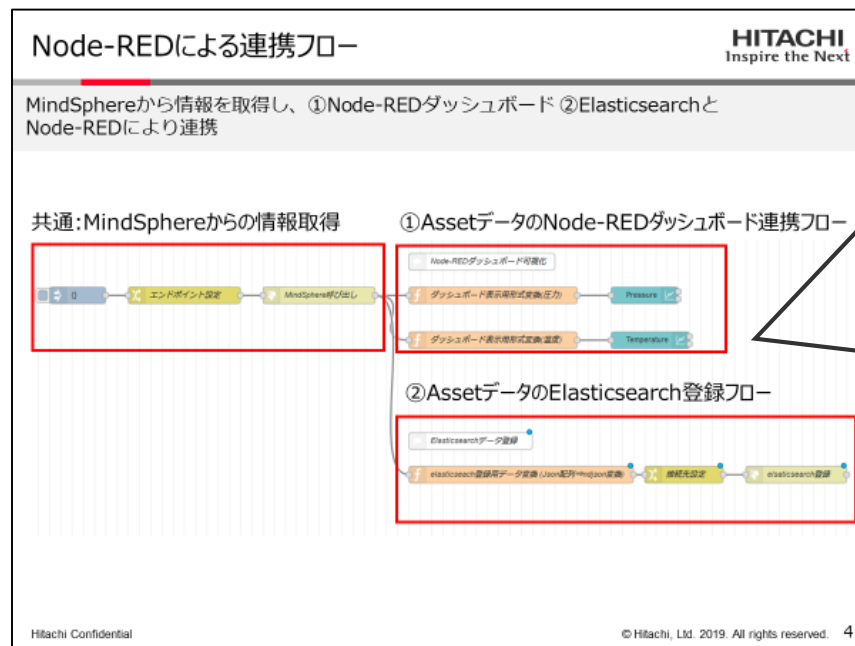




Grouping nodes

Kazuhito Yokoi

[Idea] We'd like to draw a simple description of the flow on workspace.
[Problem] To describe the flow, we need to paste the flow on PowerPoint and add description of it.



Requests from business division

When we explain about the flow, we always paste flow on PowerPoint file and add description of it.

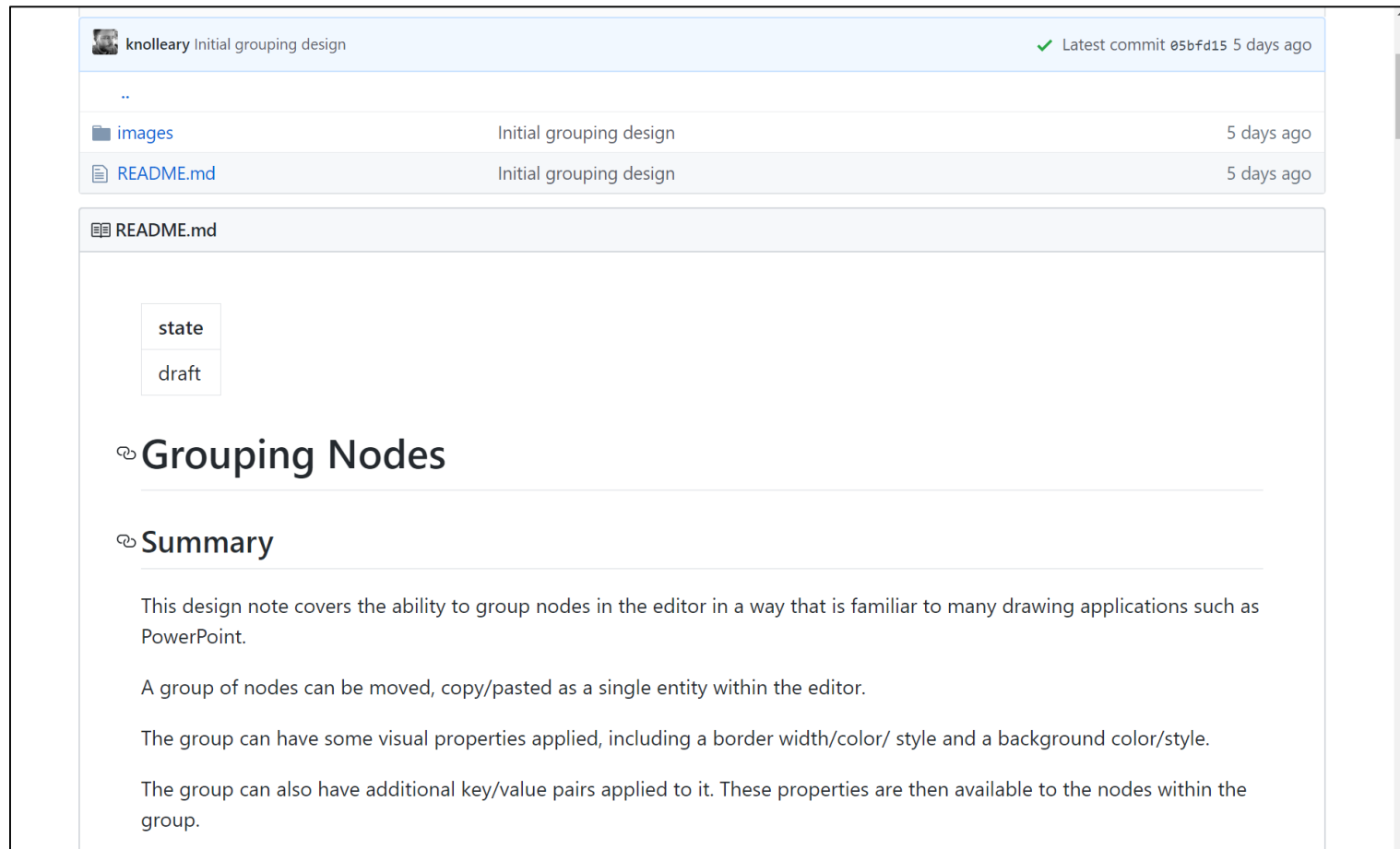
If Node-RED UI has the following function, we can use flow as description material.

