



## **EI-PaaS**

# **Node-RED Plug-ins User Manual**

The document is provided to you for references and is subject to change. Please always get latest version from Advantech to sync.

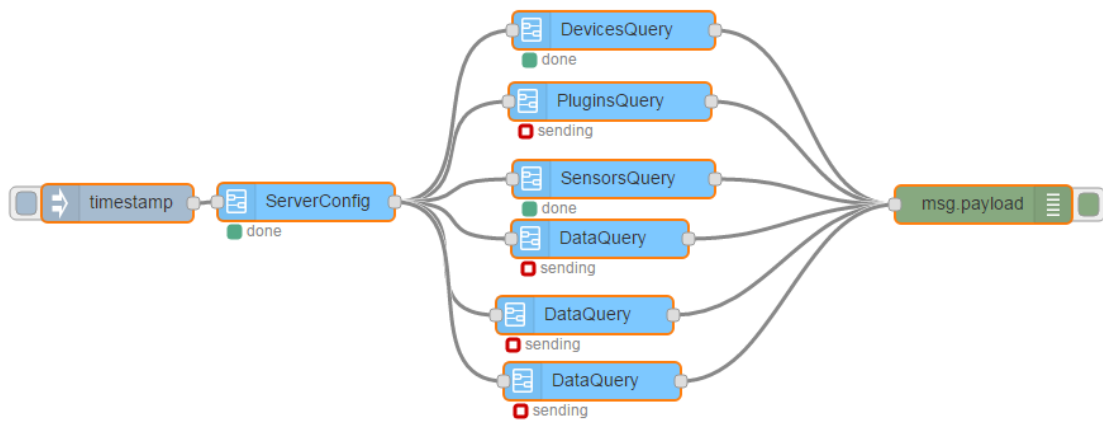
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# Introduction

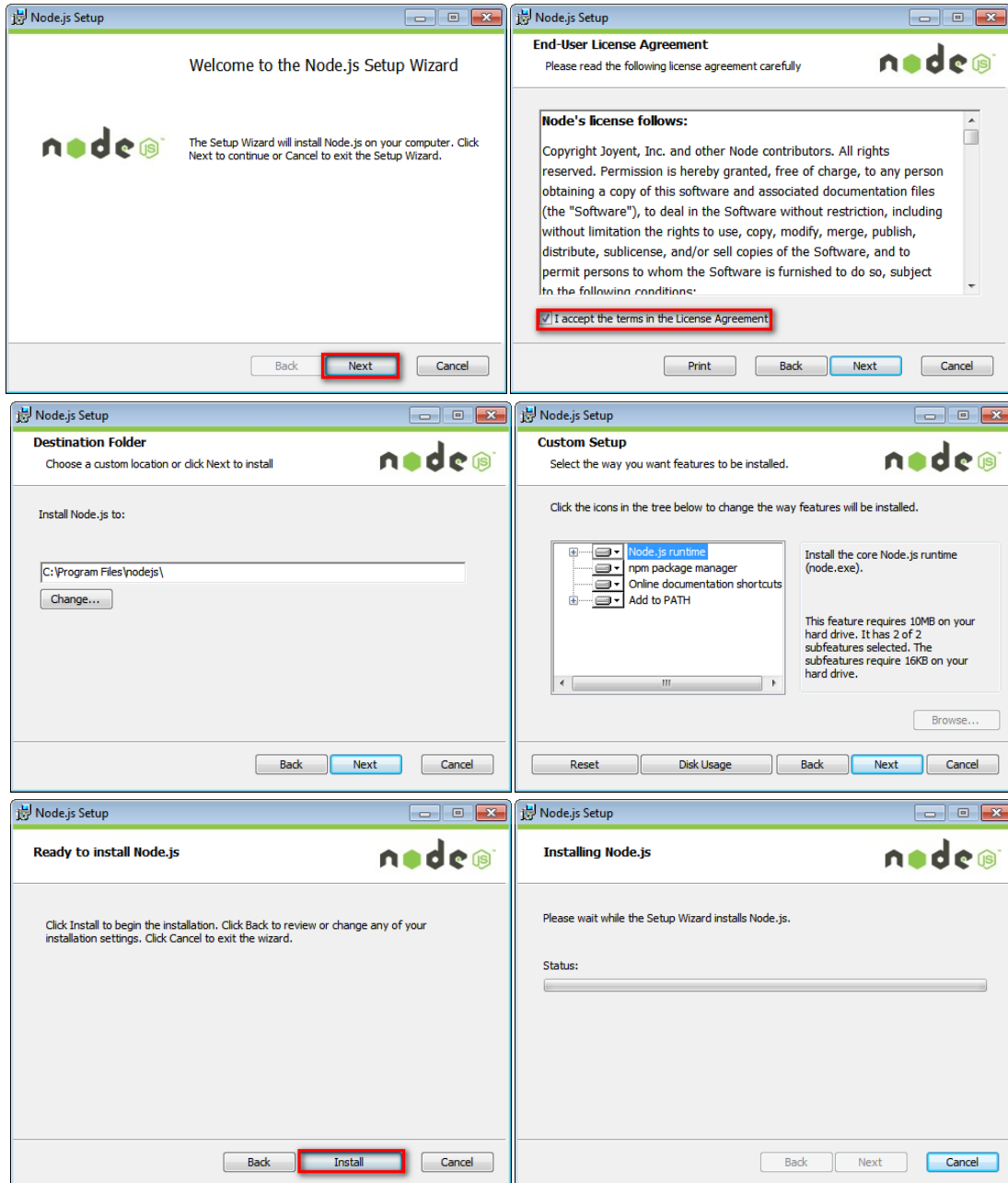
[Node-RED](#) is a visual wiring tool for the Internet of Things and is provided by [IBM Emerging Technologies](#). [Node-Red](#) has several features, including browser-based flow editing, built on [Node.js](#) and social development. Because of browser-based, the user can use it more easily. [Node-Red](#) is based on [Node.js](#), so user can use its nodes by using JavaScript. [Node-Red](#) also have many active communities. If the user finds bugs, he can find a solution and fix it easily. The user can use JSON format string to import or export the created flow easily.

