EI-PaaS

Node-RED Plug-ins User Manual

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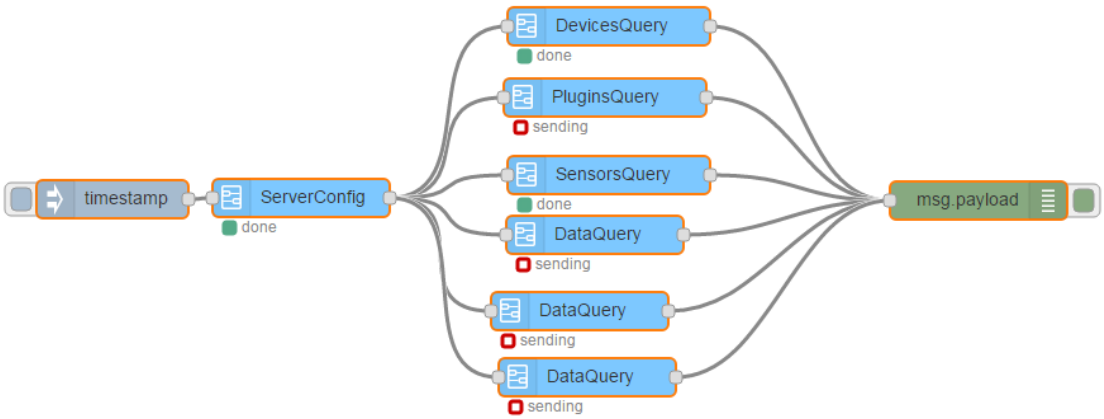
Introduction

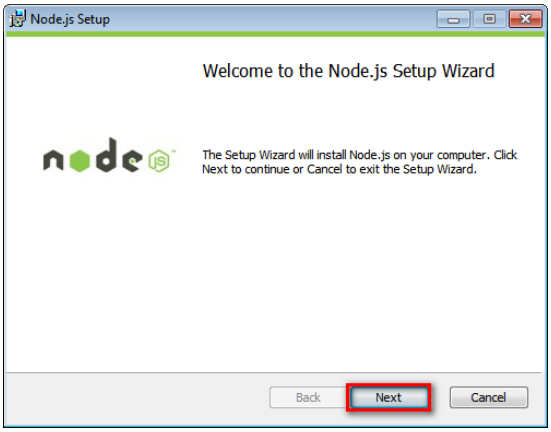
Node-RED is a visual wiring tool for the Internet of Things and is provided by IBM Emerging Technologies. Node-Red has several features, including browser-based flow editing, built on Node.js and social development. Because of browser-based, the user can use it more easily. Node-Red is based on Node.js, 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.

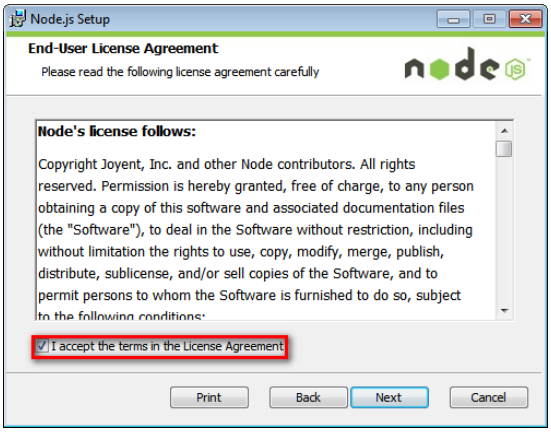
According to the restful API of EI-PaaS, we created several nodes.