- Rectangles which highlight flows
- Text which is placed on editor

We feel that the current comment node has few functions as tool to describe flows.

Thank you for creating the following document about grouping nodes!

<https://github.com/node-red/designs/tree/grouping/designs/groups>



knolleary Initial grouping design ✓ Latest commit 05bf4d15 5 days ago

..

images Initial grouping design 5 days ago

README.md Initial grouping design 5 days ago

README.md

state

draft

Grouping Nodes

Summary

This design note covers the ability to group nodes in the editor in a way that is familiar to many drawing applications such as PowerPoint.

A group of nodes can be moved, copy/pasted as a single entity within the editor.

The group can have some visual properties applied, including a border width/color/ style and a background color/style.

The group can also have additional key/value pairs applied to it. These properties are then available to the nodes within the group.

Group appearance

- Users can customize the appearance of the group in the edit dialog
- The width and height are adjusted automatically

The image shows a Node-RED workspace with a group of nodes highlighted by a red rectangle. The group contains three nodes: 'Delete message property', 'Move message property', and 'Map numeric range'. The 'Map numeric range' node is further expanded, showing a '0 - 5' node connected to a 'msg.payload' node. A white arrow points to the red rectangle with the text 'Double click the line of rectangle'. To the right, the 'Edit group' dialog is open, showing the 'Appearance' tab. The dialog has buttons for 'Delete', 'Cancel', and 'Done'. The 'Appearance' tab shows settings for the group's appearance:

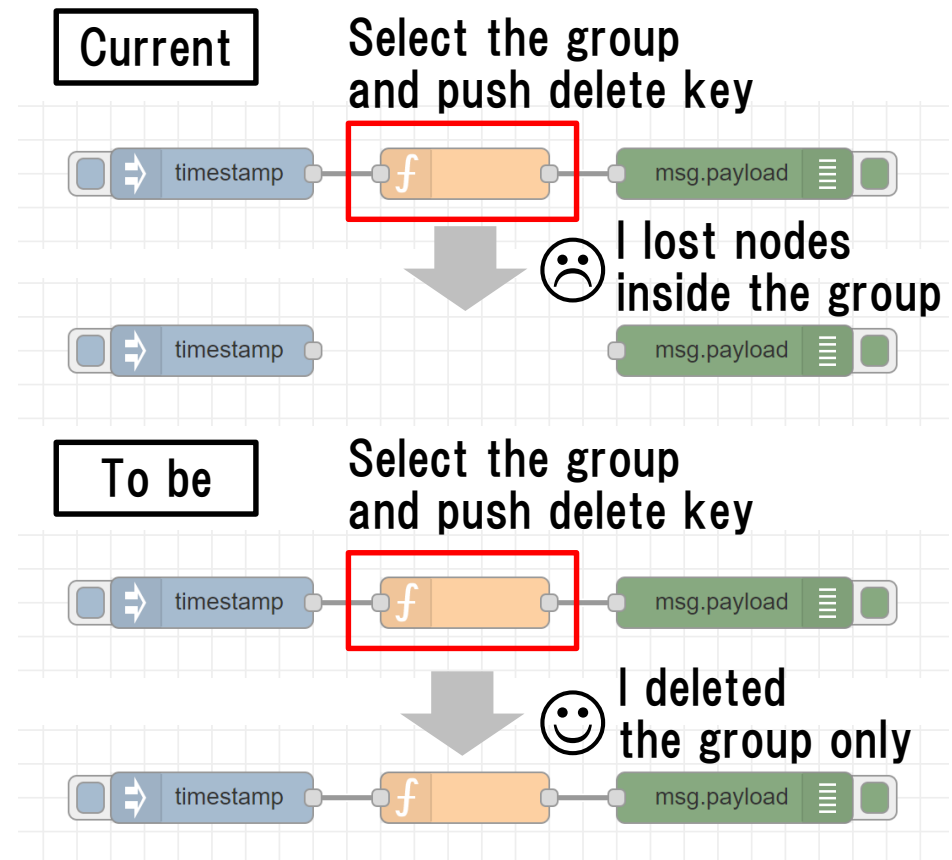
- Line color: #FF0000
- Line weight: 1px
- Fill color: #FF0000
- Fill opacity: 75%
- Width/height: auto
- Padding: 1px