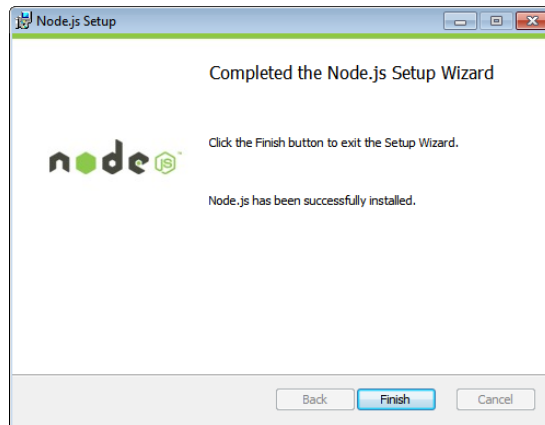
According to the restful API of EI-PaaS, we created several nodes.



# How to install Node-Red Plug-ins for EI-PaaS

- Install Node.js
  - ◆ Download installer from <https://nodejs.org>
  - ◆ Double-click to install **Node.js**





- Clone [EI-NodeRed](#) from GitLab
- Open **cmd.exe** and navigate to **./EI-NodeRed** folder
- Type command line "**npm install**" to install the node-red dependencies
- Type command line "**npm run build**" to build the code of [Node-Red](#)
- Type command line "**npm start**" or "**node red.js**" to run [Node-Red](#)

## Node-Red Plug-ins Categories

Category	Description	Nodes
General	The settings of IP address, port number, login username/password of EI-PaaS server. Retrieval of device and sensor information.	1. ServerConfig
Common	Query the data and the information of devices, plugins and sensors	1. DevicesQuery 2. PluginsQuery 3. SensorsQuery 4. DataQuery

