# EM服务分发器的二次开发

## 1、EM微服务接口定义规则要求：

### 单网元接口命令定义规则：

示例：[http://10.8.9.193:80/api/umebn\_em\_dispatch/v1/dispatch/v1/nfs/{nfuid}/ltps](http://10.8.9.193/api/umebn_em_dispatch/v1/dispatch/v1/nfs/%7bnfuid%7d/ltps)......

示例说明：

1、[http://10.8.9.193:80/](http://10.8.9.193/)[api/umebn\_em\_dispatch/v1](http://10.8.9.193/api/umebn_em_dispatch/v1/dispatch/v1/nfs/%7bnfuid%7d/ltps)为[umebn\_em\_dispatch](http://10.8.9.193/api/umebn_em_dispatch/v1/dispatch/v1/nfs/%7bnfuid%7d/ltps)微服务发布地址。

2、[/dispatch/v1/nfs/{nfuid}/ltps](http://10.8.9.193/api/umebn_em_dispatch/v1/dispatch/v1/nfs/%7bnfuid%7d/ltps)......单网元功能接口定义 ，ltps为此EM微服务提供的资源类型。

### 多网元接口命令定义规则

目前多网元的uuid信息是做为head的一个参数来传递，但也受head的字节长度（缺省8096）限制

示例：[http://10.8.9.193:80/api/umebn\_em\_dispatch/v1/dispatch/v1/ltps](http://10.8.9.193/api/umebn_em_dispatch/v1/dispatch/v1/nfs/%7bnfuid%7d/ltps)......

示例说明：

1. [http://10.8.9.193:80/](http://10.8.9.193/)[api/umebn\_em\_dispatch/v1](http://10.8.9.193/api/umebn_em_dispatch/v1/dispatch/v1/nfs/%7bnfuid%7d/ltps)为[umebn\_em\_dispatch](http://10.8.9.193/api/umebn_em_dispatch/v1/dispatch/v1/nfs/%7bnfuid%7d/ltps)微服务发布地址。
2. dispatch/v1/ltps：ltps为此EM微服务提供的资源类型

3、 多网元uuid信息做为Head参数设置，uuid中间用“；”间隔：

name: “nfuids “

value:“b16b184b-298b-49b9-a7dc-1;b16b184b-298b-49b9-a7dc-2; 16b184b-298b-49b9-a7dc -3”

## 2、umebn-em-dispatchframework

SDK描述：此SDK封装了EM单网元功能微服务向EM服务分发器umebn-em-dispatch微服务的注册过程。注册内容为此微服务负责管理的设备类型和资源类型

步骤0：在EM单网元功能微服务的POM文件中，设置对umebn-em-dispatchframework的依赖：

|  |
| --- |
| <dependency>  <groupId>com.zte.ums.ume</groupId>  <artifactId> umebn-em-dispatchframework </artifactId>  <version>0.0.1-SNAPSHOT</version>  </dependency> |

步骤1：在微服务的配置文件中配置Zookeeper ，因为注册过程使用了Zookeeper,所以需要配置Zookeeper，配置方式可参见：《ZXNP-PICT应用设计规范》中的4.9 分布式协调功能

|  |
| --- |
| zkConfig:  connectString: 10.8.60.9:2181 //Zookeeper的ip地址  sessionTimeout: 60  connectionTimeout: 15  autoDiscover: false  zkServiceName: zk  zkServiceVersion: v1 |

步骤2：在微服务的配置文件中配置管理的设备类型和资源类型

|  |
| --- |
| emServiceRegisterInfo:  - emServiceName: umebn-em-ltps  emServiceVersion: v1  deviceSeriesList:  - deviceSeries: 9000V2d14  includeResInfos:  - name: ltps  - name: eq  deviceTypeList:  - name: bn.nf.pnf.ZXCTN.9002  softVersion: V2.14  includeResInfos:  - name: ltps  - name: bn.nf.pnf.ZXCTN.9004  softVersion: V2.14  includeResInfos:  - name: ltps  - name: bn.nf.pnf.ZXCTN.9008  softVersion: V2.14  excludeResInfos:  - name: ltps  - deviceSeries: 9000V2d20  excludeResInfos:  - name: ltps  - name: eq  deviceTypeList:  - name: bn.nf.pnf.ZXCTN.9002  softVersion: V2.20  includeResInfos:  - name: ltps  - name: bn.nf.pnf.ZXCTN.9004  softVersion: V2.20  includeResInfos:  - name: ltps  - name: bn.nf.pnf.ZXCTN.9006  softVersion: V2.20  includeResInfos:  - name: ltps  - name: bn.nf.pnf.ZXCTN.6130\_PTN  softVersion: V2.20  includeResInfos:  - name: ltps |