A tooltip labeled 'Appearance' is visible next to the 'Appearance' tab icon.

Source of idea: <https://github.com/node-red/designs/tree/grouping/designs/groups>

#	Suggestion
1	“deleting a group” operation removes the group only. It doesn’t remove nodes in the group simultaneously. (Same as ungrouping operation in current document)

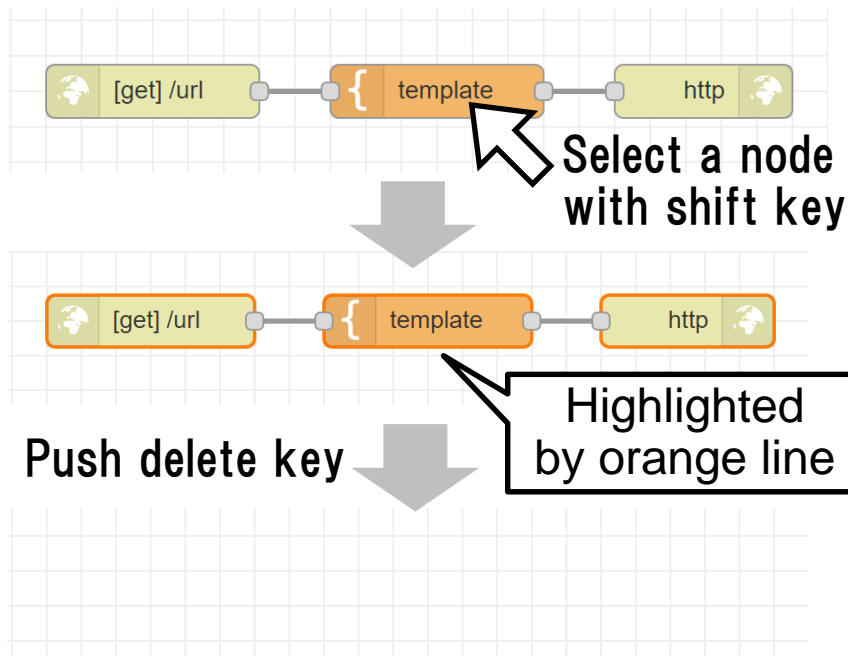
- Editing a group on edit dialog
- Creating a group after selecting nodes
 - “create-group” action
 - Keyboard shortcut
 - “Create group” item in menu
- Ungrouping after selecting group (it removes group but leaves nodes)
 - “remove-group” action
 - Keyboard shortcut
 - “Remove Group” item in menu
- Deleting a group after selecting group (it removes both group and nodes)
 - Press delete key
 - “delete-section” action
 - Keyboard shortcut



Source of idea: <https://github.com/node-red/designs/tree/grouping/designs/groups>

