

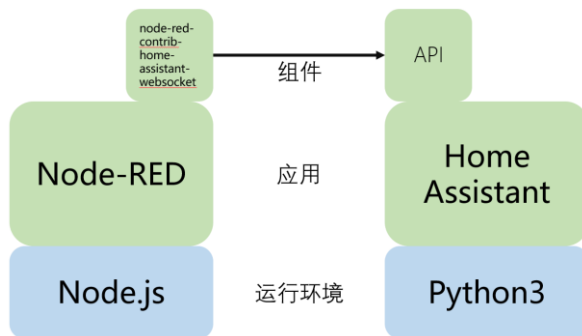
# Node-RED 安装与初体验

## 【操作步骤】

1. Node-RED 架构
2. 在树莓派上安装 Node-RED
3. 启动 Node-RED
4. 创建第一个流程

## 【参考】

- Node-RED 与 HomeAssistant



- Node-RED 网站

<https://nodered.org/>

- 树莓派上安装 Node-RED

```
sudo apt-get install build-essential
```

```
bash <(curl -sL https://raw.githubusercontent.com/node-red/linux-installers/master/deb/update-nodejs-and-nodered)
```

# Node-RED 配置

## 【操作步骤】

1. Node-RED 的启动、停止、输出查看、自启动
2. Node-RED 的用户名/密码设置
3. 安装 node-red-contrib-home-assistant-websocket
4. 建立与 home-assistant 的连接

## 【参考】

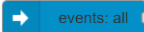
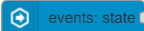

- 树莓派上 Node-RED 命令
  - `node-red-stop` ——停止 Node-RED 服务
  - `node-red-start` ——启动 Node-RED 服务
  - `node-red-restart` ——重启 Node-RED 服务
  - `node-red-log` ——输出 Node-RED 服务日志
  - `sudo systemctl enable nodered.service` ——系统启动时自动运行 Node-RED
  - `sudo systemctl disable nodered.service` ——系统系统时不自动运行 Node-RED
- 安装 node-red-admin 工具
  - `sudo npm install -g node-red-admin`
- 生成密码的 hash 值
  - `node-red-admin hash-pw`
- 安装 node-red-contrib-home-assistant-websocket
  - `cd ~/.node-red`
  - `npm install node-red-contrib-home-assistant-websocket`

# HomeAssistant 节点(1)

## 【操作步骤】

1. 导入流程样例
2. event: all 节点演示
3. event: state 节点演示
4. poll state 节点演示

## 【参考】

节点	说明	输入	输出 (payload)
 events: all	由 HomeAssistant 事件触发	无	事件相关数据
 events: state	由实体状态改变事件触发	无	新的状态值
 poll state	定时查询状态	无	状态值

