**账单查询接口模块概要**

**设计说明书**

|  |  |  |  |
| --- | --- | --- | --- |
| **文件编号** |  | **受控编号** |  |
| **版次** | 2.0 | **密级** | 内部公开 |
| **总页数** | 23 | **附录** |  |

**作者：**褚良林**日期：**2014-12-17

**批准：日期：**

**审核：日期：**



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**文件修改记录**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **修改日期** | **修改状态** | **修改页码及条款** | **修改人** | **审核人** | **批准人** |
| 20150901 | 更新 | 新增接口（datacenter.getBillDynamicCmcc） | 褚良林 |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

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# 引言

## 编写目的

本文档的编写目的在于使用规范化的方法，将账单数据查询接口系统的设计思路以文字、图表及数据结构的方式形成文档，并予以备案，供开发和测试等项目活动的实施提供有利参考及依据。

## 术语与缩略词

|  |  |
| --- | --- |
| **术语与缩略词** | **解释** |
| nginx | 高性能的HTTP反向代理服务器 |
|  |  |

## 对象及范围

|  |  |
| --- | --- |
| 管理层 | 梁坚 |
| 产品部总监 |  |
| 产品经理 |  |
| UI设计人员 |  |
| 开发人员 | 褚良林 |
| 测试人员 |  |
| QA |  |
| 其它相关成员 | 何声伟等其他投递中心项目组同事 |

## 参考资料

数据中心接口规范文档(1.0.0).doc

# 系统设计

## 需求规定

为账单中心提供数据查询功能，在现有基础上对账单数据查询接口进行改造并实现对api参数签名校验，号码校验，通过文件提取服务提取文件并组织xml/Json报文数据返回web前端。

## 运行环境

操作系统：linux

数据库系统：mysql

开发工具： python，Mysql\_connector

## 基本设计思路和处理流程

系统基本设计思路和处理流程：

1. Web前端启动通过平台更新平台分配api\_key和参数签名密钥api\_secret列表到本地内存中，以便用户信息校验时计算使用。
2. 用户通过web发起请求，Web接口接收到请求并解析出用户请求参数并校验信息（api业务接入信息、用户号码校验、时间戳校验）。
3. 文件请求服务器按请求报文信息从文件服务器提取对应文件，按接入业务类型配置将提取文件信息组织成固定的xml报文并返回。
4. 接口接收到文件提取服务返回数据后解析报文并按《数据中心接口规范文档(1.0.0)》要求将报文组织成xml/Json格式返回到用户web前端。

查询接口系统各模块间调用时序如图2-2所示。



图2-2：查询接口系统时序图

## 系统结构

系统结构：

查询接口是采用http接口方式来接受客户端请求并按用户请求条件按文件服务器协议组织报文，然后通过tcp连接向文件提取服务器发送文件提取请求，文件服务器接收到文件提取请求后从文件服务器中提取索引制定的文件并解析出相应数据字段后组成xml格式数据然后返回，接口接收到文件提取服务器应答数据后解析并将账单数据按指定格式（xml/Json格式）组成应答报文返回。

# 模块设计

## 数据中心API认证参数更新

### **功能描述**

接口服务在配置文件中配置数据中心平台分配api\_key和参数签名密钥api\_secret，当前端查询请求到达时，接口将截取请求参数并按协议计算MD5值，并用该值校验请求报文中的bd\_sig参数。

## 用户请求报文解析处理和api参数签名校验

### **功能说明**

接口接收到用户请求报文后按《数据中心接口规范文档V1.0.0》规定将报文解析并出账单中心平台的API系统参数并根据从账单中心同步的api\_key和参数签名密钥api\_secret按接口规范文档定义的计算方法MD5(api\_key+call\_id+method+secret\_key计算MD5值，得到的结果校验用户提交的bd\_sig参数。

### **用户请求URLDemo 及参数说明：**

URL Demo:

<http://ip:port/datacenter?api_key=zhangdanzhongxin&method=datacenter.getBillCmcc&call_id=1276418994&format=xml&bd_sig=sig-result&mobile=13800138000&result_fields=TotalAmount,Score,Ratio,City,Brand,PriorBalanceAmount,CurrentIncomeAmount,AccountBalance,PriorBalancePoints,CurrentIncomePoints,PointsBalance,PackageAmount,ExPackageAmount,ToneAmount,InternetAmount,SmsmmsAmount,SpAmount,CollectionAmount,OtherAmount>

参数说明：

|  |  |  |  |
| --- | --- | --- | --- |
| **参数名** | **类型** | **是否必需** | **描述** |
| api\_key | string | 是 | 注册应用时分配到的api key |
| method | string | 是 | 采取datacenter.getBillWater这样的命名方式制定方法名 |
| call\_id | uint | 是 | 时间戳 |
| format | string | 可选 | 响应包格式，暂只支持json格式 |
| req\_charset | string | 可选 | API调用请求包的编码类型，支持UTF-8  (默认)或GBK |
| bd\_sig | string | 是 | 参数签名，对bd\_sig外所有参数串的签名，包括业务级的参数。（使用IP鉴权+简单数字签名，故签名方法为MD5(api\_key+call\_id+method+secret\_key)) |
| mobile | String | 是 | 用户手机号码 |
| period | String | 是 | 账单归属账期（历史账单查询采用默认当前月往前n个月时间的历史数据（话费账单6个月，其他12个月）） |
| result\_fields | String | 是 | 查询返回结果字段集合, Score低碳得分, Ratio比率,其它参考数据字典 |
| platenumber | String | 可选 | 查询交通违章数据历史账单时需传 |