#	Suggestion
1	To delete nodes inside a group, “selecting nodes” operation will be useful.

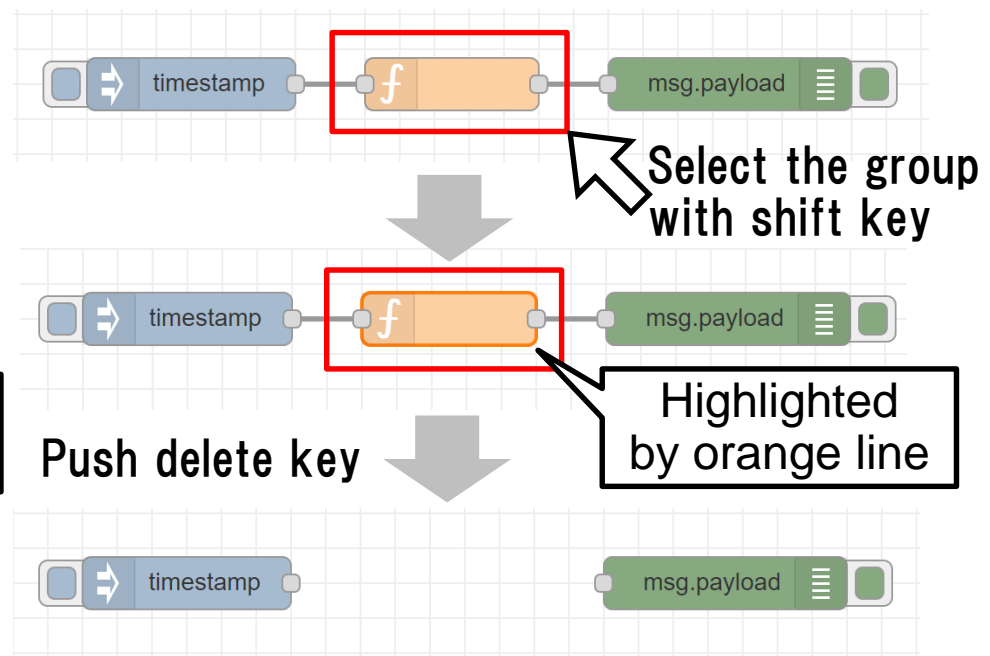
Current selecting nodes inside flow



Push delete key

The selected nodes are deleted

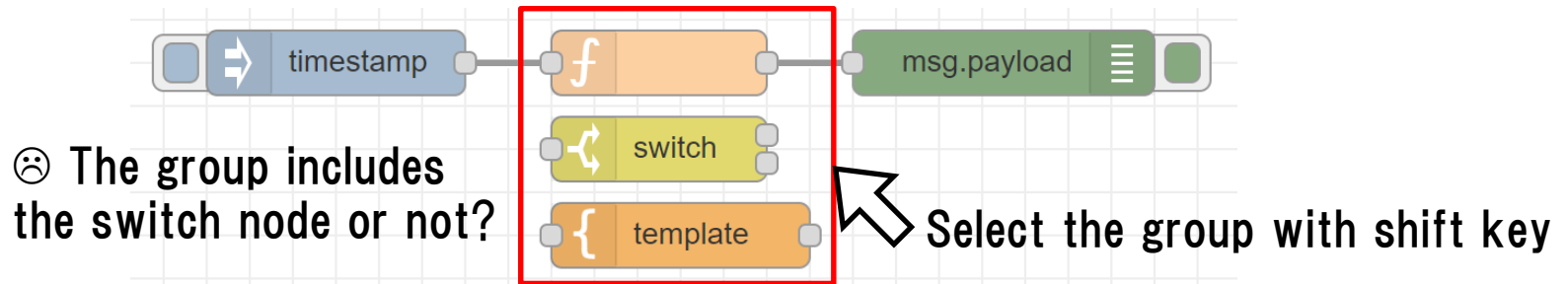
Selecting nodes inside group



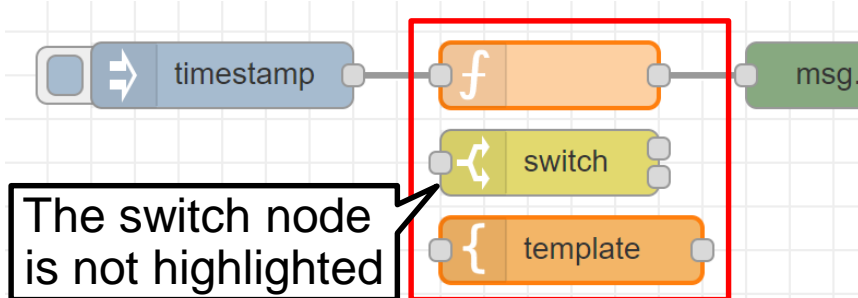
Push delete key

The selected node is deleted

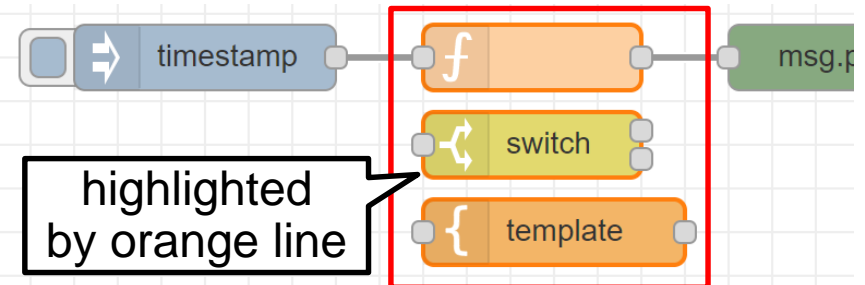
“Selecting nodes” operation will also be useful to distinguish nodes which are inside a group in visual.