步骤3：在Configuration中增加如下的属性

|  |
| --- |
| @JsonProperty  @NotNull  @Valid  **private** ZooKeeperConfiguration zkConfig;    @JsonProperty  @NotNull  @Valid  **private** EmServiceRegisterInfo[] emServiceRegisterInfo; |

# 附录：设备系列配置表

|  |
| --- |
| 表格 |
| **设备系列** | **设备类型（ume moc）** | **说明** |
| 9000V2d20 | bn.nf.pnf.ZXCTN.6130-PTN | 对应设备类型的2.20版本 |
| bn.nf.pnf.ZXCTN.9002 |
| bn.nf.pnf.ZXCTN.9004 |
| bn.nf.pnf.ZXCTN.9008 |
| 9000V2d14 | bn.nf.pnf.ZXCTN.9002 | 对应设备类型的2.14版本 |
| bn.nf.pnf.ZXCTN.9004 |
| bn.nf.pnf.ZXCTN.9008 |
| 61V1d12 | bn.nf.pnf.ZXCTN.6110 |  |
| bn.nf.pnf.ZXCTN.6120 |  |
| bn.nf.pnf.ZXCTN.6150 |  |
| 61V2d20 | bn.nf.pnf.ZXCTN.6110 |  |
| bn.nf.pnf.ZXCTN.6120 |  |
| bn.nf.pnf.ZXCTN.6150 |  |
| 61CommonV3d0 | bn.nf.pnf.ZXCTN.6120S |  |
| bn.nf.pnf.ZXCTN.6150 |  |
| bn.nf.pnf.ZXCTN.6180 |  |
| 608V3d0 | bn.nf.pnf.ZXCTN.608 |  |
| bn.nf.pnf.ZXCTN.608P |  |
| bn.nf.pnf.ZXCTN.6120E |  |
| 61SDNV3d20 | bn.nf.pnf.ZXCTN.608(SDN) |  |
| bn.nf.pnf.ZXCTN.6120S(SDN) |  |
| bn.nf.pnf.ZXCTN.6120E(SDN) |  |
| bn.nf.pnf.ZXCTN.6150(SDN) |  |
| 61V4d00 | bn.nf.pnf.ZXCTN.6120H |  |
| bn.nf.pnf.ZXCTN.6180H |  |
| 6263V1d12 | bn.nf.pnf.ZXCTN.6200 |  |
| bn.nf.pnf.ZXCTN.6220 |  |
| bn.nf.pnf.ZXCTN.6300 |  |
| bn.nf.pnf.ZXCTN.6320 |  |
| 6263V2d20 | bn.nf.pnf.ZXCTN.61-30XG-S |  |
| bn.nf.pnf.ZXCTN.61-30XG |  |
| bn.nf.pnf.ZXCTN.6200 |  |
| bn.nf.pnf.ZXCTN.6220 |  |
| bn.nf.pnf.ZXCTN.6300 |  |
| bn.nf.pnf.ZXCTN.6320 |  |
| 6500V1d00 | bn.nf.pnf.ZXCTN.6500-8 |  |
| bn.nf.pnf.ZXCTN.6500-16L |  |
| bn.nf.pnf.ZXCTN.6500-32 |  |
| 6500V2d00 | bn.nf.pnf.ZXCTN.6500-8 |  |
| bn.nf.pnf.ZXCTN.6500-16L |  |
| bn.nf.pnf.ZXCTN.6500-32 |  |
| 6600V1d00 | bn.nf.pnf.ZXCTN.6600-13 |  |
| 6700V1d00 | bn.nf.pnf.ZXCTN.6700-12 |  |
| bn.nf.pnf.ZXCTN.6700-24 |  |
| bn.nf.pnf.ZXCTN.6700-32 |  |
| 9700E | bn.nf.pnf.ZXONE.9700E |  |
| bn.nf.pnf.ZXONE.19700 |  |