校验参数签名（bd\_sig）计算方法说明：

参数签名，对bd\_sig外所有参数串的签名，包括业务级的参数。(使用IP鉴权+简单数字签名，签名方法为MD5(api\_key+call\_id+method+secret\_key))。

### **功能流程图**



图3-2：用户参数校验流程图

## IP认证

### **功能说明**

用户请求到来后根据请求IP验证对应程序配置文件websetting.py中API\_LIST项中配置api接口允许接入IP地址，如不在配置列表内则返回IP接入错误错误提示。

## 文件提取

### **功能说明**

建立多个文件提取服务器的长连接等待当用户请求进来并通过校验之后将参数按文件提取服务接口协议报文规定将查询条件、文件索引等信息组织xml报文请求发送到文件提取服务器请求提取用户查询数据。

### **请求报文定义**

1. 报文头：

unsigned char flag[3]; //0xFF0xEE0xEF

unsigned char packtype; //数据包类型

unsigned int seq; //包序列号，从1开始递增

unsigned int packlen; //包长

unsigned char version;//版本

unsigned int timestamp;//时间戳

unsigned char md5[32];// md5(seq+timestamp+key)

char xml[0];//xml数据

其中：packtype为0x01表示账单内容查询，为0x02表示账单账期查询

1. 报文体：

<Extract>

<QueryInterfaceID></QueryInterfaceID> //查询接口ID

<Mobile></Mobile> //用户手机号

<IsPrecise></IsPrecise> //是否精确查询，1是，0否

< ResultFields></ResultFields> //查询返回结果字段集合，可选

<Info>

<StartPeriod></StartPeriod> //数据账期，可为某一月份，格式为yyyyMM

<EndPeriod></EndPeriod> //数据账期，可为某一月份，格式为yyyyMM

</Info>

</Extract>

### **应答报文定义**

1. 报文头：

unsigned char flag[3]; //0xFF0xEE0xEF

unsigned char packtype; //数据包类型

unsigned int seq; //包序列号

unsigned int packlen; //包长

unsigned int retcode;//返回码

char xml[0];//xml数据

其中，retcode：0x00提取成功，0x01包类型错误，0x02解析xml报文错误，0x03解析资源不存在，0x04提取转换失败，0xFF未知错误。

1. 报文体：

<Result>

<Term>

<Period></Period>

<Record> //查询对应的一条记录，模糊查询时，一个账期可返回多条记录数据

<Item>

<Name></Name> //接口数据提取配置中设定的数据项名称

<Value>base64(\*\*\*)</Value> //对应数据项的提取配置执行产生的结果

</Item>

…

<Item>

<Name></Name>

<Value>base64(\*\*\*)</Value>

</Item>

</Record>

<Record>

…

</Record>

</Term>

<Term>

…

</Term>

…

</Result>

注：以上报文定义均按文件提取服务定义协议为准。

## 应答数据处理

### **功能说明**

成功接受到文件提取服务器应答数据后将数据解析并按照《数据中心接口规范文档V1.0.0》规定将数据组织成Json（根据客户端请求URL中的系统参数format(目前只支持JSON格式返回)）格式返回客户端。

响应数据包格式：

1．响应数据包的格式由调用时传递的format参数指定（默认为json格式）。

2．输出文档编码格式为UTF-8。

3．标签名大小写不敏感。

4．节点标签名具有实际意义，与数据所描述的信息相符。

注：具体参数输入输出请详见—用户请求URLDemo 及参数说明

例如：获取水费账单接口

URL Demo：

<http://192.168.18.123:9300/billcenter?api_key=zhangdanzhongxin&method=datacenter.getBillCmcc&call_id=1395796187&format=json&req_charset=UTF-8&bd_sig=D86B049D3E66C3BFD8F68267DDE0CA77&result_fields=CollectionAmount,ExPackageAmount,PackageAmount,CurrentIncomePoints,PointsBalance,PriorBalancePoints,CurrentIncomeAmount,AccountBalance,PriorBalanceAmount,Brand,OtherAmount,InternetAmount,ToneAmount,SmsmmsAmount,SpAmount,PackageAmount,Mobile,PeriodStart,PeriodEnd,Period,TotalAmount,PhoneBalance,Score,Ratio,City&mobile=13500000000>