When the group doesn't include the switch node



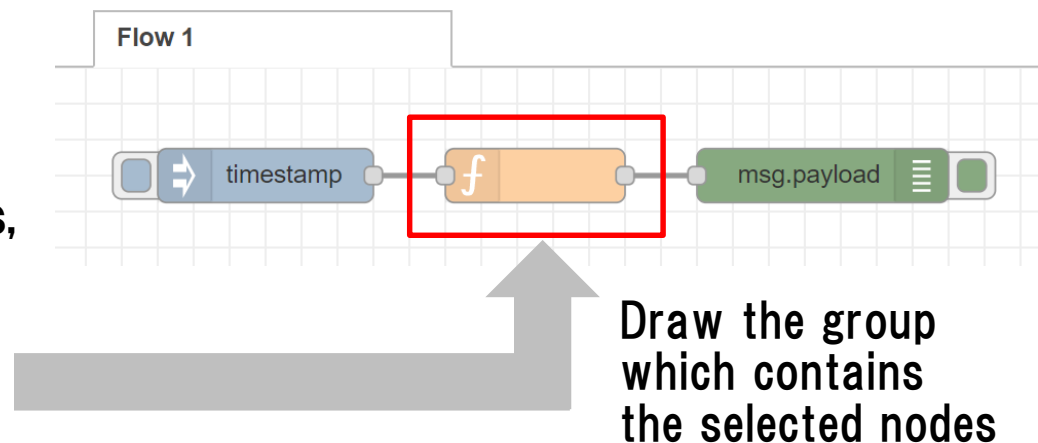
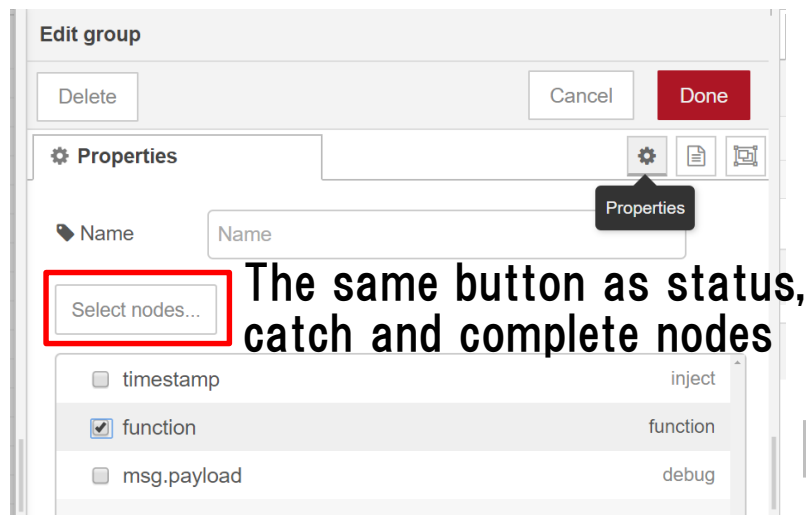
When the group includes the switch node



😊 By highlighted nodes, users can understand that the group includes the switch node or not.

#	Suggestion
1	In addition to mouse operations, “Selecting nodes button” on the edit dialog will be suitable for adding and removing nodes.

- Dragging a node into a group
- Removing a node from a group
 - “remove-selection-from-group” action
 - Keyboard shortcut



Source of idea: <https://github.com/node-red/designs/tree/grouping/designs/groups>

#	Suggestion
1	Before using the appearance and metadata of the first group, it is better to show notification about the usage.

- Merging selection
 - “merge-selection-to-group” action
(When more than two groups are merged, the appearance of the first group will be adopted)

Notification on
Node-RED flow editor

Are you sure to use the appearance
of the 1st selected group?

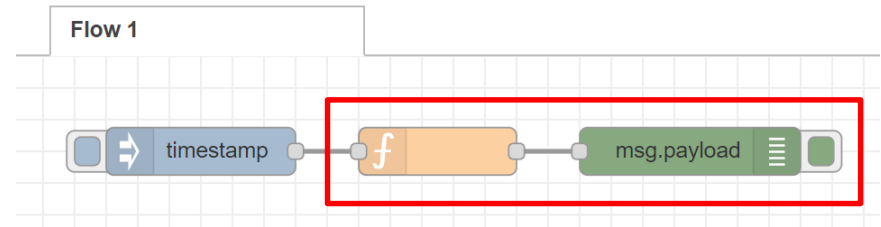
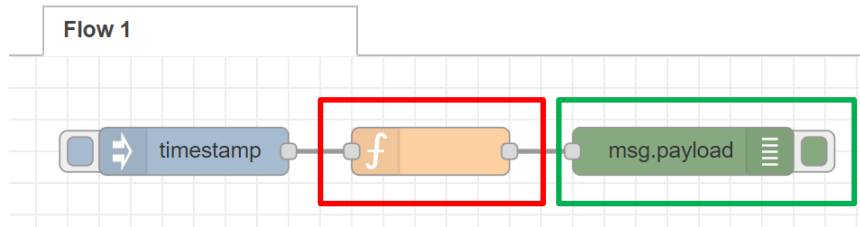
Yes