| bn.nf.pnf.ZXONE.16700 |  |
| bn.nf.pnf.ZXMP.M721E |  |
| 9000EV1d00 | bn.nf.pnf.ZXCTN.15K-9000-3E |  |
| bn.nf.pnf.ZXCTN.15K-9000-5E |  |
| bn.nf.pnf.ZXCTN.15K-9000-8E |  |
| bn.nf.pnf.ZXCTN.15K-9000-8E-Plus |  |
| bn.nf.pnf.ZXCTN.15K-9000-18E |  |
| bn.nf.pnf.ZXCTN.15K-9000-2E4 |  |
| bn.nf.pnf.ZXCTN.15K-9000-2E4-Plus |  |
| bn.nf.pnf.ZXCTN.15K-9000-2E10 |  |
| 9000EV1d01 | bn.nf.pnf.ZXCTN.15K-9000-3E |  |
| bn.nf.pnf.ZXCTN.15K-9000-5E |  |
| bn.nf.pnf.ZXCTN.15K-9000-8E |  |
| bn.nf.pnf.ZXCTN.15K-9000-8E-Plus |  |
| bn.nf.pnf.ZXCTN.15K-9000-18E |  |
| bn.nf.pnf.ZXCTN.15K-9000-2E4 |  |
| bn.nf.pnf.ZXCTN.15K-9000-2E4-Plus |  |
| bn.nf.pnf.ZXCTN.15K-9000-2E10 |  |
| M6000SV1d00 | bn.nf.pnf.ZXR10.15K-M6000-3S |  |
| bn.nf.pnf.ZXR10.15K-M6000-5S |  |
| bn.nf.pnf.ZXR10.15K-M6000-8S |  |
| bn.nf.pnf.ZXR10.15K-M6000-8S-Plus |  |
| bn.nf.pnf.ZXR10.15K-M6000-18S |  |
| bn.nf.pnf.ZXR10.15K-M6000-2S4 |  |
| bn.nf.pnf.ZXR10.15K-M6000-2S4-Plus |  |
| bn.nf.pnf.ZXR10.15K-M6000-2S10 |  |
| M6000SV1d01 | bn.nf.pnf.ZXR10.15K-M6000-S-VRC |  |
| bn.nf.pnf.ZXR10.15K-M6000-18S-Plus |  |
| bn.nf.pnf.ZXR10.15K-M6000-3S |  |
| bn.nf.pnf.ZXR10.15K-M6000-5S |  |
| bn.nf.pnf.ZXR10.15K-M6000-8S |  |
| bn.nf.pnf.ZXR10.15K-M6000-8S-Plus |  |
| bn.nf.pnf.ZXR10.15K-M6000-18S |  |
| bn.nf.pnf.ZXR10.15K-M6000-2S4 |  |
| bn.nf.pnf.ZXR10.15K-M6000-2S4-Plus |  |
| bn.nf.pnf.ZXR10.15K-M6000-2S10 |  |
| M6000SV1d02 | bn.nf.pnf.ZXR10.15K-M6000-3S |  |
| bn.nf.pnf.ZXR10.15K-M6000-5S |  |
| bn.nf.pnf.ZXR10.15K-M6000-8S |  |
| bn.nf.pnf.ZXR10.15K-M6000-8S-Plus |  |
| bn.nf.pnf.ZXR10.15K-M6000-18S |  |
| T8000V1d00 | bn.nf.pnf.ZXR10.15K-T8000-18 |  |
| T8000V1d10 | bn.nf.pnf.ZXR10.15K-T8000-18 |  |
| M6000\_1SV1d00 | bn.nf.pnf.ZXR10.M6000-1S6 |  |
| vBRASV1d00 | bn.nf.vnf.ZXR10.V6000.vBRAS |  |
| vRouterV1d00 | bn.nf.vnf.ZXR10.V6000.vRouter |  |