- HomeAssistant 中的事件

<https://www.hachina.io/docs/470.html>

- 流程样例

```
[[{"id":"ef53097d.5af3b8","type":"tab","label":"events:all","disabled":false,"info":""},{id:"e6574104.b450c","type":"tab","label":"events:state","disabled":false,"info":""},{id:"1afde359.90f62d","type":"tab","label":"poll state","disabled":false,"info":""},{id:"69621d87.7af904","type":"server","z":"","name":"HACChina Example","legacy":false,"hassio":false,"rejectUnauthorizedCerts":true,"ha_boolean":"y/yes|true|on|home|open"},{"id":"7c92d0a1.eadbe","type":"server-events","z":"ef53097d.5af3b8","name":"","only_xiaomi_aqara_click_event_triggered":"","server":"69621d87.7af904","event_type":"xiaomi_aqara.click","x":149,"y":662.0000448226929,"wires":[["260a41b5.88261e"]],{"id":"80cff72a.fd91d8","type":"debug","z":"ef53097d.5af3b8","name":"debug 输出 msg.payload","active":true,"toolbar":true,"console":false,"tostatus":false,"complete":"payload","x":955.0001029968262,"y":812.999980926514,"wires":[{"id":"260a41b5.88261e","type":"switch","z":"ef53097d.5af3b8","name":"","property":"payload.event.click_type","propertyType":"msg","rules":[{"t":"eq","v":"single","vt":"str"},{"t":"eq","v":"double","vt":"str"},{"t":"eq","v":"hold","vt":"str"}],"checkall":"true","repair":false,"outputs":3,"x":281.9999809265137,"y":833.0000438690186,"wires":[["9e917871.0aa988"],["f0b9e490.544888"],["8c3d79c4.9f6698"]],{"id":"9e917871.0aa988","type":"change","z":"ef53097d.5af3b8","name":"change 节点, 设定 payload 为`单击`","rules":[{"t":"set","p":"payload","pt":"msg","to":"单击","tot":"str"}],"action":"","property":"","from":"","to":"","reg":false,"x":607,"y":649.999980926514,"wires":[["80cff72a.fd91d8"]],{"id":"f0b9e490.544888","type":"change","z":"ef53097d.5af3b8","name":"change 节点, 设定 payload 为`双击`","rules":[{"t":"set","p":"payload","pt":"msg","to":"双击","tot":"str"}],"action":"","property":"","from":"","to":"","reg":false,"x":616.0000152587891,"y":798.0000591278076,"wires":[["80cff72a.fd91d8"]],{"id":"8c3d79c4.9f6698","type":"change","z":"ef53097d.5af3b8","name":"change 节点, 设定 payload 为`长按`","rules":[{"t":"set","p":"payload","pt":"msg","to":"长按","tot":"str"}],"action":"","property":"","from":"","to":"","reg":false,"x":561.9999923706055,"y":932.9999828338623,"wires":[["80cff72a.fd91d8"]],{"id":"45261274.003c6c","type":"server-events","z":"ef53097d.5af3b8","name":"所有事件","server":"69621d87.7af904","event_type":"","x":139.88280868530273,"y":245.58205223083496,"wires":[["aa8164c7.8a5668"],["fa25242b.0a2598"],["680e2ad.42936d4"],["9f10fec7.cb7b2"],["8177868a.07dac8"]],{"id":"aa8164c7.8a5668","type":"debug","z":"ef53097d.5af3b8","name":"debug 输出 msg.payload","active":true,"toolbar":true,"console":false,"tostatus":false,"complete":"payload","x":542.8984985351562,"y":130.67971801757812,"wires":[{"id":"fa25242b.0a2598","type":"debug","z":"ef53097d.5af3b8","name":"debug 输出 msg.topic","active":true,"toolbar":true,"console":false,"tostatus":false,"complete":"topic","x":524.0195465087891,"y":210.00391101837158,"wires":[{"id":"680e2ad.42936d4","type":"debug","z":"ef53097d.5af3b8","name":"debug 输出
```

msg.event\_type","active":true,"tosidebar":true,"console":false,"tostatus":false,"complete":"event\_type","x":544.0195770263672,"y":318.00391960144043,"wires":[]},{id:"9f10fec7.cb7b2","type":"debug","z":"ef53097d.5af3b8","name":"dubug 输出

msg.payload.event.entity\_id","active":true,"tosidebar":true,"console":false,"tostatus":false,"complete":"payload.event.entity\_id","x":575.0195503234863,"y":417.00390434265137,"wires":[]},{id:"8177868a.07dac8","type":"debug","z":"ef53097d.5af3b8","name":"dubug 输出

all","active":true,"tosidebar":true,"console":false,"tostatus":false,"complete":true,"x":528.0195732116699,"y":45.99999809265137,"wires":[]},{id:"401dfb4b.7bc1a4","type":"server-state-changed","z":"e6574104.b450c","name":"所有实体状态改变事件

","server":"69621d87.7af904","entityidfilter":"\*","entityidfiltertype":"regex","outputinitially":false,"state\_type":"str","haltifstate":"","halt\_if\_type":"str","halt\_if\_compare":"is","outputs":1,"x":220,"y":300,"wires":[[{"fa7bd4bc.372168"}]},{id:"fa7bd4bc.372168","type":"debug","z":"e6574104.b450c","name":"debug 输出

payload","active":true,"tosidebar":true,"console":false,"tostatus":false,"complete":"payload","x":710,"y":240,"wires":[]},{id:"90b025c1.8bede8","type":"server-state-changed","z":"e6574104.b450c","name":"判断某实体新的状态