No

After selecting two groups,
Invoke merging selection action



Two groups are
merged into a group



Source of idea: <https://github.com/node-red/designs/tree/grouping/designs/groups>

HITACHI
Inspire the Next

-
- The diagram illustrates the data flow architecture, showing the interaction between a Client, Receiver Pod, Worker Pod, Message router, and Apache Zookeeper.
- Client:** Represented by an icon of a person at a computer. It sends data to the Receiver Pod.
- Receiver Pod:** Labeled "Executed on edge". It contains a "Send node" (Startノード) and a "Receive node" (Endノード). The "Send node" is connected to the Client. The "Receive node" is connected to the Message router. A red arrow labeled ① points from the "Send node" to the Message router.
- Worker Pod:** Contains a "Startノード" and an "Endノード". The "Startノード" is connected to the "Send node" of the Receiver Pod. The "Endノード" is connected to the "Receive node" of the Receiver Pod. A red arrow labeled ③ points from the "Endノード" of the Worker Pod to the "Receive node" of the Receiver Pod.
- Message router:** Labeled "Our product". It receives data from the "Receive node" of the Receiver Pod and routes it to the "Endノード" of the Worker Pod. A red arrow labeled ② points from the "Receive node" to the Message router. A red arrow labeled ⑤ points from the Message router to the "Endノード" of the Worker Pod. A red arrow labeled ④ points from the "Endノード" of the Worker Pod back to the "Send node" of the Receiver Pod.
- Apache Zookeeper:** Located at the bottom, it manages the distributed system.
- Numbered Red Arrows:**
- ①: From the "Send node" of the Receiver Pod to the Message router.
 - ②: From the "Receive node" of the Receiver Pod to the Message router.
 - ③: From the "Endノード" of the Worker Pod to the "Receive node" of the Receiver Pod.
 - ④: From the "Endノード" of the Worker Pod back to the "Send node" of the Receiver Pod.
 - ⑤: From the Message router to the "Endノード" of the Worker Pod.

To specify runtime for execution in a distributed environment, grouping nodes functionality is used.

Definitions for key/value pairs

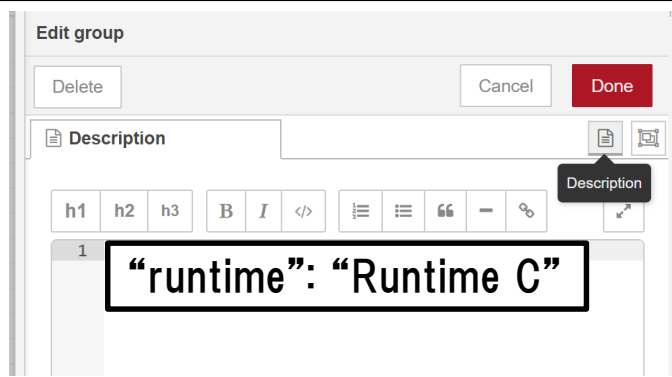
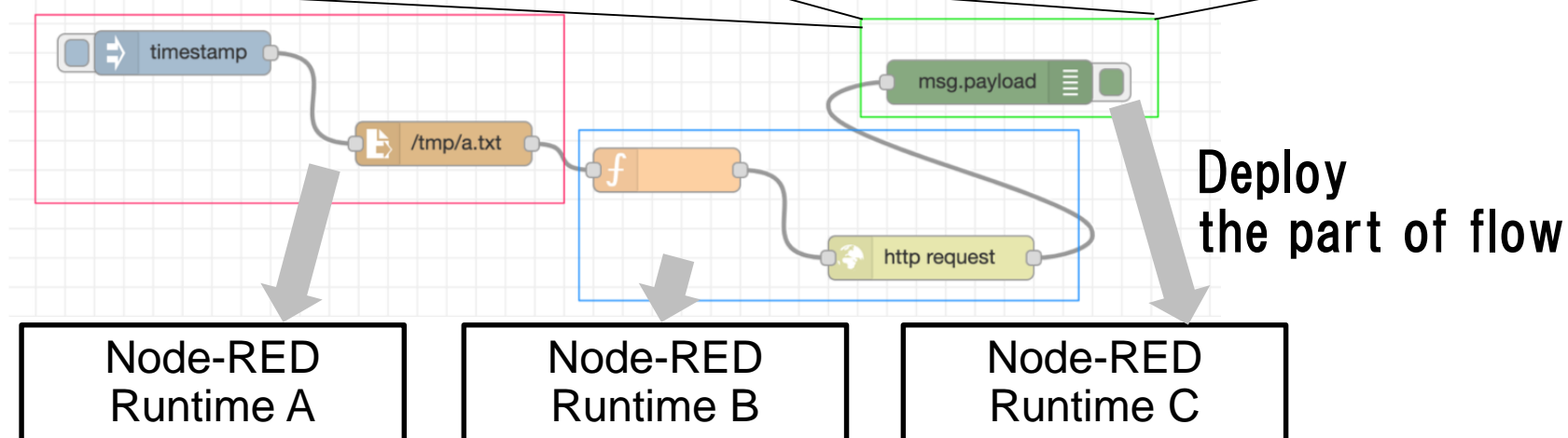


