



Mobile

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Additional Dynamic Provisioning Parameters

Feature Summary and Revision History

Table 1: Summary Data

Applicable Product(s) or Functional Area	CPS
Applicable Platform(s)	Not Applicable
Default Setting	Not Applicable
Related Changes in This Release	Not Applicable
Related Documentation	<i>CPS Mobile Configuration Guide</i>

Table 2: Revision History

Revision Details	Release
First introduced	19.3.0

Feature Description

The LDAP schema is enhanced to extend support to the newly introduced dynamic parameters - VideoOptimization and HotspotDataSpeed. As part of this enhancement, the LDAP query is modified to

include the new parameters, and the SOAP API parser is improved to parse the parameters and update the subscriber session in MongoDB.

For achieving backward compatibility, it is recommended to upgrade the receiver site (receives the broadcasted SOAP notification) before updating the sender site (receives the SOAP notification from the external source; does not contain the locally accessible subscriber information).



Note The SOAP notification request contains an IMSI attribute.

Bill Cycle per Quota

Feature Summary and Revision History

Table 3: Summary Data

Applicable Product(s) or Functional Area	CPS
Applicable Platform(s)	Not Applicable
Default Setting	Not Applicable
Related Changes in This Release	Not Applicable
Related Documentation	<i>CPS Mobile Configuration Guide</i>

Table 4: Revision History

Revision Details	Release
First introduced	19.3.0

Feature Description

In earlier releases, Bill Cycle day was as per subscriber configuration. If the subscriber had multiple quotas, it was not allowing to Change Bill Cycle day for each quota independently.

CPS now supports recurring quotas with different bill cycles. To support this, Account Balance Templates must be configured in Policy Builder. Different balances must be configured and Recurring Quota Template must have Recurrence Frequency configured as Bill Cycle (RF Amt ignored). This helps to change bill cycle day for each quota independently.

For backward compatibility, a new checkbox `BillCycle Per Quota` has been added. When selected, BillCycle on quota level is used otherwise BillCycle on account level is used.

For more information, see *Recurring* section in the *CPS Mobile Configuration Guide*.

CDRs when Multiple Services Configured

Feature Summary and Revision History

Table 5: Summary Data

Applicable Product(s) or Functional Area	CPS
Applicable Platform(s)	Not Applicable
Default Setting	Enabled - Always-on
Related Changes in This Release	Not Applicable
Related Documentation	<i>CPS Mobile Configuration Guide</i>

Table 6: Revision History

Revision Details	Release
First introduced	19.3.0

Feature Description

CPS now has the ability to add multiple services in single CDR/EDR field when subscriber has multiple services assigned.

When reporting event is triggered based on the conditions, application collects all the available services that are configured to the subscriber, and are added to the CDR/EDR reporting data.

For example, let us consider Subscriber A is assigned two services S1 and S2. Now, if you configure Policy CDR/EDRs with column having multiple service codes, so when CDR/EDR for Subscriber A is written, S1 and S2 must be a part of that CDR/EDR separated by delimiter defined in `qns.conf` file.

A new `qns.conf` file parameter `serviceCodeSeparator` has been added. This parameter is used to separate multiple service codes in CDR/EDR. The value is used as a delimiter to separate service codes. This parameter is optional. If it is not configured in `qns.conf` file, the default value semicolon (;) is used.

Contact your Cisco Account representative for information on parameters in the `qns.conf` file.



Note In case both `serviceCodeSeparator` and CSV separator in Policy Builder are same, the application uses the "%" for `serviceCodeSeparator`.

Configuration

To support this, default column, `serviceCodeList` has been added for service code list under PCRF component.

Policy Reporting Field Type (Read Only)

Name: PCRF

*Code	*Db Field Name	*Db Type	*Precision
nasId	nas_id	VARCHAR	30
service	service	VARCHAR	30
serviceCode	service_code	VARCHAR	60
userDomainInfo	USER_DOMAIN_INFO	VARCHAR	60
userName	user_name	VARCHAR	60
serviceCodeList	service_code_list	VARCHAR	60

Actions: [Current Policy Reporting Field Type](#)

Select serviceCodeList from your custom Policy CDR.