## Node-Red Plug-ins Description

Node Name	Description	Input	Output
ServerConfig	Set url, port, username and password for <b>EI-PaaS</b> server. The node provides <b>Basic</b> type and <b>SSO</b> type.	A timestamp trigger or button trigger.	msg.url, msg.port, msg.encodestr .
DevicesQuery	Retrieve devices information from <b>EI-PaaS</b> server. User can fill a specific Device ID. The text of Device ID can be blank if user wants to retrieve all devices.	<b>ServerConfig</b> Node.	<b>Devices</b> information list.
PluginsQuery	Retrieve plugins by device ID within a time range. The maximum number of values is 10000 from <b>EI-PaaS</b> server. User can set the conditions about plugins here. Ex: Device ID, Agent ID, begin timestamp, end timestamp, amount and type.	<b>ServerConfig</b> Node.	<b>Plugins</b> Information list.
SensorsQuery	Retrieve sensors by Device ID & plugin within a time range. The maximum number of values is 10000 from <b>EI-PaaS</b> server. User	<b>ServerConfig</b> Node.	<b>Sensors</b> Information list.

	can set the conditions about sensors here. Ex: Device ID, Agent ID, Plugin Name, begin timestamp, end timestamp, amount and type.		
DataQuery	Retrieve data from <b>WISE PaaS 2.0</b> server. The node provides three types, they are <b>history, latest and statistic</b>	<b>ServerConfig</b> Node.	The data of <b>history, statistic</b> or <b>latest</b> by specific device Id within a time range.

## Node-Red for EI-PaaS

- **General**

- **ServerConfig**

**Description:** Set url, port, username and password for EI-PaaS server. The node provides Basic type and SSO type.

- ◆ **Basic**

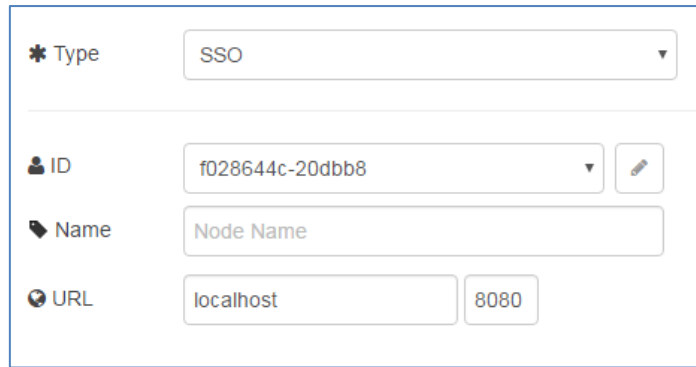
**Description:** User can set **Username** and **Password**. If user calls the restful API of common server, the text box can be blank.

The screenshot shows the configuration interface for the ServerConfig node in Node-Red, set to the 'Basic' type. The fields are as follows:

- Type:** A dropdown menu with 'Basic' selected.
- Name:** A text input field containing 'Node Name'.
- URL:** A text input field containing 'localhost' and a separate port input field containing '8080'.
- Username:** A text input field containing 'admin'.
- Password:** A password input field containing '.....'.

- ◆ **SSO**

**Description:** User can get accessToken here and call the restful API by the accessToken.



\* Type: SSO

ID: f028644c-20dbb8

Name: Node Name

URL: localhost 8080

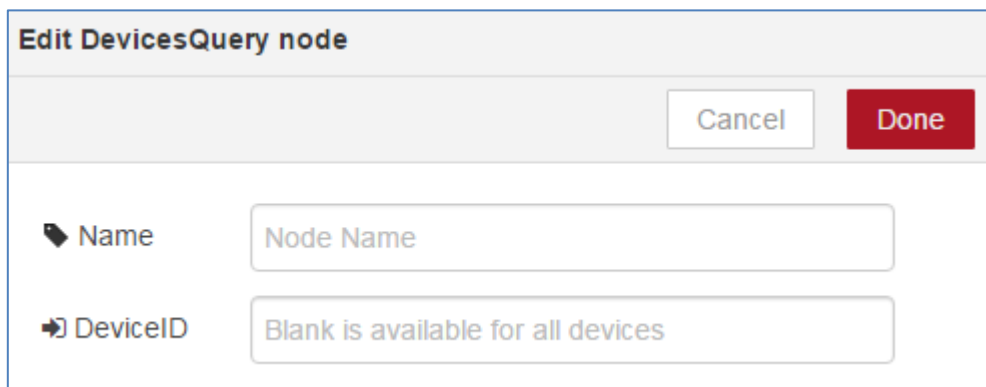
**Input:** A timestamp trigger or button trigger.