","server":"69621d87.7af904","entityidfilter":"sensor.temperature\_158d00019f8b1f","entityidfiltertype":"substring","outputinitially":false,"state\_type":"num","haltifstate":"30","halt\_if\_type":"num","halt\_if\_compare":"gt","outputs":2,"x":230,"y":620,"wires":[[{"9b145a75.f7f578"},{"cb76e7db.c38a68"}]},{id:"9b145a75.f7f578","type":"debug","z":"e6574104.b450c","name":"debug 输出

payload","active":true,"tosidebar":true,"console":false,"tostatus":false,"complete":"payload","x":710,"y":540,"wires":[]},{id:"cb76e7db.c38a68","type":"debug","z":"e6574104.b450c","name":"debug 输出

payload","active":true,"tosidebar":true,"console":false,"tostatus":false,"complete":"payload","x":670,"y":740,"wires":[]},{id:"c689c009.ee1c3","type":"poll-state","z":"1afde359.90f62d","name":"每 5 秒轮询状态

","server":"69621d87.7af904","updateinterval":"5","outputinitially":false,"outputonchanged":false,"entity\_id":"sensor.temperature\_158d00019f8b1f","state\_type":"str","halt\_if":"30","halt\_if\_type":"num","halt\_if\_compare":"gt","outputs":2,"x":260,"y":440,"wires":[[{"bc1c32ab.882fc"},{"cafd670.2dbf498"}]},{id:"bc1c32ab.882fc","type":"debug","z":"1afde359.90f62d","name":"debug 输出

payload","active":true,"tosidebar":true,"console":false,"tostatus":false,"complete":"payload","x":700,"y":300,"wires":[]},{id:"cafd670.2dbf498","type":"debug","z":"1afde359.90f62d","name":"debug 输出








payload","active":true,"tosidebar":true,"console":false,"tostatus":false,"complete":"payload","x":690,"y":500,"wires":[]]

## HomeAssistant 节点(2)

### 【操作步骤】

1. 导入流程样例
2. current\_state 节点演示
3. get entities 节点演示
4. call service 节点演示
5. 其它节点

### 【参考】

节点	说明	输入	输出 (payload)
 current state	查询当前状态	可输入 payload.entity_id:实体名, 也可在节点中配置	状态值
 get entities	查找实体	仅用于启动, 查询条件在节点中配置	状态对象
 call service	调用服务	可输入服务与数据, 也可在节点中配置	调用的服务与数据
 fire event	事件触发	可输入事件类型与数据, 也可在节点中配置	事件类型与数据
 get history	查询历史状态值	输入时间范围与实体名, 也可在节点中配置	数组, 包含各个状态值
 get template	运行模板	模板内容, 也可在节点中配置	模板运行 (渲染) 后的输出
 trigger: state	event:state 节点的高级版	开启和关闭触发	状态值