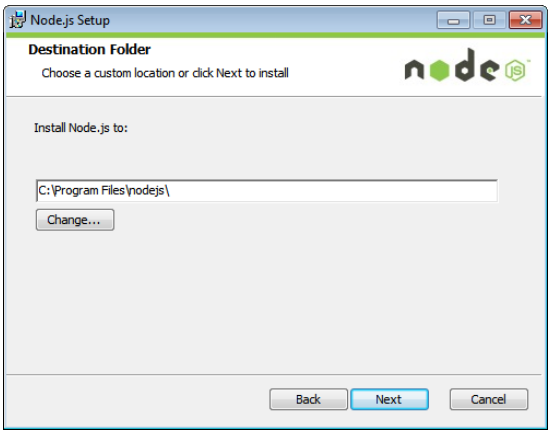


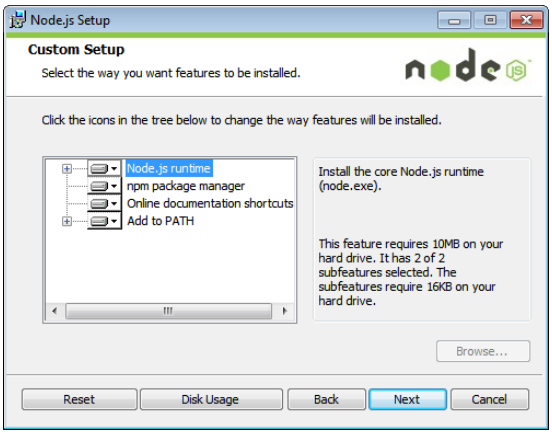
How to install Node-Red Plug-ins for EI-PaaS

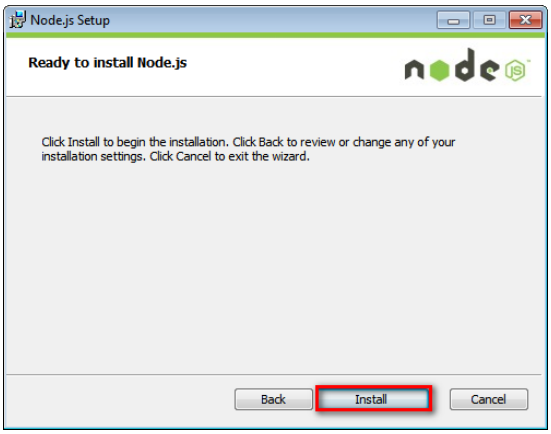
- Install Node.js
  - Download installer from https://nodejs.org
  - Double-click to install **Node.js**