Response JSON 示例：

{"response": [{"expackageamount": "", "period": "201404", "collectionamount": "0.00", "priorbalanceamount": "", "packageamount": "15.00", "city": "\u5e7f\u5dde", "currentincomeamount": "", "otheramount": "0.00", "score": "100", "priorbalancepoints": "2731", "brand": "\u52a8\u611f\u5730\u5e26", "periodend": "20140428", "spAmount": "3.00", "totalamount": "32.60", "smsmmsamount": "0.00", "error\_msg": "\u6210\u529f", "currentincomepoints": "", "pointsbalance": "2783", "mobile": "13500000000", "error\_code":"0", "periodstart": "20140401", "accountbalance": "83.79", "internetamount": "0.00", "phonebalance": "83.79", "toneamount": "14.60"}]}

注：考虑到一个手机号码对应多个户号的情况，返回的标签中增加AccountBranch标签。

错误响应的输出格式：

返回内容由error\_code, error\_msg这2个属性组成，分别用于描述错误码，错误信息。

例如第三方应用调用datacenter.getBillWater接口时传递的参数api\_key无效。

Json格式的字符串应为如下格式：

{"response":{"error\_code":"7","error\_msg":" Api 接口不支持"}

### **错误代码定义**

调用过程中可能会返回的错误码定义如下表所示：

|  |  |
| --- | --- |
| 错误码 | 备注 |
| 0 | 成功 |
| 2 | 时间戳错误 |
| 3 | 非法手机号码 |
| 7 | Api 接口不支持 |
| 8 | 缺少参数+(参数具体名称) |
| 10 | IP校验失败 |
| 104 | API密钥错误 |
| 109 | 接口不支持(method参数错误) |
| 300 | 查询的数据不存在 |
| 500 | 服务器内部错误，请稍后重试 |
| 999 | 未知错误 |

# 数据设计

## 数据逻辑结构

1. 平台分配api\_key和参数签名密钥api\_secret均在配置文件websetting.py中配置，与前端接入配置一致。
2. 查询接口服务ID，t\_queryinterfaceconfig表。
3. 用户号段表和号码归属地表：t\_teleseg, t\_areacode。

# 接口细则

## datacenter.getBillCmcc

### **功能**

URL Demo：

http://192.168.18.123:8089/billcenter?api\_key=zhangdanzhongxin&method=datacenter.getBillCmcc&call\_id=1418868220&format=json&req\_charset=UTF-8&bd\_sig=3FAB2636E770D1051BD1DAD07586B422&result\_fields=CollectionAmount,ExPackageAmount,PackageAmount,CurrentIncomePoints,PointsBalance,PriorBalancePoints,CurrentIncomeAmount,AccountBalance,PriorBalanceAmount,Brand,OtherAmount,InternetAmount,ToneAmount,SmsmmsAmount,SpAmount,PackageAmount,Mobile,PeriodStart,PeriodEnd,Period,TotalAmount,PhoneBalance,Score,Ratio,City&mobile=13500000002

### **参数**

|  |  |  |
| --- | --- | --- |
| **参数名** | **类型** | **描述** |
| mobile | String | 用户手机号码(必选) |
| period | String | 账单归属账期(可选) |
| result\_fields | String | 查询返回结果字段集合, Score低碳得分, Ratio比率,其它参考数据字典(必选) |

具体参数详见--用户请求URLDemo 及参数说明

### **返回值**

{"response": [{"expackageamount": "", "period": "201405", "collectionamount": "0.00", "priorbalanceamount": "", "packageamount": "15.00", "city": "\u5e7f\u5dde", "currentincomeamount": "", "spamount": "3.00", "otheramount": "0.00", "score": "100", "priorbalancepoints": "2731", "brand": "\u52a8\u611f\u5730\u5e26", "periodend": "20140528", "totalamount": "32.60", "smsmmsamount": "0.00", "error\_msg": "\u6210\u529f", "currentincomepoints": "52", "pointsbalance": "2783", "mobile": "13500000002", "error\_code":"0", "periodstart": "20140501", "accountbalance": "83.79", "internetamount": "0.00", "phonebalance": "83.79", "toneamount": "14.60"}]}

## datacenter.getBillCmccHistory

### **功能**

[http://192.168.21.55:8094/billqueryapi?api\_key=zhangdanzhongxin&method=datacenter.getBillCmccHistory&call\_id=1438244692&format=json&req\_charset=UTF-8&bd\_sig=406963037DBDC2531FC758B81C1D8F8F&result\_fields=ALL&mobile=13400000002](http://192.168.21.55:8094/billqueryapi?api_key=zhangdanzhongxin&method=datacenter.getBillCmccHistory&call_id=1438244692&format=json&req_charset=UTF-8&bd_sig=406963037DBDC2531FC758B81C1D8F8F&result_fields=ALL&mobile=13400000002%20)

注：result\_fields需要返回的数据字段可以传ALL(全部取回),或者部分字段（写具体数据字段名）

### **参数**

|  |  |  |
| --- | --- | --- |
| **参数名** | **类型** | **描述** |
| Mobile | String | 手机号码(必选) |
| History | - | 历史数据的标签，结果排序从当前账单月份开始，依照时间维度往前追溯历史，返回6个账期的数据。(返回必选) |
| TotalAmount | String | 账期的费用(返回必选) |

