

WISE-PaaS 2.0

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

<u>Node-RED</u> is a visual wiring tool for the Internet of Things and is provided by <u>IBM</u> <u>Emerging Technologies</u>. <u>Node-Red</u> has several features, including browser-based flow editing, built on <u>Node.js</u> and social development. Because of browser-based, the user can use it more easily. <u>Node-Red</u> is based on <u>Node.js</u>, so user can use its nodes by using JavaScript. <u>Node-Red</u> 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 WISE-PaaS 2.0, we created several nodes.



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

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

📸 Node.js Setup 📃 📼 💌	📸 Node.js Setup
Welcome to the Node.js Setup Wizard	End-User License Agreement Please read the following license agreement carefully
The Setup Wizard will install Node, is on your computer. Click Next to continue or Cancel to exit the Setup Wizard.	Node's license follows: Copyright Joyent, Inc. and other Node contributors. All rights reserved. Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions: I accept the terms in the License Agreement
Back Next Cancel	Print Back Next Cancel
📴 Node.js Setup 📃 🗉 💌	😥 Node.js Setup 📃 💷 💌
Destination Folder Choose a custom location or dick Next to install	Custom Setup Select the way you want features to be installed.
Install Node.js to:	Click the icons in the tree below to change the way features will be installed.
C:\Program Files\nodejs\ Change	Image: Structure of the st
Back Next Cancel	Reset Disk Usage Back Next Cancel
🖞 Node.js Setup 💼 💌	📩 Node.js Setup 💼 📼 💌
Ready to install Node.js	Installing Node.js
Click Install to begin the installation. Click Back to review or change any of your installation settings. Click Cancel to exit the wizard.	Please wait while the Setup Wizard installs Node.js. Status:
Back Install Cancel	Badk Next Cancel



- Clone <u>EI-NodeRed</u> 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 <u>Node-Red</u>
- Type command line "npm start" or "node red.js" to run <u>Node-Red</u>

Node-Red Plug-ins Categories

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

Node-Red Plug-ins Description

Node Name	Description	Input	Output
ServerConfig	Set url, port, username and	A timestamp	msg.url,
	password for WISE-PaaS	trigger or button	msg.port,
	2.0 server. The node	trigger.	msg.encodestr
	provides Basic type and SSO type.		
DevicesQuery	Retrieve devices information	ServerConfig	Devices infor
	from WISE-PaaS 2.0 server. User	Node.	mation list.
	can fill a specific device id. The text		
	of Device ID can be blank if user		
	wants to retrieve all devices.		
PluginsQuery	Retrieve plugins by device ID within	ServerConfig	Plugins Infor
	a time range. The maximum	Node.	mation list.
	number of values is 10000		
	from WISE-PaaS 2.0 server. User		
	can set the conditions about plugins		
	here. Ex: Device ID, Agent ID,		
	begin timestamp, end timestamp,		
	amount and type.		
SensorsQuery	Retrieve sensors by Device ID &	ServerConfig	Sensors Infor
	plugin within a time range. The	Node.	mation list.
	maximum number of values is		

	10000 from WISE-PaaS 2.0 server.		
	User 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	ServerConfig	The data of
	2.0 server. The node provides three	Node.	history,
	types, they		statistic or
	are history, latest and statistic		latest by
			specific device
			Id within a time

Node-Red for WISE-PaaS 2.0

• General

ServerConfig

Description: Set url, port, username and password for WISE-PaaS 2.0 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.

🗱 Туре	Basic
Name	Node Name
OURL	localhost 8080
占 Username	admin
Password	

♦ SSO

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

🛊 Туре	SSO	Ţ
å ID	f028644c-20dbb8	▼ 🖉
Name	Node Name	
🛛 URL	localhost 80	80

Input: A timestamp trigger or button trigger. Output: msg.url, msg.port, msg.encodestr.

• Common

DevicesQuery

Description: *Retrieve devices information from WISE-PaaS 2.0 server. User can fill a specific device id. The text of DeviceID 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 WISE-PaaS 2.0 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 00:00:000			
🖶 Amount	Amount			
•) Туре	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 WISE-PaaS 2.0 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			
	Cancel Done		
Name	Node Name		
DeviceID	Device ID		
AgentID	Agent ID		
Plugin	Plugin Name		
➡) BeginTs	Begin Timestamp, e.g.,2017-04-06 00:00:00:000		
➡) EndTs	End Timestamp, e.g.,2017-04-30 00:00:000		
Amount	Amount		
•) Туре	ASC		

Input: ServerConfig Node. Output: Sensors Information list.

DataQuery

Description: Retrieve data from WISE-PaaS 2.0 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				
	Cancel Done			
Name	Node Name			
•) Туре	History			
DeviceID	Device ID			
 AgentID 	Agent ID			
PluginName	Plugin Name			
 SensorID 	Sensor 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			
➡ Туре	ASC			

Input: ServerConfig Node.

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



Description: *Retrieve latest data by Device ID.*

Edit DataQuery node				
		Cancel Done		
Name	Node Name			
Ð Туре	Latest	v		
DeviceID	Device ID			
 AgentID 	Agent ID			
	Plugin Name			
 SensorID 	Sensor 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.)*

Edit DataQuery node	
	Cancel Done
Name	Node Name
•) Туре	Statistic •
➔ DeviceID	Device ID
➡ AgentID	Agent ID
PluginName	Plugin Name
 SensorID 	Sensor 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

Input: ServerConfig Node.

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