- HomeAssistant 中的实体与状态

<https://www.hachina.io/docs/468.html>

<https://www.hachina.io/docs/469.html>

- 流程样例

```
[{"id":"52beafd.0c9aa5","type":"tab","label":"current_state","disabled":false,"info":""},{
  "id":"ceae909.4c51c7","type":"tab","label":"get_entities","disabled":false,"info":""},
  {"id":"d1231bc8.c7b848","type":"tab","label":"call_service","disabled":false,"info":""},
  {"id":"69621d87.7af904","type":"server","z":"","name":"HACChina Example",
  "legacy":false,"hassio":false,"rejectUnauthorizedCerts":true,"ha_boolean":
  "y|yes|true|on|home|open"}, {"id":"855bb2cb.9d9bb3","type":"api-current-state",
  "z":"52beafd.0c9aa5","name":"","server":"69621d87.7af904","halt_if":"","halt_if_type":"str",
  "halt_if_compare":"is", "override_topic":true,"override_payload":true,"override_data":true,
  "entity_id":"","state_type":"str","outputs":1,"x":438.0001449584961,"y":295.0000219345093,
  "wires":[["876fdb.19f994","7a48375e.420078"]]}, {"id":"876fdb.19f994","type":"debug",
  "z":"52beafd.0c9aa5","name":"debug", "output": "msg.data", "active":true,
  "tosidebar":true,"console":false,"tostatus":false,"complete":"data",
  "x":801.0000457763672,"y":361.0000219345093,"wires":[]}, {"id":"dce082a3.be39c",
  "type":"inject","z":"52beafd.0c9aa5","name":"inject", "topic":"","payload":
  "\\entity_id\\:\\sensor.temperature_158d00019f8b1f\\", "payloadType":"json",
  "repeat":"","crontab":"","once":false,"onceDelay":0.1,"x":177,"y":231.00001049041748,
  "wires":[["855bb2cb.9d9bb3"]]}, {"id":"7a48375e.420078","type":"debug",
  "z":"52beafd.0c9aa5","name":"debug", "output": "payload", "active":false,
  "tosidebar":true,"console":false,"tostatus":false,"complete":"payload",
  "x":808.8945159912109,"y":188.67580699920654,"wires":[]}, {"id":"aecae411.153a58",
  "type":"inject","z":"52beafd.0c9aa5","name":"","topic":"","payload":"","payloadType":"date",
  "repeat":"","crontab":"","once":false,"onceDelay":0.1,"x":152.89453125,"y":457.953125,
  "wires":[["855bb2cb.9d9bb3"]]}, {"id":"b9cd81.45ff628","type":"ha-get-entities",
  "z":"ceae909.4c51c7","server":"69621d87.7af904","name":"", "entity_id":"","rules":[],
  "output_type":"array","output_empty_results":false,"output_location_type":"payload",
  "output_results_count":1,"x":450,"y":280,"wires":[["6acf8f0d.366df"]]}, {"id":"6acf8f0d.366df",
  "type":"debug","z":"ceae909.4c51c7","name":"","active":true,"tosidebar":true,
  "console":false,"tostatus":false,"complete":false,"x":760,"y":2
```

```
60,"wires":[]},{id:"76cc4a4.8ccecb4","type":"inject","z":"ceae909.4c51c7","name":"","topic":"","payload":"","payloadType":"date","repeat":"","crontab":"","once":false,"onceDelay":0.1,"x":120,"y":240,"wires":[["b9cd81.45ff628"]]},{"id":"89697c65.0cc5e","type":"ha-get-entities","z":"ceae909.4c51c7","server":"69621d87.7af904","name":" 查询所有属性 battery_level 小 于 40 的 实 体","rules":[{"property":"attributes.battery_level","logic":"lt","value":"50","valueType":"num"},"output_type":"split","output_empty_results":false,"output_location_type":"msg","output_location":"payload","output_results_count":1,"x":420,"y":560,"wires":[["5c06f904.b526d8"]]},{"id":"b1a4bfd2.7c0f4","type":"inject","z":"ceae909.4c51c7","name":"","topic":"","payload":"","payloadType":"date","repeat":"","crontab":"","once":false,"onceDelay":0.1,"x":130,"y":520,"wires":[["89697c65.0cc5e"]]},{"id":"5c06f904.b526d8","type":"debug","z":"ceae909.4c51c7","name":"","active":true,"tosidebar":true,"console":false,"tostatus":false,"complete":false,"x":850,"y":460,"wires":[]},{"id":"ef1308d1.da90d8","type":"ha-get-entities","z":"ceae909.4c51c7","server":"69621d87.7af904","name":"","rules":[{"property":"entity_id","logic":"starts_with","value":"light","valueType":"str"},"property":"state","logic":"is","value":"on","valueType":"str"},"output_type":"split","output_empty_results":false,"output_location_type":"msg","output_location":"payload","output_results_count":1,"x":380,"y":820,"wires":[["4f35600d.46849"]]},{"id":"ebc42a27.c1a788","type":"inject","z":"ceae909.4c51c7","name":"","topic":"","payload":"","payloadType":"date","repeat":"","crontab":"","once":false,"onceDelay":0.1,"x":130,"y":780,"wires":[["ef1308d1.da90d8"]]},{"id":"3fef601f.367a1","type":"debug","z":"ceae909.4c51c7","name":"","active":true,"tosidebar":true,"console":false,"tostatus":false,"complete":false,"x":850,"y":820,"wires":[]},{"id":"5d957599.66c26c","type":"api-call-service","z":"d1231bc8.c7b848","name":" 调 用 persistent_notification.create 服 务","server":"69621d87.7af904","service_domain":"persistent_notification","service":"create","data":{"message":"来自 Node-RED 的 问 候 !"},"render_data":false,"mergecontext":"","output_location":"payload","output_location_type":"msg","x":720,"y":240,"wires":[[]]},{"id":"7e69a9e1.6b12b8","type":"inject","z":"d1231bc8.c7b848","name":"","topic":"","payload":"","payloadType":"date","repeat":"","crontab":"","once":false,"onceDelay":0.1,"x":260,"y":240,"wires":[["5d957599.66c26c"]]},{"id":"862b9ad5.c37a58","type":"api-call-service","z":"d1231bc8.c7b848","name":" 打 开 灯","server":"69621d87.7af904","service_domain":"light","service":"turn_on","data":{"entity_id":"light.gateway_light_f0b429aa0768"},"render_data":false,"mergecontext":"","output_location":"payload","output_location_type":"msg","x":850,"y":380,"wires":[[]]},{"id":"8ec7ae87.1a6b7","type":"api-call-service","z":"d1231bc8.c7b848","name":" 关 闭 灯","server":"69621d87.7af904","service_domain":"light","service":"turn_off","data":{"entity_id":"light.gateway_light_f0b429aa0768"},"render_data":false,"mergecontext":"","output_location":"payload","output_location_type":"msg","x":770,"y":540,"wires":[[]]},{"id":"1278c04c.a1727","type":"server-state-changed","z":"d1231bc8.c7b848","name":"","server":"69621d87.7af904","entityidfilter":"sensor.temperature_158d00019f8b1f","entityidfiltertype":"exact","outputinitially":false,"state_type":"num","haltifstate":"30","halt_if_type":"num","halt_if_compare":"gt","outputs":2,"x":330,"y":440,"wires":[["862b9ad5.c37a58"],["8ec7ae87.1a6b7"]]},{"id":"4f35600d.46849","type":"api-current-state","z":"ceae909.4c51c7","name":"","server":"69621d87.7af904","halt_if":"","halt_if_type":"str","halt_if_compare":"is","override_topic":true,"override_payload":true,"override_data":true,"entity_id":"","state_type":"str","outputs":1,"x":660,"y":700,"wires":[["3fef601f.367a1"]]}]
```