具体参数详见--用户请求URLDemo 及参数说明

### **返回值**

{"response": [{"error\_code":"0", "error\_msg": "\u6210\u529f", "history": [{"totalamount": "47.51", "periodstart": "", "periodend": "", "period": "201309"}, {"totalamount": "39.97", "periodstart": "", "periodend": "", "period": "201310"}, {"totalamount": "67.34", "periodstart": "", "periodend": "", "period": "201311"}, {"totalamount": "42.95", "periodstart": "", "periodend": "", "period": "201312"}, {"totalamount": "42.65", "periodstart": "", "periodend": "", "period": "201401"}, {"totalamount": "32.60", "periodstart": "", "periodend": "", "period": "201405"}]}]}

## datacenter.getBillWater

### **功能**

http://192.168.18.123:8089/billcenter?api\_key=zhangdanzhongxin&method=datacenter.getBillWater&call\_id=1418868131&format=json&req\_charset=UTF-8&bd\_sig=664E62B48063A9B91CD342A2D751CF5A&result\_fields=AccountNo,AccountName,Address,Mobile,Period,PeriodStart,PeriodEnd,Score,Ratio,CheckDate,CheckReader,AreaNo,ServiceUnit,Province,City,PriorNumber,CurrentNumber,ConsumeNumber,Price,ConsumeAmount,ArrearAmount,DelayAmount,ShareAmount,TotalAmount,Ladder1Number,Ladder1Price,Ladder1Amount,Ladder2Number,Ladder2Price,Ladder2Amount,Ladder3Number,Ladder3Price,Ladder3Amount,SewageNumber,SewagePrice,SewageAmount,OtherAmount,Remark,PayMethod,PayStatus&mobile=13500000002

### **参数**

|  |  |  |
| --- | --- | --- |
| **参数名** | **类型** | **描述** |
| mobile | String | 用户手机号码(必选) |
| period | String | 账单归属账期(可选) |
| result\_fields | String | 查询返回结果字段集合, Score低碳得分, Ratio比率,其它参考数据字典(必选) |

具体参数详见--用户请求URLDemo 及参数说明

### **返回值**

{"response": [{"accountbranch": [{"ladder2amount": "", "sewageprice": "1.8", "period": "201405", "ladder3price": "", "accountname": "108610", "delayamount": "", "ladder1number": "9", "sewagenumber": "9", "ladder3number": "", "city": "\u5b81\u6ce2", "checkreader": "", "accountno": "1000184", "sewageamount": "16.2", "otheramount": "", "score": "65", "priornumber": "582", "serviceunit": "", "ladder1amount": "37.35", "province": "\u6d59\u6c5f", "paymethod": "", "price": "", "periodend": "20140614", "consumenumber": "9", "shareamount": "", "ladder1price": "4.15", "ladder3amount": "", "address": "\u5b81\u6ce2\u5e02\u6c5f\u4e1c\u533a\u4e2d\u5c71\u4e1c\u8def535\u53f7", "totalamount": "53.55", "remark": "", "arrearamount": "", "mobile": "13500000002", "periodstart": "20140514", "ladder2price": "", "checkdate": "", "consumeamount": "53.55", "ladder2number": "", "paystatus": "", "areano": "", "currentnumber": "591"}], "error\_code":"0", "error\_msg": "\u6210\u529f"}]}

## datacenter.getBillWaterHistory

### **功能**

http://192.168.18.123:8089/billcenter?api\_key=zhangdanzhongxin&method=datacenter.getBillWaterHistory&call\_id=1418867895&format=json&req\_charset=UTF-8&bd\_sig=F7BD14AD28A64F6C38DF013FDB3A1375&mobile=13500000002

### **参数**

|  |  |  |
| --- | --- | --- |
| **参数名** | **类型** | **描述** |
| AccountNo | String | 户号(可选) |
| Mobile | String | 手机号码(必选) |
| History | - | 历史数据的标签，结果排序从当前账单月份开始，依照时间维度往前追溯历史，返回6个账期的数据。(返回必选) |
| Period | String | 账单归属月份，比如201305(返回必选) |
| PeriodStart | String | 账期开始时间，比如20130306(返回必选) |
| PeriodEnd | String | 账期结束时间，比如20130505(返回必选) |
| ConsumeNumber | String | 账期消费水量(返回必选) |
| TotalAmount | String | 账期的费用(返回必选) |

### **返回值**

{"response": [{"accountbranch": [{"mobile": "13500000002", "accountno": "1000184", "history": [{"periodstart": "20140514", "periodend": "20140614", "consumenumber": "9", "period": "201405", "totalamount": "53.55"}]}], "error\_code":"0", "error\_msg": "\u6210\u529f"}]}