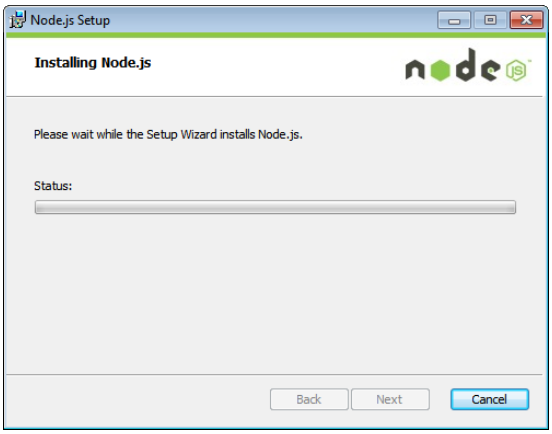


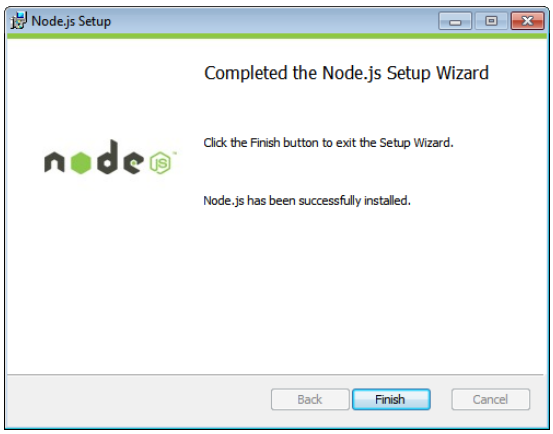












- Clone **EI-NodeRed** from GitLab

- 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 **EI-PaaS** server. The node provides **Basic** type and **SSO** type.*	*A timestamp trigger or button trigger.*	*msg.url, msg.port, msg.encodestr.*
DevicesQuery	*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.*	***ServerConfig** Node.*	***Devices** infor mation list.*
PluginsQuery	*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.*	***ServerConfig** Node.*	***Plugins** Infor mation list.*
SensorsQuery	*Retrieve sensors by Device ID & plugin within a time range. The maximum number of values is 10000 from **EI-PaaS** server. User*	***ServerConfig** Node.*	***Sensors** Infor mation 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 **WISE PaaS 2.0** server. The node provides three types, they are **history**, **latest** and **statistic***	***ServerConfig** Node.*	*The data of **history**, **statistic** or **latest** by specific device Id within a time range.*

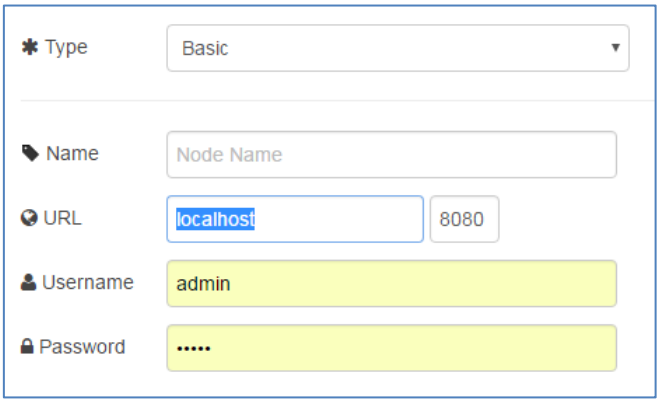
Node-Red for EI-PaaS

- ## General
  - ### ServerConfig

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

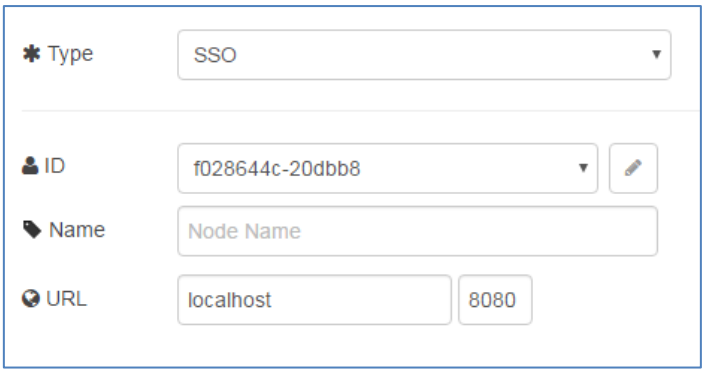
- #### Basic

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



- #### SSO

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



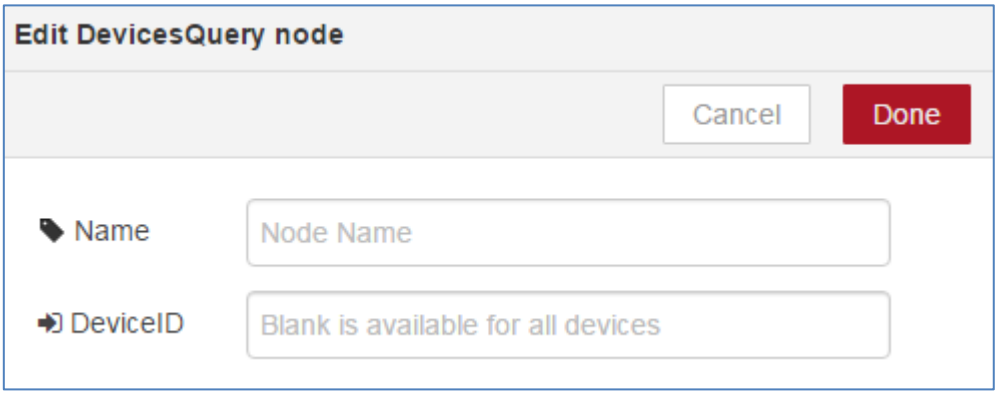
Input: *A timestamp trigger or button trigger.*