## 一些样例：闹钟、自动湿度控制、门铃

### 【操作步骤】

1. 音乐闹钟
2. 闹钟取消
3. 自动湿度控制
4. 简单门铃
5. 门铃摄像+自动发送

### 【参考】

- 依赖的 HomeAssistant 中的一些配置

配置样例	HA 中元素	备注
闹钟	<ul style="list-style-type: none"><li>● vlc 媒体播放器</li><li>● 闹钟音乐文件</li></ul>	样例中使用 vlc 播放器，接入参见： <ul style="list-style-type: none"><li>● 组件基础接入篇《让设备发声——朗读文字》</li><li>● 《设备位置追踪篇《蓝牙音箱与蓝牙设备扫描》</li></ul>
湿度控制	<ul style="list-style-type: none"><li>● 湿度计</li><li>● 控制加湿器的智能开关</li></ul>	样例中使用接入小米网关的温湿度计与智能插座，接入参见： <ul style="list-style-type: none"><li>● 组件基础接入篇《接入硬件产品——小米多功能网关》</li></ul>
简单门铃	<ul style="list-style-type: none"><li>● 无线按钮</li><li>● vlc 媒体播放器</li><li>● 门铃音乐文件</li></ul>	样例中使用接入小米网关的无线按钮与 vlc 媒体播放器
门铃摄像+自动发送	<ul style="list-style-type: none"><li>● 摄像头</li><li>● 邮件通知组件</li><li>● 图片存放目录配置在 whitelist_external_dirs 中</li></ul>	接入参见： <ul style="list-style-type: none"><li>● 各种摄像头接入篇，在第一篇中介绍了图片抓取服务</li><li>● 《将消息发送给你的邮箱》</li></ul>