## datacenter.getBillElectric

### **功能**

http://192.168.18.123:8089/billcenter?api\_key=zhangdanzhongxin&method=datacenter.getBillElectric&call\_id=1418868048&format=json&req\_charset=UTF-8&bd\_sig=B1A28B81E12EA46B99E181FF40233C50&result\_fields=AccountNo,AccountName,Address,Mobile,Period,PeriodStart,PeriodEnd,Score,Ratio,CheckDate,CheckReader,AreaNo,ServiceUnit,Province,City,PriorNumber,CurrentNumber,ConsumeNumber,Price,ConsumeAmount,ArrearAmount,DelayAmount,ShareAmount,TotalAmount,Ladder1Number,Ladder1Price,Ladder1Amount,Ladder2Number,Ladder2Price,Ladder2Amount,Ladder3Number,Ladder3Price,Ladder3Amount,SewageNumber,SewagePrice,SewageAmount,OtherAmount,Remark,PayMethod,PayStatus&mobile=13500000002

### **参数**

|  |  |  |
| --- | --- | --- |
| **参数名** | **类型** | **描述** |
| mobile | String | 用户手机号码(必选) |
| period | String | 账单归属月份，格式YYYYMM，一般和checkdate不同时使用，为空表示返回最近的一个账期。(可选) |
| result\_fields | String | 查询返回结果字段集合,参考数据字典(必选) |

### **返回值**

{"response": [{"accountbranch": [{"ladder2amount": "", "period": "201405", "ladder3price": "", "accountname": "\u4ed9\u5c45\u53bf\u73af\u57ce\u706b\u817f\u5382", "delayamount": "", "ladder1number": "", "ladder3number": "", "city": "\u53f0\u5dde", "checkreader": "", "accountno": "7211301043", "otheramount": "", "score": "44", "priornumber": "59965", "serviceunit": "\u57ce\u5317\u4f9b\u7535\u6240", "ladder1amount": "", "province": "\u6d59\u6c5f", "paymethod": "", "price": "0.946", "periodend": "", "consumenumber": "710", "shareamount": "", "ladder1price": "", "ladder3amount": "", "address": "\u4ed9\u5c45\u57ce\u5173\u897f\u90ed\u6d0b\u5f00\u53d1\u533a", "totalamount": "906.86", "remark": "", "arrearamount": "", "mobile": "13500000002", "periodstart": "", "ladder2price": "", "checkdate": "2014-05-07 00:00:00", "consumeamount": "671.66", "ladder2number": "", "paystatus": "", "areano": "334068001318330", "currentnumber": "61075"}], "error\_code":"0", "error\_msg": "\u6210\u529f"}]}

## datacenter.getBillElectricHistory

### **功能**

http://192.168.18.123:8089/billcenter?api\_key=zhangdanzhongxin&method=datacenter.getBillElectricHistory&call\_id=1418867956&format=json&req\_charset=UTF-8&bd\_sig=F9F8725A7D466B17101A8F9065673D94&mobile=13500000002

### **参数**

|  |  |  |
| --- | --- | --- |
| **参数名** | **类型** | **描述** |
| Mobile | String | 手机号码(必选) |
| History | - | 历史数据的标签，结果排序从当前账单月份开始，依照时间维度往前追溯历史，返回6个账期的数据。(返回) |
| Period | String | 账单归属月份，比如201305(返回) |
| PeriodStart | String | 账期开始时间，比如20130306(返回) |
| PeriodEnd | String | 账期结束时间，比如20130505(返回) |
| ConsumeNumber | String | 账期消费水量(返回) |
| TotalAmount | String | 账期的费用(返回) |

### **返回值**

{"response": [{"accountbranch": [{"mobile": "13500000002", "accountno": "7211301043", "history": [{"periodstart": "", "periodend": "", "consumenumber": "710", "period": "201403", "totalamount": "906.86"}, {"periodstart": "", "periodend": "", "consumenumber": "710", "period": "201402", "totalamount": "906.86"}, {"periodstart": "", "periodend": "", "consumenumber": "710", "period": "201401", "totalamount": "906.86"}, {"periodstart": "", "periodend": "", "consumenumber": "710", "period": "201405", "totalamount": "906.86"}, {"periodstart": "", "periodend": "", "consumenumber": "710", "period": "201404", "totalamount": "906.86"}, {"periodstart": "", "periodend": "", "consumenumber": "710", "period": "201312", "totalamount": "906.86"}, {"periodstart": "", "periodend": "", "consumenumber": "710", "period": "201311", "totalamount": "906.86"}]}], "error\_code":"0", "error\_msg": "\u6210\u529f"}]}

## datacenter.getBillGas

### **功能**

http://192.168.18.123:8089/billcenter?api\_key=zhangdanzhongxin&method=datacenter.getBillGas&call\_id=1418867723&format=json&req\_charset=UTF-8&bd\_sig=6692D21A01208FD4F9C21680A63021F6&result\_fields=AccountNo,AccountName,Address,Mobile,Period,PeriodStart,PeriodEnd,Score,Ratio,CheckDate,CheckReader,AreaNo,ServiceUnit,Province,City,PriorNumber,CurrentNumber,ConsumeNumber,Price,ConsumeAmount,ArrearAmount,DelayAmount,ShareAmount,TotalAmount,Ladder1Number,Ladder1Price,Ladder1Amount,Ladder2Number,Ladder2Price,Ladder2Amount,Ladder3Number,Ladder3Price,Ladder3Amount,SewageNumber,SewagePrice,SewageAmount,OtherAmount,Remark,PayMethod,PayStatus&mobile=13500000002