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

- ## 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.*

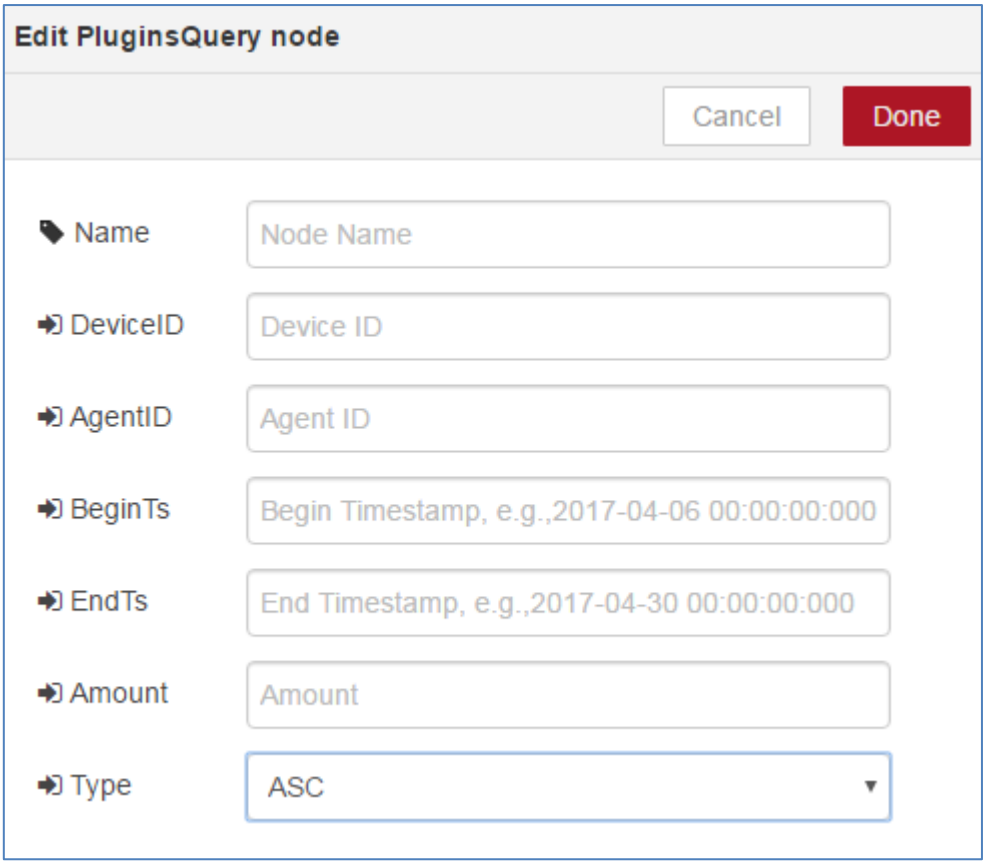


Input: ***ServerConfig*** *Node.*

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.*

