birthday":"december 25,
2000","name":"wengletian"}},"lyp":
{"alanisawesome":{"birthday":"June 23,
1912","name":"Alan Turing"}},"lyp1":
{"alanisawesome":{"birthday":"June 23,
1912","name":"Alan Turing"}},"users":
{"alanisawesome":{"birthday":"June 23,
1912","name":"Alan Turing"}}}"
```


2023/11/22 下午3:52:24 node: show key

msg.payload : array[9]

▸ [object, object, object, object, object, object, object, object, object]

msg.payload : array[9]

- ▾ array[9]
  - ▸ 0: object
  - ▸ 1: object
  - ▸ 2: object
  - ▸ 3: object
  - ▸ 4: object
  - ▸ 5: object
  - ▸ 6: object
  - ▸ 7: object
  - ▸ 8: object

2023/11/22 下午3:52:24 node: show key

msg.payload : array[9]

- ▾ array[9]
  - ▾ 0: object
    - ▾ alanisawesome: object
      - birthday: "June 23, 1912"
      - name: "YEN-CHEN CHI"
  - ▾ 1: object
    - ▾ 10828141: object
      - birthday: "July 05, 2001"
      - name: "Roro Tsai"
  - ▾ 2: object
    - ▾ alanisawesome: object
      - birthday: "June 23,1912"
      - name: "wen"
  - ▸ 3: object
  - ▸ 4: object
  - ▸ 5: object