### **参数**

|  |  |  |
| --- | --- | --- |
| **参数名** | **类型** | **描述** |
| mobile | String | 用户手机号码(必选) |
| period | String | 账单归属月份，格式YYYYMM，一般和checkdate不同时使用，为空表示返回最近的一个账期。(可选) |
| result\_fields | String | 查询返回结果字段集合,参考数据字典(必选) |

### **返回值**

{"response": [{"accountbranch": [{"period": "201405", "accountname": "\u5f20\u96c5\u7434", "delayamount": "", "city": "\u6e29\u5dde", "checkreader": "\u8c22\u5b81", "accountno": "14315161", "otheramount": "", "score": "100", "priornumber": "26", "serviceunit": "", "province": "\u6d59\u6c5f", "paymethod": "", "price": "17.5", "periodend": "", "consumenumber": "1", "address": "\u5b89\u6f9c\u5927\u53a6A\u5e6220050\u5ba4", "totalamount": "17.5", "remark": "", "arrearamount": "", "mobile": "13500000002", "periodstart": "", "checkdate": "2014/5/1", "consumeamount": "17.5", "paystatus": "", "areano": "", "currentnumber": "27"}, {"period": "201405", "accountname": "\u5f20\u96c5\u7434", "delayamount": "", "city": "\u6e29\u5dde", "checkreader": "\u8c22\u5b81", "accountno": "14315161", "otheramount": "", "score": "100", "priornumber": "26", "serviceunit": "", "province": "\u6d59\u6c5f", "paymethod": "", "price": "17.5", "periodend": "", "consumenumber": "1", "address": "\u5b89\u6f9c\u5927\u53a6A\u5e6220050\u5ba4", "totalamount": "17.5", "remark": "", "arrearamount": "", "mobile": "13500000002", "periodstart": "", "checkdate": "2014/5/1", "consumeamount": "17.5", "paystatus": "", "areano": "", "currentnumber": "27"}], "error\_code":"0", "error\_msg": "\u6210\u529f"}]}

## datacenter.getBillGasHistory

### **功能**

http://192.168.18.123:8089/billcenter?api\_key=zhangdanzhongxin&method=datacenter.getBillGasHistory&call\_id=1418867820&format=json&req\_charset=UTF-8&bd\_sig=A14A434DAD42CBC9C4E6E162742F5848&mobile=13500000002

### **参数**

|  |  |  |
| --- | --- | --- |
| **参数名** | **类型** | **描述** |
| mobile | String | 用户手机号码(必选) |
| period | String | 账单归属月份，格式YYYYMM，一般和checkdate不同时使用，为空表示返回最近的一个账期。(可选) |
| result\_fields | String | 查询返回结果字段集合,参考数据字典(必选) |

### **返回值**

{"response": [{"accountbranch": [{"mobile": "13500000002", "accountno": "14315161", "history": [{"periodstart": "", "periodend": "", "consumenumber": "1", "period": "201405", "totalamount": "17.5"}, {"periodstart": "", "periodend": "", "consumenumber": "1", "period": "201405", "totalamount": "17.5"}]}], "error\_code":"0", "error\_msg": "\u6210\u529f"}]}

## datacenter.getBillTraffic

### **功能**

<http://192.168.18.123:8089/billcenter?api_key=zhangdanzhongxin&method=datacenter.getBillTraffic&call_id=1418867437&format=json&req_charset=UTF-8&bd_sig=AF7CAAC7807EC6D1CEB821AD1B11BC97&result_fields=ID,OwnerName,Mobile,Address,Period,CheckDate,PlateNumber,Province,City,PlateType,VehicleType,ViolationDate,ViolationAddr,ViolationDesc,FineAmount,DeductPoints,ServiceUnit,ServiceCall,Remark&mobile=13500000002>

### **参数**

|  |  |  |
| --- | --- | --- |
| **参数名** | **类型** | **描述** |
| mobile | String | 用户手机号码(必选) |
| period | String | 账单归属月份，格式YYYYMM，一般和checkdate不同时使用，为空表示返回最近的一个账期。(可选) |
| result\_fields | String | 查询返回结果字段集合,参考数据字典(必选) |

