

# Hyperchain 事件订阅/消息推送使用手册

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## 1. 功能概述

Websocket事件订阅的消息格式与JSONRPC请求参数的格式一致，并且兼容JSONRPC接口。比如，订阅Block事件，当产生一个新区块的时候平台会向客户端推送通知。

## 2. 具体使用

### 2.1 订阅一个事件

订阅一个事件并且返回订阅id：

```
# 事件订阅请求
> {"jsonrpc": "2.0", "method": "sub_subscribe", "id":
1, "namespace": "global", "params": ["block"]}
# 返回值
>
{"jsonrpc": "2.0", "namespace": "global", "id": 1, "code": 0, "message": "SUCCESS", "result": "0xb539ffc3ff69acbl32a7ef15d47d4ebd"}
```

- **method:** `sub_subscribe` 表明这是一个事件订阅的请求。如果是想使用消息推送功能，那么订阅事件请求中的method必须为该值。
- **params:** 数组的第一个元素必须为要订阅的事件的名称，如果要传入参数，则从数组第二个元素开始。

如果**params**第一个元素为空，将返回error：

```
# 事件订阅请求
> {"jsonrpc": "2.0", "method": "sub_subscribe", "id":
1, "namespace": "global", "params": []}
# 返回值
> {"jsonrpc": "2.0", "namespace": "", "code": -32602, "message": "Please give a
subscription name as the first param"}
```

如果订阅的事件不存在，将返回error：

```
# 事件订阅请求
> {"jsonrpc": "2.0", "method": "sub_subscribe", "id":
1, "namespace": "global", "params": ["helloworld"]}
# 返回值
> {"jsonrpc": "2.0", "namespace": "global", "id": 1, "code": -32601, "message": "The
method sub_helloworld does not exist/is not available"}
```

## 2.2 消息推送格式

收到一个block事件的通知：

```
> {"jsonrpc": "2.0", "namespace": "global", "result":
{"event": "block", "subscription": "0xb539ffc3ff69acb132a7ef15d47d4ebd", "data":
"0x18fc1e0b7ce7235f0fab5c7b5a96519245c5ccd957fb9a6ddc2c7646cc95e30b"}}
> {"jsonrpc": "2.0", "namespace": "global", "result":
{"event": "block", "subscription": "0xb539ffc3ff69acb132a7ef15d47d4ebd", "data":
"0xc7c777de90124e01df28935c8b2e35cb45278bb3673e36aad7e1f153b9ea0092"}}
```

- **result:**

- `event` 表明该通知对应 `block` 事件。
- `subscription` 表明该通知对应哪条订阅请求。
- `data` 平台推送给客户端的具体数据。block事件推送给客户端的是最新区块的哈希。

## 2.3 取消订阅

取消订阅请求：

```
# 取消订阅请求
> {"jsonrpc": "2.0", "method": "sub_unsubscribe", "id":
1, "namespace": "global", "params": ["0xb539ffc3ff69acb132a7ef15d47d4ebd"]}
# 返回值
>
{"jsonrpc": "2.0", "namespace": "global", "id": 1, "code": 0, "message": "SUCCESS", "r
esult": true}
```

至此，id为 `0xb539ffc3ff69acb132a7ef15d47d4ebd` 的订阅已经取消，当再次取消订阅的时候，系统将返回error：

```
# 取消订阅请求
> {"jsonrpc":"2.0","method": "sub_unsubscribe","id":
1,"namespace":"global","params":["0xb539ffc3ff69acb132a7ef15d47d4ebd"]}]
# 返回值
>
{"jsonrpc":"2.0","namespace":"global","id":1,"code":-32012,"message":"subscription not found"}
```

### 3. 兼容JSONRPC接口

例子：

```
# 获取最新区块请求
> {"jsonrpc":"2.0","method":"block_latestBlock","params":[],"id":1}
# 返回值
>
{"jsonrpc":"2.0","namespace":"global","id":1,"code":0,"message":"SUCCESS","result":
{"version":"1.3","number":"0x1","hash":"0xe2cf16a370f7b37ff642b572071fec67e3
df7fc570aledad804a2eef35aca467","parentHash":"0x00000000000000000000000000000000
00000000000000000000000000000000","writeTime":1499065883616093925,"avgTime":"0x10","txcounts":"0x1","merkleRoot":"0x5114ce7b1d2f61780e021c0c4d2bd329
2b709369269cd4197b563760ec6383e1","transactions":
[{"version":"1.3","hash":"0xb1ece94abd486528a7d44218abd1e6e3044f5916da61f6ec
e8953bdb162d7a85","blockNumber":"0x1","blockHash":"0xe2cf16a370f7b37ff642b57
2071fec67e3df7fc570aledad804a2eef35aca467","txIndex":"0x0","from":"0x17d806c
92fa941b4b7a8ffffc58fa2f297a3bffc","to":"0xaeccd2fd1118334402c5de1cb014a9c19
2c498df","amount":"0x0","timestamp":1499065882558000000,"nonce":476394168668
5489,"executeTime":"0x10","payload":"0x0a9ae69d"}]}}
```