**Output:** msg.url, msg.port, msg.encodedstr.

- **Common**

- **DevicesQuery**

**Description:** Retrieve devices information from EI-PaaS server. User can fill a specific Device ID. The text of Device ID can be blank if user wants to retrieve all devices.



**Edit DevicesQuery node**

Cancel Done

Name: Node Name

DeviceID: Blank is available for all devices

**Input:** *ServerConfig* Node.

**Output:** Device information list.

- **PluginsQuery**

**Description:** Retrieve plugins by device ID within a time range. The maximum number of values is 10000 from EI-PaaS server. User can set the conditions about plugins here. Ex: Device ID, Agent ID, begin timestamp, end timestamp, amount and type.



### Edit PluginsQuery node

Cancel Done

Name	Node Name
DeviceID	Device ID
AgentID	Agent ID
BeginTs	Begin Timestamp, e.g.,2017-04-06 00:00:00:000
EndTs	End Timestamp, e.g.,2017-04-30 00:00:00:000
Amount	Amount
Type	ASC

**Input:** *ServerConfig* Node.

**Output:** *Plugins Information list.*

#### ■ SensorsQuery

**Description:** *Retrieve sensors by Device ID & plugin within a time range. The maximum number of values is 10000 from EI-PaaS server. User can set the conditions about sensors here. Ex: Device ID, Agent ID, Plugin Name, begin timestamp, end timestamp, amount and type.*

**Edit SensorsQuery node**

Name	<input type="text" value="Node Name"/>
DeviceID	<input type="text" value="Device ID"/>
AgentID	<input type="text" value="Agent ID"/>
Plugin	<input type="text" value="Plugin Name"/>
BeginTs	<input type="text" value="Begin Timestamp, e.g.,2017-04-06 00:00:00:000"/>
EndTs	<input type="text" value="End Timestamp, e.g.,2017-04-30 00:00:00:000"/>
Amount	<input type="text" value="Amount"/>
Type	<input style="border-bottom: none; border-right: none; border-top: none; border-left: none; width: 100%;" type="text" value="ASC"/> ▼

**Input:** *ServerConfig Node.*

**Output:** *Sensors Information list.*

## ■ DataQuery

**Description:** *Retrieve data from EI-PaaS server. The node provides three types, they are history, latest and statistic*

### ◆ History

**Description:** *Retrieve data by Device ID within a time range. The maximum number of values is 10000.*

**Edit DataQuery node**

◆ Name	<input type="text" value="Node Name"/>
➔ Type	<input style="border-bottom: 1px solid #ccc; border-right: 1px solid #ccc; border-left: 1px solid #ccc; border-top: 1px solid #ccc; text-align: right; font-size: small; color: #666; padding-right: 5px;" type="text" value="History"/> ▼
➔ DeviceID	<input type="text" value="Device ID"/>
➔ AgentID	<input type="text" value="Agent ID"/>
➔ PluginName	<input type="text" value="Plugin Name"/>
➔ SensorID	<input type="text" value="Sensor Id"/>
➔ BeginTs	<input type="text" value="Begin Timestamp, e.g.,2017-04-06 00:00:00:000"/>
➔ EndTs	<input type="text" value="End Timestamp, e.g.,2017-04-30 00:00:00:000"/>
➔ Amount	<input type="text" value="Amount"/>
➔ Type	<input style="border-bottom: 1px solid #ccc; border-right: 1px solid #ccc; border-left: 1px solid #ccc; border-top: 1px solid #ccc; text-align: right; font-size: small; color: #666; padding-right: 5px;" type="text" value="ASC"/> ▼

**Input:** *ServerConfig Node.*

**Output:** *The history data by specific Device ID within a time range.*

### ◆ Latest

**Description:** *Retrieve latest data by Device ID.*

### Edit DataQuery node

Cancel Done

Name

Type

DeviceID

AgentID

PluginName

SensorID

**Input:** *ServerConfig Node.*

**Output:** *The latest data by specific Device ID.*

#### ◆ **Statistic**

**Description:** *Retrieve statistic data by Device ID within a time range. (Less than 31 days.)*

### Edit DataQuery node

Cancel Done

Name

Type

DeviceID

AgentID

PluginName

SensorID

BeginTs

EndTs

**Input:** *ServerConfig Node.*

**Output:** *The Statistic data by specific Device ID within a time range.*