Table for key/value pairs

key	value
runtime	Runtime C

Specify runtime

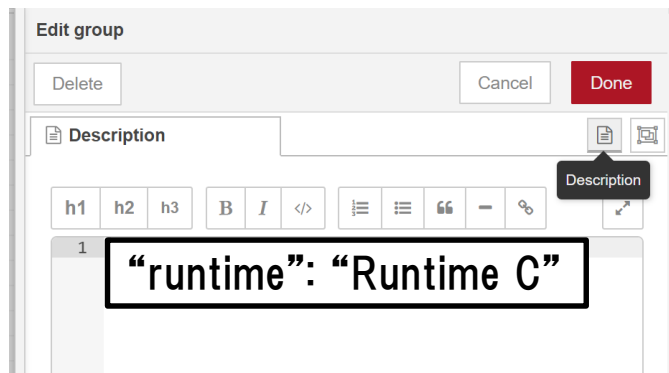
or



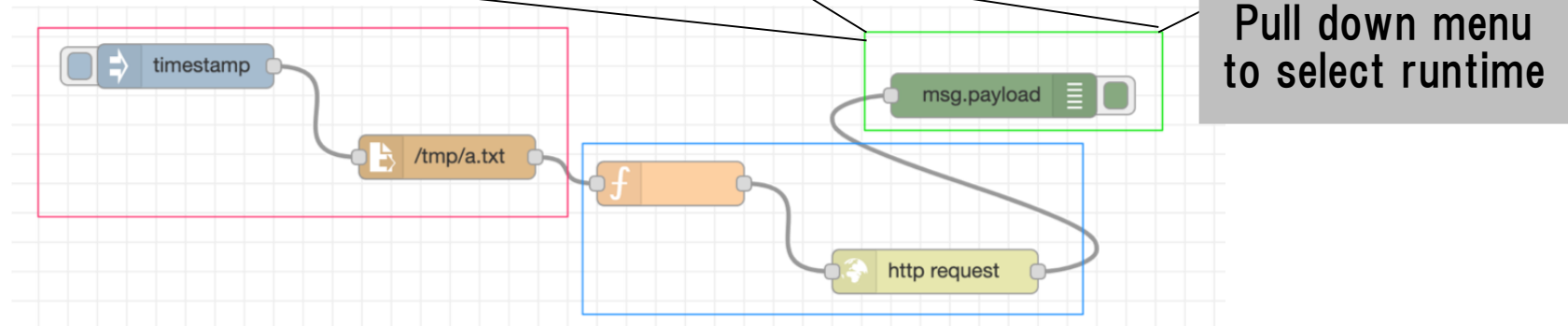
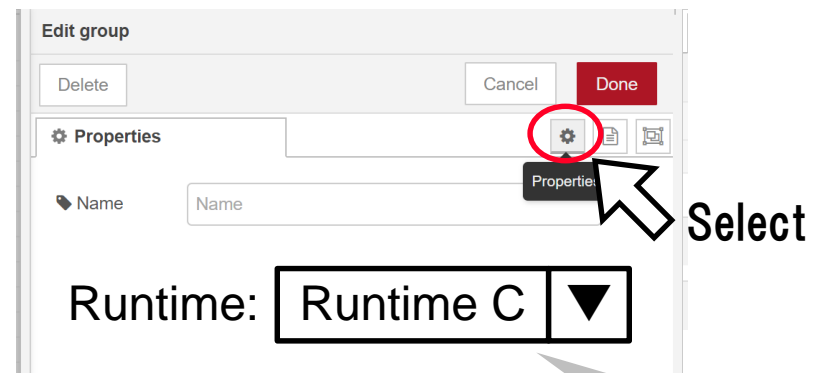
Source of idea: <https://github.com/node-red/designs/tree/grouping/designs/groups>

#	Suggestion
1	Custom UI for grouping nodes will be useful for the custom distributed environment. It is better to install custom UI for grouping nodes like the original node modules.