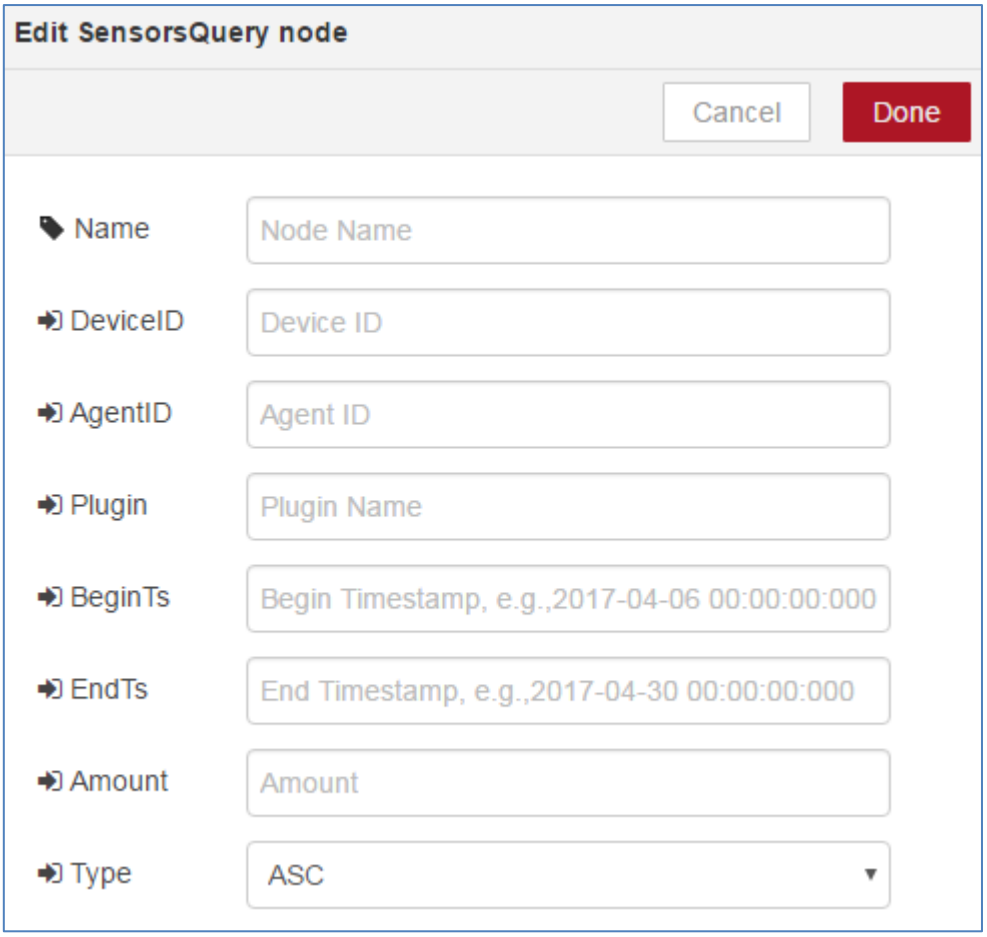


Input: ***ServerConfig*** *Node.*

Output: P*lugins 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.*



Input: ***ServerConfig*** *Node.*

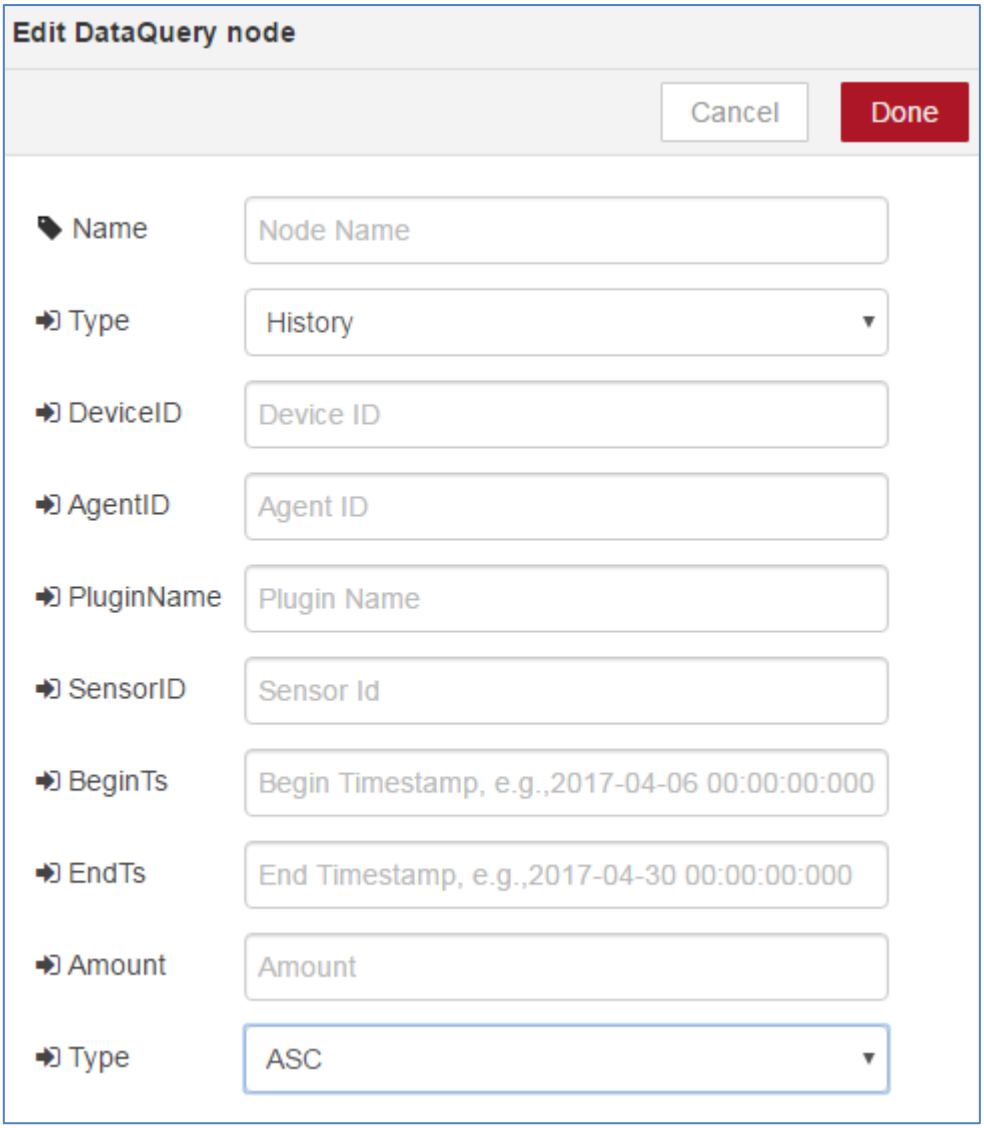
Output: *Sensors Information list.*