Policy Cdr

*Name: Test_1, *Table Name: Test_1, *Version: 1

*Code	Time Limit	Usage Limit	Usage Field	Changed Cdr Key	*Session Close

Reporting Cdr Columns

Code	Cdr Field Type	Type	Export Field	Default Value	Format
MSISDN	Data	key	✓		
SessionId	Data	set	✓		
serviceCodeList	Data	set	✓		
serviceCode	Data	set	✓		

Select serviceCodeList as data for the column you have added under Reporting Column Details

Copy:
Current Policy Cdr

Reporting Cdr Columns

Code	Cdr Field Type	Type	Export Field	Default Value	Format
MSISDN	Data	key	<input checked="" type="checkbox"/>		
SessionId	Data	set	<input checked="" type="checkbox"/>		
serviceCodeList	Data	set	<input checked="" type="checkbox"/>		
serviceCode	Data	set	<input checked="" type="checkbox"/>		

Reporting Column Details

Value Translations

From	To

Literal
Value

SessionAvp
Avp Code

System
Field: recordStartTime

Data
Precision:
Scale:
Field: serviceCodeList (select clear)

Example: Custom policy change configurations are given below:

Configure custom table under Policy Reporting Field Types.

Systems

- Account Balance Templates
- Custom Reference Data Tables
- Diameter Agents
- Diameter Clients
- Diameter Defaults
- Fault List
- Ldap Server Sets
- Notifications
- Policy Enforcement Points
- Policy Reporting**
 - Summary
 - Policy Reporting Field Types
 - ANDSF (Read Only)
 - NETWORK (Read Only)
 - TRAFFIC (Read Only)
 - EVENT (Read Only)
 - PCRF (Read Only)
 - SUBSCRIBER (Read Only)
 - BALANCE (Read Only)
 - SESSION (Read Only)
 - Test
 - TIM

Policy Reporting Field Type

Name
Test

Policy Reporting Fields

*Code	*Db Field Name	*Db Type	*Precision
SessionId	SessionId	VARCHAR	0
MSISDN	MSISDN	VARCHAR	0
service	service	VARCHAR	0
serviceCodes	serviceCodes	VARCHAR	0

Actions
Copy:
[Current Policy Reporting Field Type](#)

Add column name in configured policy CDR.

Copy:
Current Policy Cdr

Reporting Cdr Columns

Code	Cdr Field Type	Type	Export Field	Default Value	Format
MSISDN	Data	key	<input checked="" type="checkbox"/>		
SessionId	Data	set	<input checked="" type="checkbox"/>		
serviceCodeList	Data	set	<input checked="" type="checkbox"/>		
serviceCode	Data	set	<input checked="" type="checkbox"/>		

Reporting Column Details

Value Translations

From	To

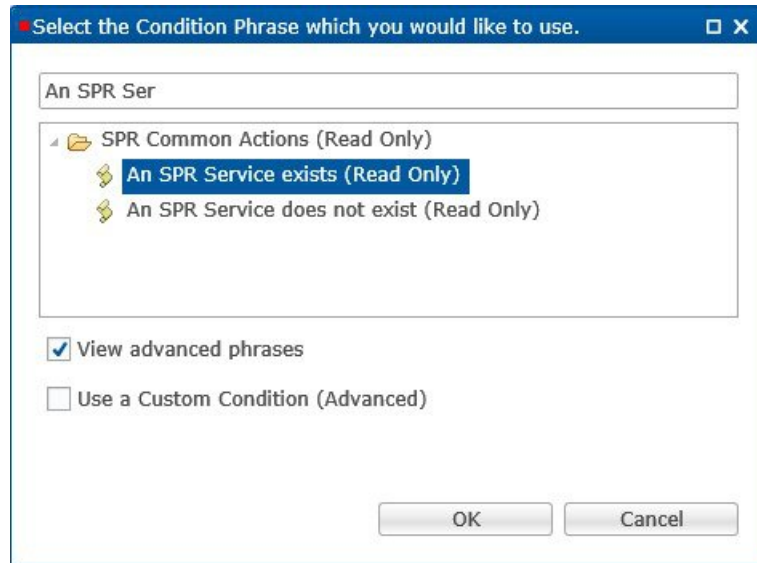
Literal
Value

SessionAvp
Avp Code

System
Field: recordStartTime

Data
Precision:
Scale:
Field: serviceCode (select clear)

Go to the **Policies** tab and configure the policy. Add **An SPR Service exists** condition and you can see **serviceCodes**-- a newly added field as highlighted. To select **An SPR Service exists** condition, you need to select the **View advanced phrases** check box.