## Yml配置文件格式

deviceCategoryInfo:

deviceSeriesList:

- deviceSeries: 9000V2d20

deviceTypeList:

- name: bn.nf.pnf.ZXCTN.6130-PTN

softVersion: V2.20

- name: bn.nf.pnf.ZXCTN.9002

softVersion: V2.20

- name: bn.nf.pnf.ZXCTN.9004

softVersion: V2.20

- name: bn.nf.pnf.ZXCTN.9008

softVersion: V2.20

- deviceSeries: 9000V2d14

deviceTypeList:

- name: bn.nf.pnf.ZXCTN.9002

softVersion: V2.14

- name: bn.nf.pnf.ZXCTN.9004

softVersion: V2.14

- name: bn.nf.pnf.ZXCTN.9008

softVersion: V2.14

- deviceSeries: 61V1d12

deviceTypeList:

- name: bn.nf.pnf.ZXCTN.6110

softVersion: V1.12

- name: bn.nf.pnf.ZXCTN.6120

softVersion: V1.12

- name: bn.nf.pnf.ZXCTN.6150

softVersion: V1.12

- deviceSeries: 61V2d20

deviceTypeList:

- name: bn.nf.pnf.ZXCTN.6110

softVersion: V2.20

- name: bn.nf.pnf.ZXCTN.6120

softVersion: V2.20

- name: bn.nf.pnf.ZXCTN.6150

softVersion: V2.20

- deviceSeries: 61CommonV3d0

deviceTypeList:

- name: bn.nf.pnf.ZXCTN.6120S

softVersion: V3.0

- name: bn.nf.pnf.ZXCTN.6150

softVersion: V3.0

- name: bn.nf.pnf.ZXCTN.6180

softVersion: V3.0

- deviceSeries: 608V3d0

deviceTypeList:

- name: bn.nf.pnf.ZXCTN.608

softVersion: V3.0

- name: bn.nf.pnf.ZXCTN.608P

softVersion: V3.0

- name: bn.nf.pnf.ZXCTN.6120E

softVersion: V3.0

- deviceSeries: 61SDNV3d20

deviceTypeList:

- name: bn.nf.pnf.ZXCTN.608(SDN)

softVersion: V3.20

- name: bn.nf.pnf.ZXCTN.6120S(SDN)

softVersion: V3.20

- name: bn.nf.pnf.ZXCTN.6120E(SDN)

softVersion: V3.20

- name: bn.nf.pnf.ZXCTN.6150(SDN)

softVersion: V3.20

- deviceSeries: 61V4d00

deviceTypeList:

- name: bn.nf.pnf.ZXCTN.6120H

softVersion: V4.00

- name: bn.nf.pnf.ZXCTN.6180H

softVersion: V4.00

- deviceSeries: 6263V1d12

deviceTypeList:

- name: bn.nf.pnf.ZXCTN.6200

softVersion: V1.12

- name: bn.nf.pnf.ZXCTN.6220

softVersion: V1.12

- name: bn.nf.pnf.ZXCTN.6300

softVersion: V1.12

- name: bn.nf.pnf.ZXCTN.6320

softVersion: V1.12

- deviceSeries: 6263V2d20

deviceTypeList:

- name: bn.nf.pnf.ZXCTN.61-30XG-S

softVersion: V2.20

- name: bn.nf.pnf.ZXCTN.61-0XG

softVersion: V2.20

- name: bn.nf.pnf.ZXCTN.6200

softVersion: V2.20

- name: bn.nf.pnf.ZXCTN.6220

softVersion: V2.20

- name: bn.nf.pnf.ZXCTN.6300

softVersion: V2.20

- name: bn.nf.pnf.ZXCTN.6320

softVersion: V2.20

- deviceSeries: 6500V1d00

deviceTypeList:

- name: bn.nf.pnf.ZXCTN.6500-8

softVersion: V1.00

- name: bn.nf.pnf.ZXCTN.6500-16L

softVersion: V1.00

- name: bn.nf.pnf.ZXCTN.6500-32

softVersion: V1.00

- deviceSeries: 6500V2d00

deviceTypeList:

- name: bn.nf.pnf.ZXCTN.6500-8

softVersion: V2.00

- name: bn.nf.pnf.ZXCTN.6500-16L

softVersion: V2.00

- name: bn.nf.pnf.ZXCTN.6500-32

softVersion: V2.00

- deviceSeries: 6600V1d00

deviceTypeList:

- name: bn.nf.pnf.ZXCTN.6600-13

softVersion: V1.00

- deviceSeries: 6700V1d00

deviceTypeList:

- name: bn.nf.pnf.ZXCTN.6700-12

softVersion: V1.00

- name: bn.nf.pnf.ZXCTN.6700-24

softVersion: V1.00

- name: bn.nf.pnf.ZXCTN.6700-32

softVersion: V1.00

- deviceSeries: 9700EV9d00

deviceTypeList:

- name: bn.nf.pnf.ZXONE.9700E

softVersion: V9.00

- name: bn.nf.pnf.ZXONE.19700

softVersion: V9.00

- name: bn.nf.pnf.ZXONE.16700

softVersion: V9.00

- name: bn.nf.pnf.ZXMP.M721E

softVersion: V9.00

- deviceSeries: 9000EV1d00

deviceTypeList:

