



Workshop

Minecraft 服务端插件开发

叶子 (Alan Richard) - August 19, 2021

Session 3



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Session 3: 常用 API

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复习：Primitive 类型

- `int b() { return 0; }`
- `double c() { return 0.1; }`
- `float d() { return 0.1f; }`
- `boolean e() { return true; }`
- `char f() { return 'a'; }`

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复习：Non-Primitive 类型

- `Integer bP() { return 0; }`
- `Double cP() { return 0.1; }`
- `Float dP() { return 0.1f; }`
- `Boolean eP() { return true; }`
- `Character fP() { return 'a'; }`

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复习：硬编码 Hard-coded

- 数值/设置被写死在代码中的编码方式
- 例如
 - 规定超过 5 个人在线就关服
 - `if (players.size() > 5) { < .. shutdown the server .. > }`
 - 插件消息
 - `sendMessage("Hello")`
- 缺乏可维护性，想修改的时候要重新编译

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设想一个银行插件



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Map

- Map 存储 键 (key) 和 值 (value) 的对应关系

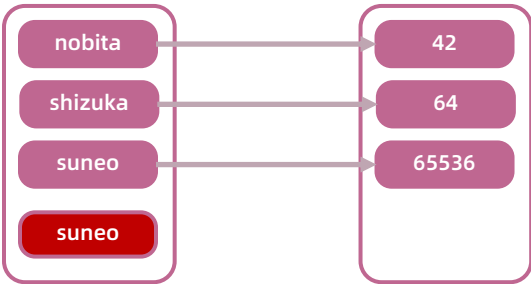


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Map (Cont'd)

- 唯一的键



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Map (Cont'd)

- 可以有相同的值 *

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Java 中的 Map

```
graph BT
    Map[Map]
    SortedMap[SortedMap]
    HashMap[HashMap]
    TreeMap[TreeMap]
    LinkedHashMap[LinkedHashMap]
    SortedMap -.->|extends| Map
    HashMap -.->|extends| SortedMap
    TreeMap -.->|extends| SortedMap
    LinkedHashMap -.->|extends| HashMap
    Map -- implements --> SortedMap
    Map -- implements --> HashMap
```

Image from <https://www.javatpoint.com/java-map>

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Advancement Made! Diamonds!

创建 HashMap

```
Map<Player, int> playerBalanceMap = new HashMap<Player, int>();
```


Type argument cannot be of primitive type
Replace 'int' with 'java.lang.Integer' More actions...

```
Map<Player, Integer> playerBalanceMap = new HashMap<Player, Integer>();
```

Explicit type argument Player, Integer can be replaced with <>
Replace with <> More actions...

```
Map<Player, Integer> playerBalanceMap = new HashMap<>();
```

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Diamond 

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HashMap 常用操作


- 对于 `Map<Player, Integer> playerBalanceMap`
 - `playerBalanceMap.put(player, 42);`
 - `playerBalanceMap.get(player);`
 - `playerBalanceMap.remove(player);`

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如果一个人有很多账户?



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数组 Array

```
int[] wallets = new int[42];
```


从 0 开始

大小

- `wallets[0] = 64;`
- `wallets[1] = 128;`
- `wallets.length // 42`

```
public final int length
```


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数组 Array (Cont'd)

对于 `int[] wallets = new int[42];`

- 多于 42 个账户?



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List

```
List<Integer> walletList = new ArrayList<>();
```

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ArrayList 常用操作

- 对于 `List<Integer> walletList`
 - `walletList.add(8);`
`walletList.add(16);`
 - `walletList.get(0); // 8`
`walletList.get(1); // 16`
 - `walletList.size(); // 2`

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前置知识

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≡ 配置文件

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YAML /'jæməɪl/

- 一种人类可读的数据序列化语言
- 缩进!
- 服务端内建 API 支持

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玩家指令

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指令格式


表示指令

/foo bar baz qux

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指令格式

`/foo bar baz qux`

↑
指令名

`//set 0`

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指令格式

`/foo bar baz qux`

↑ ↑ ↑
参数 0 参数 1 参数 2

└──────────┘
String args[3]

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插件实现指令处理

- 两部分
 - 命令执行 → Executor
 - TAB 补全 → Tab Completer

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复习：If Statement

- 形如
 - ```
if (event.getMessage().contains("vfrg2J(*!#%9u0g")) {
 event.getPlayer().kickPlayer("禁止脏话");
} else {
 event.getPlayer().giveExp(1);
}
```


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## 对于更多的条件...

```
if (event.getMessage().equals("支持")) {
 vote++;
 player.sendMessage("已投票 +1");
} else if (event.getMessage().equals("反对")) {
 vote--;
 player.sendMessage("已投票 -1");
} else if (event.getMessage().equals("弃权")) {
 player.sendMessage("已弃权");
} else {
 player.sendMessage("请发送: 支持 / 反对 / 弃权");
}
```

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## Switch Statement


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## ← 对于更多的条件

```
switch (event.getMessage()) {
 case "支持" -> {
 vote++;
 player.sendMessage("已投票 +1");
 }
 case "反对" -> {
 vote--;
 player.sendMessage("已投票 -1");
 }
 case "弃权" -> player.sendMessage("已弃权");
 default -> player.sendMessage("请发送： 支持 / 反对 / 弃权");
}
```

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## Java Docs 🌟

- <https://hub.spigotmc.org/javadocs/bukkit/>
- <https://papermc.io/javadocs/paper/1.17/>

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# Demo: 经验银行

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