A reporting state exists is a compulsory condition. Select **A Diameter Gx TGPP Session exists** if you want to track the Diameter session.

Go to **Actions** tab and give a name (identifier), in this case **serviceCodes** is configured, then select the output as **serviceCodes**.



Note The name configured in policy must be same as in the policy CDR column name and the policy CDR field type.

Policy

*Name: ReportingTest Copy: Current Policy Move: Reparent

Conditions | **Actions** | Advanced

Actions

Executed when all conditions are true.

Name: Add reporting data

Add Remove Up Down

Input Variables (AND Together)	Type	Operator	Value	Required
IReportingState (IReportingState)*	Output	default	IReportingState (A reporting state exists)	Required
Name (String)*	Literal	default	serviceCodes	Required
Value (Object)*	Output	default	Service Codes (An SPR Service exists)	Required

Available Input Variables -

[Add All](#)

[Add](#) Reporting Scope (Object)



Note In the fresh installation or upgrade, multiple service CDR/EDR feature is enabled by default.

Display List of Active Alarms under diagnostics

In earlier releases, for outbound peers, if peers were down, the alarm was not displayed in active alarm list when CPS comes UP. Also, `diagnostics.sh` output did not display any WARN message for peer down.

In CPS 19.3.0:

- Peer down alarm is seen in active alarms list when CPS comes UP even if the peer is not connected. The alarm is displayed till the peer comes UP.
- Peer down WARN messages is displayed in `diagnostics.sh` output for each host if peer is not connected. This gets cleared when peer comes UP.

```
Retrieving diagnostics from lb01:9048...[WARN]
-----
[WARN]: InterfaceID=site-server2.com;msg="3002:Realm: site-server2.com:applicationId: 7:all
peers are down"
[WARN]: InterfaceID=site-server.com;msg="3002:Realm: site-server.com:applicationId:
16777217:all peers are down"
[WARN]: InterfaceID=site-server1.com;msg="3002:Realm: site-server1.com:applicationId: 7:all
peers are down"
CLEARED: Session creation is allowed
[WARN]: Using Developer mode(100 session limit).To use a license file, remove
-Dcom.broadhop.developer.mode from /etc/broadhop/qns.conf
```

```

CLEARED: InterfaceID=lb01;msg="Memcached server is operational"
CLEARED: InterfaceID=com.broadhop.server:lb01;msg="Feature com.broadhop.server is Running"
CLEARED: InterfaceID=com.broadhop.snmp:lb01;msg="Feature com.broadhop.snmp is Running"
CLEARED: InterfaceID=com.broadhop.common.service:lb01;msg="Feature com.broadhop.common.service
is Running"
CLEARED: InterfaceID=com.broadhop.resourcemonitor:lb01;msg="Feature
com.broadhop.resourcemonitor is Running"
CLEARED: InterfaceID=com.broadhop.diameter2.endpoint:lb01;msg="Feature
com.broadhop.diameter2.endpoint is Running"

```

Report Timestamp to the Millisecond in the Subscriber Trace Output Logs

In earlier releases, time stamp was stored in the `policy_trace` database in “Thu Feb 01 2018 06:24:41 GMT +0000 (UTC)” format and the output of `trace.sh` contains the same format and does not contain milliseconds. There is no time stamp for Diameter Message in Engine Logs and Subscriber Policy Trace logs.