■ 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.*

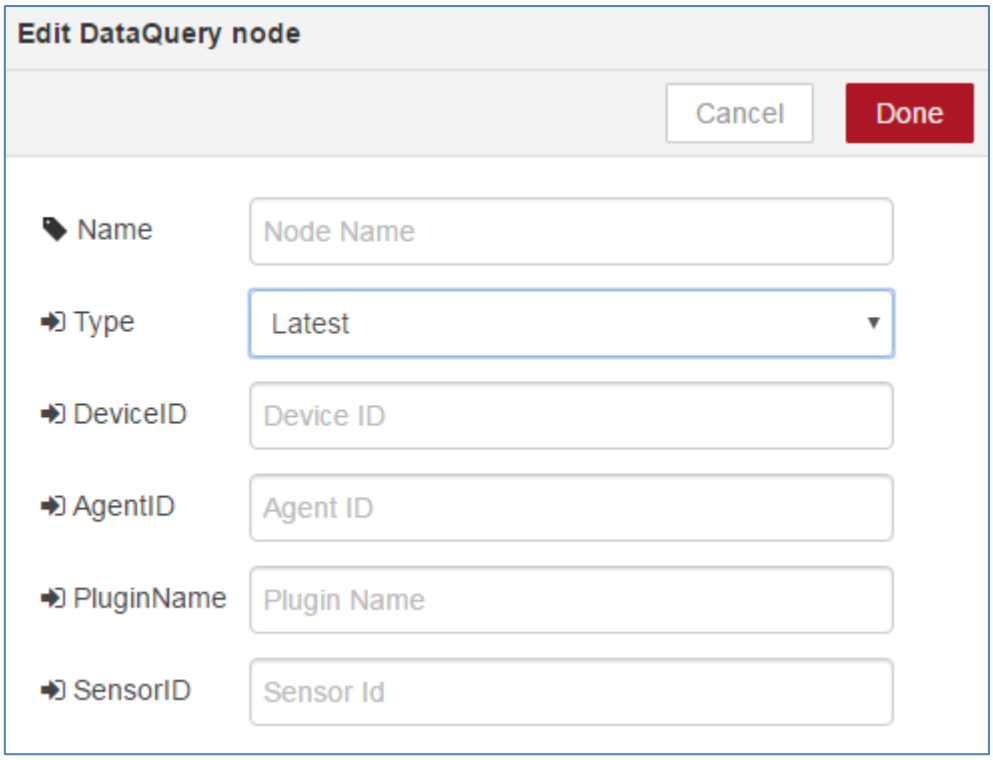


Input: ***ServerConfig*** *Node.*

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

- **Latest**

Description: *Retrieve latest data by Device ID.*

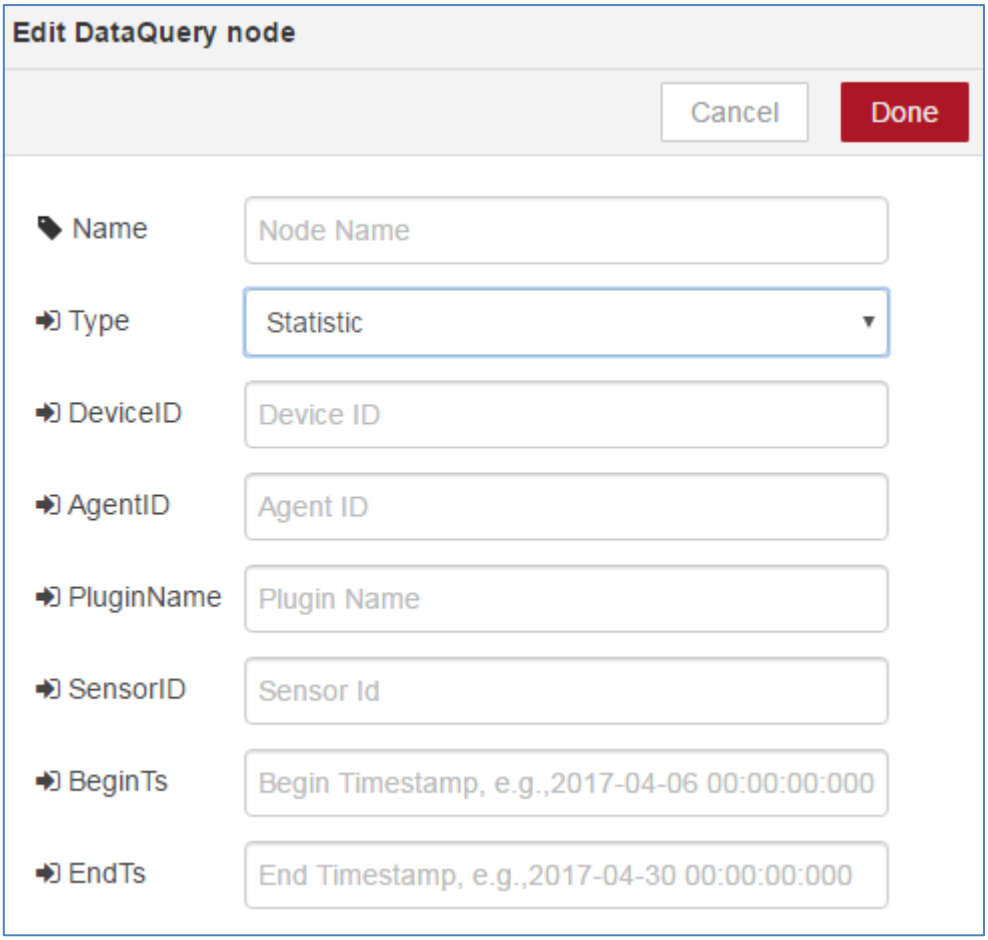


Input: ***ServerConfig*** *Node.*

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

- **Statistic**

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



Input: ***ServerConfig*** *Node.*

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