### **返回值**

{"response": [{"mobile": "13500000002", "error\_code":"0", "error\_msg": "\u6210\u529f", "platebranch": [{"province": "\u5e7f\u4e1c", "city": "\u6df1\u5733", "platenumber": "\u7ca4BG9D77", "violationbranch": [{"province": "\u5e7f\u4e1c", "violationdesc": "\u9a7e\u9a76\u4e2d\u578b\u4ee5\u4e0a\u8f7d\u5ba2\u8f7d\u8d27\u6c7d\u8f66\u3001\u6821\u8f66\u3001\u5371\u9669\u7269\u54c1\u8fd0\u8f93\u8f66\u8f86\u4ee5\u5916\u7684\u5176\u4ed6\u673a\u52a8\u8f66\u884c\u9a76\u8d85\u8fc7\u89c4\u5b9a\u65f6\u901f20%\u4ee5\u4e0a\u672a\u8fbe\u523050%\u7684", "violationdate": "2014-05-01 8:30:00", "violationaddr": "\u60e0\u6df1\u6cbf\u6d77\u9ad8\u901f-S30(\u76d0\u575d\u9ad8\u901f)\u571f\u6d0b\u8def\u6bb5\u897f\u5411\u4e1c"}], "period": "201406", "ownername": "13500000002", "address": "", "checkdate": "20140520"}, {"province": "\u5e7f\u4e1c", "city": "\u6df1\u5733", "platenumber": "\u7ca4BG9D77", "violationbranch": [{"province": "\u5e7f\u4e1c", "violationdesc": "\u673a\u52a8\u8f66\u8fdd\u53cd\u89c4\u5b9a\u505c\u653e\u3001\u4e34\u65f6\u505c\u8f66\uff0c\u59a8\u788d\u5176\u5b83\u8f66\u8f86\u3001\u884c\u4eba\u901a\u884c\u7684", "violationdate": "2014-05-02 14:07:00", "violationaddr": "\u6587\u5fc3\u56db\u8def-\u6587\u5fc3\u56db\u8def\u6d77\u5fb7\u4e8c\u9053\u8def\u53e3"}], "period": "201406", "ownername": "13500000002", "address": "", "checkdate": "20140520"}]}]}

## datacenter.getBillType

### **功能**

http://192.168.18.123:8089/billcenter?api\_key=zhangdanzhongxin&method=datacenter.getBillType&call\_id=1418867386&format=json&req\_charset=UTF-8&bd\_sig=5111A6655B00E60F9700185A8231A1BC&mobile=13500000002

### **参数**

|  |  |  |
| --- | --- | --- |
| **参数名** | **类型** | **描述** |
| mobile | String | 用户手机号码(必选) |
| billtype | String | 除话费账单之外的其它业务类型，用户有几种就返回几种(返回) |

### **返回值**

{"response": [{"mobile": "13500000002", "type": [{"billtype": "bill\_Cmcc"}, {"billtype": "bill\_Water"}, {"billtype": "bill\_Electric"}, {"billtype": "bill\_Gas"}, {"billtype": "bill\_Traffic"}], "error\_code":"0", "error\_msg": "\u6210\u529f"}]}

## datacenter.getBillTrafficHistory

### **功能**

http://192.168.18.123:8089/billcenter?api\_key=zhangdanzhongxin&method=datacenter.getBillTrafficHistory&call\_id=1418867560&format=json&req\_charset=UTF-8&bd\_sig=CD3F76BD5883E406DB603CEDA433D003&platenumber=粤BG9D77&mobile=13500000002

### **参数**

|  |  |  |
| --- | --- | --- |
| **参数名** | **类型** | **描述** |
| platenumber | String | 车牌号(必选) |
| Mobile | String | 手机号码(必选) |
| History | - | 历史数据的标签，结果排序从当前账单月份开始，依照时间维度往前追溯历史，返回12个账期的数据。(返回) |
| Period | String | 账单归属月份，比如201305(返回) |
| periodend | String | 账期结束时间，比如20130505(返回) |

### **返回值**

{"response": [{"mobile": "13500000002", "accountbranch": [{"history": [{"periodend": "20140520", "period": "201405"}, {"periodend": "20140520", "period": "201405"}]}], "error\_code":"0", "error\_msg": "\u6210\u529f", "accountno": "\u7ca4BG9D77"}]}

## datacenter.getBillDynamicCmcc

### **功能**

获取当月全量账单数据

URL Demo：

http://192.168.18.123:8089/billcenter?api\_key=zhangdanzhongxin&method=datacenter.getBillCmcc&call\_id=1418868220&format=json&req\_charset=UTF-8&bd\_sig=3FAB2636E770D1051BD1DAD07586B422&result\_fields=ALL &mobile=135000000013

### **参数**

|  |  |  |
| --- | --- | --- |
| **参数名** | **类型** | **描述** |
| mobile | String | 用户手机号码(必选) |
| period | String | 账单归属账期(可选) |
| result\_fields | String | ALL（接口返回全量数据，所以该参数填ALL即可） |