Definitions for key/value pairs



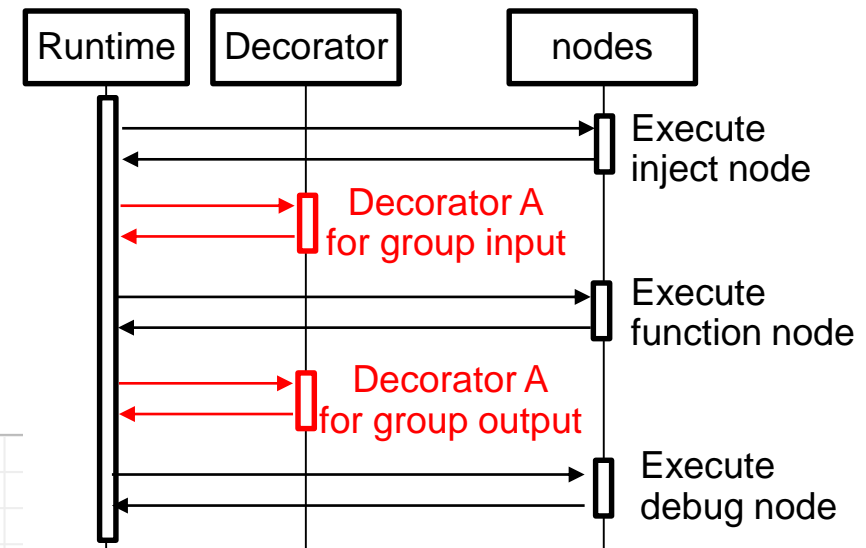
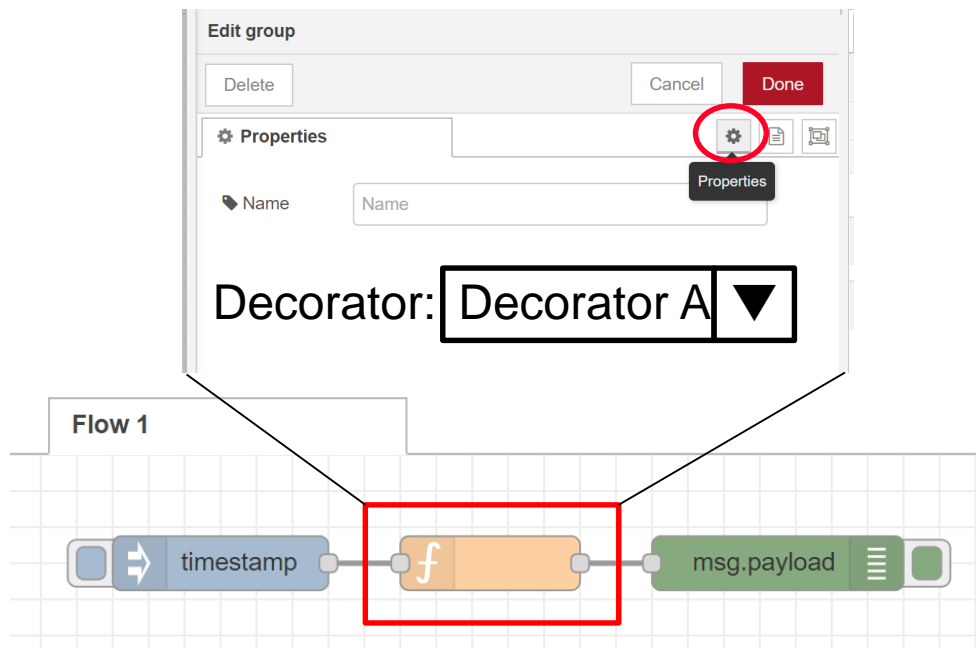
Custom UI for grouping nodes



Decorator for grouping nodes

#	Suggestion
1	We would like to use the functionality to execute additional code when entering and exiting a group. (It is like Decorator function in Python)

- Use case: Using the Decorator, we can handle the destination of messages instead of original nodes in our distributed environment. In general case, users can specify nodes using a group to output log and measure processing time, etc.



#	Suggestion
1	To show the status of the group like a status node of subflow, status function for the group will be useful.

Use case: To show initialization and finalizing process
in the runtime which nodes in the group execute

