
Graceful Shutdown

4 September 2019

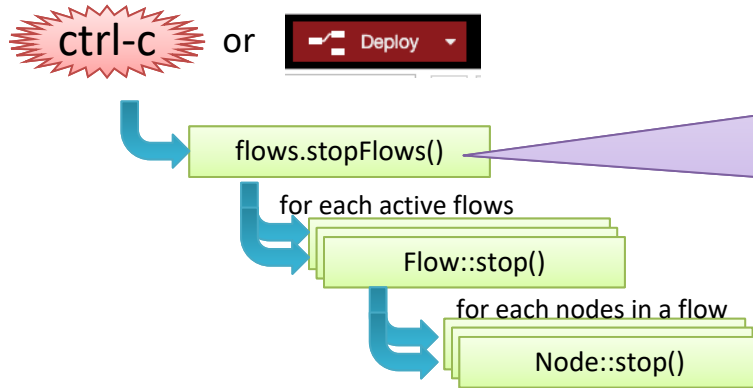
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- There are two approaches to gracefully shutdown flows:
 1. Node-RED runtime recognizes proper shutdown order, and shutdown the nodes in order.
 - discussed on last Hursley visit
 2. Flow Developer writes an appropriate shutdown procedure for flow.
 - alternative approach
- In approach 1, it is difficult for runtime to decide which node should be stopped first. I started investigating approach 2.

3. Current Design of Graceful Restart

- Flow developer configures which nodes should stop first, and how long the runtime waits before final shutdown process, in a **shutdown** node on each flow.
 - as same as *catch* node
- When the runtime receives SIGINT (or, start a flow deployment), the runtime call 'close' handler of designated nodes, wait for graceful period, and then call 'close' handler of other nodes.



Split this function into three phases:

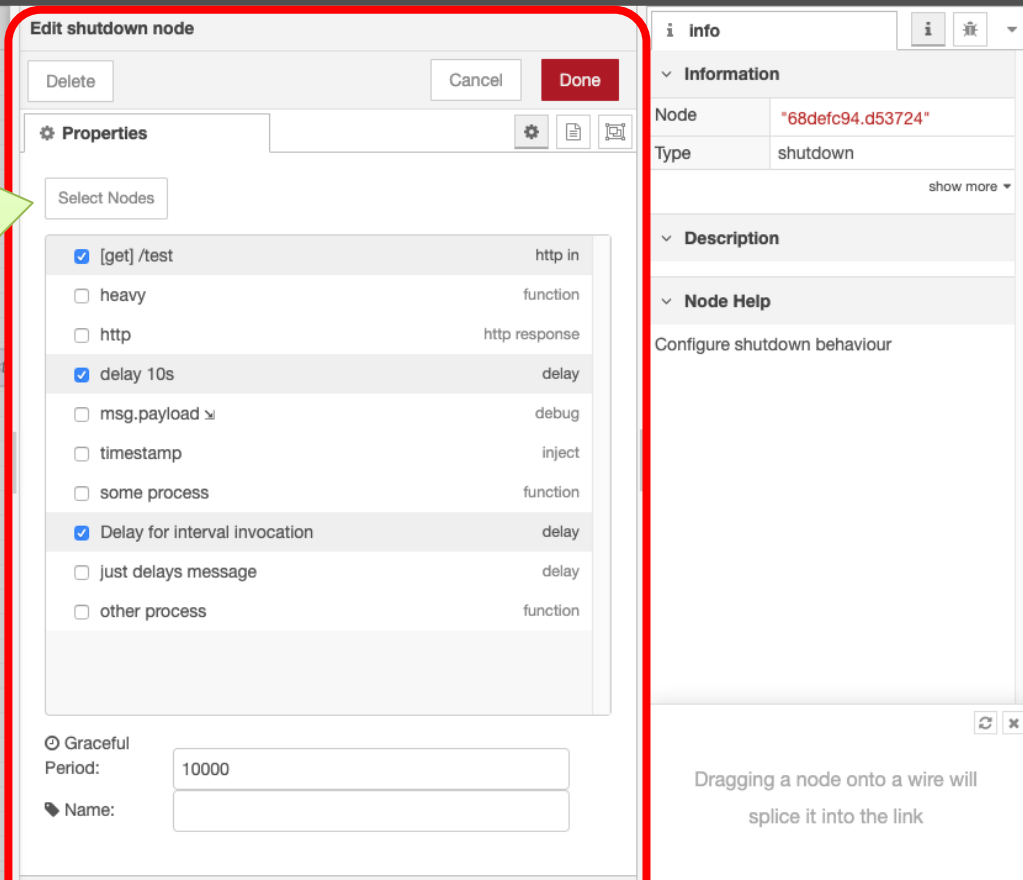
1. stop only nodes which configured in shutdown node
2. wait for *gracefulPeriod* (default: 10 seconds)
3. stop other nodes

2. User Interface for configuring

Configuration form for shutdown node:

- Which node should be stopped on first phase?
- How long should we wait for shutdown?

Shutdown node:
Each flow (subflow) has 0 or 1 shutdown node.



Edit shutdown node

Delete Cancel Done

Properties

Select Nodes

<input checked="" type="checkbox"/> [get] /test	http in
<input type="checkbox"/> heavy	function
<input type="checkbox"/> http	http response
<input checked="" type="checkbox"/> delay 10s	delay
<input type="checkbox"/> msg.payload	debug
<input type="checkbox"/> timestamp	inject
<input type="checkbox"/> some process	function
<input checked="" type="checkbox"/> Delay for interval invocation	delay
<input type="checkbox"/> just delays message	delay
<input type="checkbox"/> other process	function

☒ Graceful
Period: 10000

Name:

Info

Information

Node: "68defc94.d53724"

Type: shutdown

Description

Node Help

Configure shutdown behaviour

Dragging a node onto a wire will splice it into the link

- Limitation
 - Shutdown logic doesn't detect whether all ongoing processes have been finished.
 - Deploying flow will be slow because of waiting graceful period.
- Next Steps
 - Write Design note
 - Implement a prototype
- Discussion
 - What do you think about this approach and user interface?