Old format:

```

site1-qns01 [2019-06-05 22:44:15,596] =====
POLICY RESULT SUCCESS:
    session action = None
    domainId = Consumer
    locationId = Consumer
    SERVICES: Consumer
    TRIGGER: com.broadhop.cache.BulkSessionTerminate@6172cf69
    DEBUG MSGS:
        INFO : (core) Successful load by primary key:
null:diameterSessionKey:healthCheckHost.
healthCheckRealm%253B1523905102%253B10954%253B5ad74d5d-3284431520055
        INFO : (core) Stop session triggered
        INFO : (ext-profile) Adding sub attribute BillingPlanCode value =
_NOT_PRESENT_
        INFO : (ext-profile) Adding sub attribute Entitlement value = _NOT_PRESENT_
        INFO : (ext-profile) Adding sub attribute 4GPFO value = _NOT_PRESENT_
        INFO : (ext-profile) Adding sub attribute 4GThrPFO value = _NOT_PRESENT_
        INFO : (ext-profile) Adding sub attribute USG value = _NOT_PRESENT_

```

In CPS 19.3.0, the time stamp format has been changed to milliseconds in the `policy_trace` database and `trace.sh`, similar to Policy Server (QNS) and Engine logs. Time stamp has also been added for each Diameter Message in the Engine Logs and in the Subscriber Policy Trace logs.

New format:

```

2019-05-20 11:38:08,848] =====
POLICY RESULT SUCCESS:
    session action = Create
    credential = 311480635916136
    domainId = Consumer
    locationId = Consumer
    SERVICES: Consumer
    TRIGGER: Message: com.broadhop.diameter2.messages.DiameterRequestMessage
        Timestamp: 2019-05-20 11:38:05,809
        Application Id: Gx (16777238)
        Command Code: Gx_CCR-I (272)
        Dest host: cisco-pcrf-gx
        Dest realm: vzimstest.com
        Device protocol: GX_TGPP

```


Support for CSG Event Notifications

Feature Summary and Revision History

Table 7: Summary Data

Applicable Product(s) or Functional Area	CPS
Applicable Platform(s)	Not Applicable
Default Setting	Enabled - Always-on
Related Changes in This Release	Not Applicable
Related Documentation	Contact your Cisco Account representative

Table 8: Revision History

Revision Details	Release
First introduced	19.3.0

Feature Description

CPS has been enhanced to provide closed subscriber group (CSG) reporting on the Gx Interface. Exchange of the CSG-Information-Reporting AVP on the Sd interface is not available.

CSGReporting is used for reporting only addresses through AVP exchange on the Gx interface between the PCEF and PCRF.

The following service configuration object is introduced.

Table 9: CSGReporting Parameters

Parameter	Description
Priority	The priority of the message for processing. The higher the number, the higher the priority. Default value is 0.
Diameter Client	The client configuration is used to apply different policies based on PCEF type. To filter a service based on the Diameter client, specify which Diameter client you want the service to be applied to. Diameter clients are configured in the Reference Data > Diameter Clients > Diameter Clients section of the interface. This parameter is optional.

Parameter	Description
CSG-Information-Reporting AVP value	AVP values are 0, 1, or 2. 0 = CHANGE_CSG_CELL 1 = CHANGE_CSG_SUBSCRIBED_HYBRID_CELL 2 = CHANGE_CSG_UNSUBSCRIBED_HYBRID_CELL

Support for Multiple User Login Privileges

Feature Summary and Revision History

Table 10: Summary Data

Applicable Product(s) or Functional Area	CPS
Applicable Platform(s)	Not Applicable
Default Setting	Enabled - Always-on
Related Changes in This Release	Not Applicable
Related Documentation	Contact your Cisco Account representative

Table 11: Revision History

Revision Details	Release
First introduced	19.3.0

Feature Description

CPS now supports multiple user login credentials with different privileges for all non-cluman vms. CPS is integrated with TACACS for CLI and in TACACS server able to create user, assign or restrict roles for all non-cluman VMs.

The following table describes CSV based configuration parameters.

Table 12: Configuration Parameters

Parameter	Description
allow_user_for_cluman	Used to update the /etc/sudoers with CPS entries on cluman. Default value is False. Possible values are True or False.

Parameter	Description
tacacs_on_ui	This parameter is used to enable the TACACS+ authentication for Policy Builder and Control Center. Default value is False. Possible values are True or False.

For more information, see the following sections:

- *General Configuration in CPS Installation Guide for VMware*
- *Accessing the Policy Builder in CPS Mobile Configuration Guide*
- *Control Center Access in CPS Operations Guide*