具体参数详见--用户请求URLDemo 及参数说明

### **返回值**

{"response": [{"currentpresentpoints": "0", "currentrefundamount": "", "period": "201402", "accountname":"\u5eb7\u6797\u6625","priorbalanceamount":"118.22","currentconsumepoints":"0","city":"","currentincomeamount":"0.00","currentawardpoints":"0","currentreturnamount": "", "score": "88", "priorbalancepoints": "6040", "communicationreport": "", "province": "\u5317\u4eac","brand":"\u5168\u7403\u901a","periodend":"20140230","otherexpenseamount":"","totalamount":"","currentavailableamount":"","error\_msg":"succ","currentincomepoints":"388","pointsbalance":"","expenseitems":[{"billname":"\u5957\u9910\u53ca\u56fa\u5b9a\u8d39","amount":"118.00","subbill":[{"subbillamount":"88.00","subbillname":"\u5546\u65c5\u5957\u9910"},{"subbillamount":"30.00","subbillname":"30\u5143\u9884\u5b58\u6362\u673a\u6d41\u91cf\u5957\u9910"}]},{"billname":"\u5957\u9910\u5916\u8bed\u97f3\u901a\u4fe1\u8d39", "amount": "23.18", "subbill": [{"subbillamount": "20.90", "subbillname": "\u672c\u5730\u4e3b\u53eb\u901a\u8bdd\u8d39"}, {"subbillamount": "2.28", "subbillname": "\u56fd\u5185\u957f\u9014\u8d39"}]},{"billname":"\u5957\u9910\u5916\u4e0a\u7f51\u8d39", "amount": "0.00"}, {"billname": "\u5957\u9910\u5916\u77ed\u4fe1/\u5f69\u4fe1\u8d39", "amount":"6.40","subbill":[{"subbillamount":"6.40","subbillname":"\u56fd\u5185\u77ed\u4fe1\u8d39"}]},{"billname": "\u589e\u503c\u4e1a\u52a1\u8d39", "amount": "13.00", "subbill": [{"subbillamount": "3.00", "subbillname": "\u6bcf\u65e5\u4e00\u7b11"}, {"subbillamount": "10.00","subbillname":"\u5bb6\u6821\u4e92\u52a8"}]},{"billname":"\u4ee3\u6536\u4e1a\u52a1\u8d39","amount":"0.00"},{"billname": "\u5176\u4ed6\u8d39\u7528", "amount": "0.00"}, {"billname":"\u4f18\u60e0\u53ca\u51cf\u514d","amount":"0.00"}],"mobile":"13400000013", "error\_code":"0", "periodstart":"20140201","accountbalance":"","consumeamount": "160.58", "phonebalance": ""}]}

具体返回数据字段名称注释：

//省份 province

//低碳得分 score

//地市 city

//客户名称 accountname

//手机号 mobile

//品牌 brand

//账单月份 period

//计费开始时间 periodstart

//计费结束时间 periodend

//本期末账户余额 accountbalance

//话费账户余额 phonebalance

//积分余额 pointsbalance

//本期消费额 consumeamount

//合计金额 totalamount

//上期结余 priorbalanceamount

//本期收入 currentincomeamount

//本期返还 currentreturnamount

//本期退费 currentrefundamount

//本期可用 currentavailableamount

//其它支出 otherexpenseamount

//上期可用积分余额 priorbalancepoints

//本期新增积分 currentincomepoints

//本期奖励积分 currentawardpoints

//本期转赠积分 currentpresentpoints

//本期兑换积分 currentconsumepoints

//实际通讯使用量描述 communicationreport

## datacenter.getBillPoints

### **功能**

URL Demo：

http://127.0.0.1:9920/billqueryapi?api\_key=zhangdanzhongxin&method=datacenter.getBillPoints&call\_id=1455771494&format=json&req\_charset=UTF-8&bd\_sig=2D52D0E7F40458A9E77BAD8007DBC2C5&result\_fields=ALL&period=201601&mobile=13916196009

### **参数**

|  |  |  |
| --- | --- | --- |
| **参数名** | **类型** | **描述** |
| mobile | String | 用户手机号码(必选) |
| period | String | 账单归属账期(可选) |
| result\_fields | String | 查询返回结果字段集合, （直接填ALL） |

具体参数详见--用户请求URLDemo 及参数说明

### **返回值**

{"response":[{"province":"\u4e0a\u6d77","mobile":"13916196009","periodstart":"20151201","periodend":"20151231","period":"201512","accountname":"\u80e1\u5fd7\u96c4", "points": [{"\u672c\u671f\u65b0\u589e\u79ef\u5206":"116.00","\u4e0a\u671f\u53ef\u7528\u79ef\u5206\u4f59\u989d":"835.00","\u53ef\u7528\u79ef\u5206\u4f59\u989d":"951.00","\u672c\u671f\u5151\u6362\u53ca\u6263\u51cf\u79ef\u5206":"0.00","\u672c\u671f\u5230\u671f\u6e05\u96f6\u79ef\u5206": "0.00"}], "error\_code":"0", "error\_msg": "succ"}]}

# 容错与安全设计

## 错误及异常处理

用一览表的方式说明每种可能的出错或故障情况出现时，系统输出信息的形式、含意及处理方法。

## 挽救措施

说明故障出现后可能采取的应急措施，或者替代方案，如：原始系统数据丢失后，则启用副本的数据；采用主备式部署，双机热备份等。

## 安全设计

说明与该模块有关的安全设计方案，如：加密、验证、授权、防欺诈、防止sql注入漏洞等方案。

## 系统维护设计

说明为了系统维护的方便而在程序内部设计中作出的安排，包括在程序中专门安排用于系统的检查与维护的检测点和专用模块，各个程序之间的对应关系。