- name: bn.nf.pnf.ZXCTN.15K-9000-3E

softVersion: V1.00

- name: bn.nf.pnf.ZXCTN.15K-9000-5E

softVersion: V1.00

- name: bn.nf.pnf.ZXCTN.15K-9000-8E

softVersion: V1.00

- name: bn.nf.pnf.ZXCTN.15K-9000-8E-Plus

softVersion: V1.00

- name: bn.nf.pnf.ZXCTN.15K-9000-18E

softVersion: V1.00

- name: bn.nf.pnf.ZXCTN.15K-9000-2E4

softVersion: V1.00

- name: bn.nf.pnf.ZXCTN.15K-9000-2E4-Plus

softVersion: V1.00

- name: bn.nf.pnf.ZXCTN.15K-9000-2E10

softVersion: V1.00

- deviceSeries: 9000EV1d01

deviceTypeList:

- name: bn.nf.pnf.ZXCTN.15K-9000-3E

softVersion: V1.01

- name: bn.nf.pnf.ZXCTN.15K-9000-5E

softVersion: V1.01

- name: bn.nf.pnf.ZXCTN.15K-000-8E

softVersion: V1.01

- name: bn.nf.pnf.ZXCTN.15K-9000-8E\_Plus

softVersion: V1.01

- name: bn.nf.pnf.ZXCTN.15K-9000-18E

softVersion: V1.01

- name: bn.nf.pnf.ZXCTN.15K-9000-2E4

softVersion: V1.01

- name: bn.nf.pnf.ZXCTN.15K-9000-2E4-Plus

softVersion: V1.01

- name: bn.nf.pnf.ZXCTN.15K-9000-2E10

softVersion: V1.00

- deviceSeries: M6000SV1d00

deviceTypeList:

- name: bn.nf.pnf.ZXR10.15K-M6000-3S

softVersion: V1.00

- name: bn.nf.pnf.ZXR10.15K-M6000-5S

softVersion: V1.00

- name: bn.nf.pnf.ZXR10.15K-M6000-8S

softVersion: V1.00

- name: bn.nf.pnf.ZXR10.15K-M6000-8S-Plus

softVersion: V1.00

- name: bn.nf.pnf.ZXR10.15K-M6000-18S

softVersion: V1.00

- name: bn.nf.pnf.ZXR10.15K-M6000-2S4

softVersion: V1.00

- name: bn.nf.pnf.ZXR10.15K-M6000-2S4-Plus

softVersion: V1.00

- name: bn.nf.pnf.ZXR10.15K-M6000-2S10

softVersion: V1.00

- deviceSeries: M6000SV1d01

deviceTypeList:

- name: bn.nf.pnf.ZXR10.15K-M6000-3S

softVersion: V1.01

- name: bn.nf.pnf.ZXR10.15K-M6000-5S

softVersion: V1.01

- name: bn.nf.pnf.ZXR10.15K-M6000-8S

softVersion: V1.01

- name: bn.nf.pnf.ZXR10.15K-M6000-8S-Plus

softVersion: V1.01

- name: bn.nf.pnf.ZXR10.15K-M6000-18S

softVersion: V1.01

- name: bn.nf.pnf.ZXR10.15K-M6000-2S4

softVersion: V1.01

- name: bn.nf.pnf.ZXR10.15K-M6000-2S4-Plus

softVersion: V1.01

- name: bn.nf.pnf.ZXR10.15K-M6000-2S10

softVersion: V1.01

- deviceSeries: M6000SV1d02

deviceTypeList:

- name: bn.nf.pnf.ZXR10.15K-M6000-3S

softVersion: V1.02

- name: bn.nf.pnf.ZXR10.15K-M6000-5S

softVersion: V1.02

- name: bn.nf.pnf.ZXR10.15K-M6000-8S

softVersion: V1.02

- name: bn.nf.pnf.ZXR10.15K-M6000-8S-Plus

softVersion: V1.02

- name: bn.nf.pnf.ZXR10.15K-M6000-18S

softVersion: V1.02

- deviceSeries: T8000V1d00

deviceTypeList:

- name: bn.nf.pnf.ZXR10.15K-T8000-18

softVersion: V1.00

- deviceSeries: T8000V1d10

deviceTypeList:

- name: bn.nf.pnf.ZXR10.15K-T8000-18

softVersion: V1.10

- deviceSeries: M6000\_1SV1d00

deviceTypeList:

- name: bn.nf.pnf.ZXR10.M6000-1S6

softVersion: V1.00

- deviceSeries: vBRASV1d00

deviceTypeList:

- name: bn.nf.vnf.ZXR10.V6000.vBRAS

softVersion: V1.00

- deviceSeries: vRouterV1d00

deviceTypeList:

- name: bn.nf.vnf.ZXR10.V6000.vRouter

softVersion: V1.00