



## **CPS Release Change Reference, Release 19.3.0 (2)**

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## Preface

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## About This Guide

This document is a part of the Cisco Policy Suite documentation set.

For information about available documentation, see the *CPS Documentation Map* for this release at [Cisco.com](https://www.cisco.com).

## Audience

This guide is best used by these readers:

- Network administrators
- Network engineers
- Network operators
- System administrators

This document assumes a general understanding of network architecture, configuration, and operations.

## Additional Support

For further documentation and support:

- Contact your Cisco Systems, Inc. technical representative.
- Call the Cisco Systems, Inc. technical support number.
- Write to Cisco Systems, Inc. at [support@cisco.com](mailto:support@cisco.com).

- Refer to support matrix at <https://www.cisco.com/c/en/us/support/index.html> and to other documents related to Cisco Policy Suite.

## Conventions (all documentation)

This document uses the following conventions.

Conventions	Indication
<b>bold</b> font	Commands and keywords and user-entered text appear in <b>bold</b> font.
<i>italic</i> font	Document titles, new or emphasized terms, and arguments for which you supply values are in <i>italic</i> font.
[ ]	Elements in square brackets are optional.
{x   y   z }	Required alternative keywords are grouped in braces and separated by vertical bars.
[ x   y   z ]	Optional alternative keywords are grouped in brackets and separated by vertical bars.
string	A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.
courier font	Terminal sessions and information the system displays appear in courier font.
<>	Nonprinting characters such as passwords are in angle brackets.
[ ]	Default responses to system prompts are in square brackets.
!, #	An exclamation point (!) or a pound sign (#) at the beginning of a line of code indicates a comment line.




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### Note

Means reader take note. Notes contain helpful suggestions or references to material not covered in the manual.

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### Caution

Means reader be careful. In this situation, you might perform an action that could result in equipment damage or loss of data.

---



**Warning****IMPORTANT SAFETY INSTRUCTIONS.**

Means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device.

SAVE THESE INSTRUCTIONS

**Note**

Regulatory: Provided for additional information and to comply with regulatory and customer requirements.

## Communications, Services, and Additional Information

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- To get the business impact you're looking for with the technologies that matter, visit [Cisco Services](#).
- To submit a service request, visit [Cisco Support](#).
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- To find warranty information for a specific product or product family, access [Cisco Warranty Finder](#).

### Cisco Bug Search Tool

[Cisco Bug Search Tool](#) (BST) is a web-based tool that acts as a gateway to the Cisco bug tracking system that maintains a comprehensive list of defects and vulnerabilities in Cisco products and software. BST provides you with detailed defect information about your products and software.

## Important Notes

**Important**

Any feature or GUI functionality that is not documented may not be supported in this release or may be customer specific, and must not be used without consulting your Cisco Account representative.





# CHAPTER 1

## 19.3.0 Features and Changes

- [19.3.0 Features and Changes, on page 1](#)

### 19.3.0 Features and Changes

Features/Behavior Changes	Applicable Product(s)/ Functional Area	Release Introduced/ Modified
<a href="#">Additional Dynamic Provisioning Parameters, on page 13</a>	CPS	CPS 19.3.0
<a href="#">Bill Cycle per Quota, on page 14</a>	CPS	CPS 19.3.0
<a href="#">CDRs when Multiple Services Configured, on page 15</a>	CPS	CPS 19.3.0
<a href="#">Display List of Active Alarms under diagnostics, on page 19</a>	CPS	CPS 19.3.0
<a href="#">Enhancement to Display the ISO Version on the GUI, on page 43</a>	CPS	CPS 19.3.0
<a href="#">Policy Builder Enhancements, on page 44</a>	CPS	CPS 19.3.0
<a href="#">PSB Requirements Support for CPS Platform, on page 39</a>	CPS	CPS 19.3.0
<a href="#">Replica-set Status of All Members, on page 31</a>	CPS	CPS 19.3.0
<a href="#">Report Timestamp to the Millisecond in the Subscriber Trace Output Logs, on page 20</a>	CPS	CPS 19.3.0
<a href="#">Support for Advanced Request Sending Options, on page 5</a>	ATS	CPS 19.3.0
<a href="#">Support for CentOS 7.6 version, on page 35</a>	CPS	CPS 19.3.0

<b>Features/Behavior Changes</b>	<b>Applicable Product(s)/ Functional Area</b>	<b>Release Introduced/ Modified</b>
<a href="#">Support for Conditional LFS Message Stubbing, on page 6</a>	ATS	CPS 19.3.0
<a href="#">Support for CSG Event Notifications, on page 21</a>	CPS	CPS 19.3.0
<a href="#">Support for Multiple User Login Privileges, on page 22</a>	CPS	CPS 19.3.0
<a href="#">Support for Regular Expressions, on page 7</a>	ATS	CPS 19.3.0



## CHAPTER 2

# ANDSF

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- [ANDSF](#), on page 3

## ANDSF

No new features or changes were introduced in this release.





## CHAPTER 3

# ATS

- [Support for Advanced Request Sending Options, on page 5](#)
- [Support for Conditional LFS Message Stubbing, on page 6](#)
- [Support for Regular Expressions, on page 7](#)

## Support for Advanced Request Sending Options

### Feature Summary and Revision History

**Table 1: Summary Data**

Applicable Product(s) or Functional Area	ATS
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 2: Revision History**

Revision Details	Release
First introduced	19.3.0

### Feature Description

ATS now supports advanced request sending options as follows:

- REST sends synchronous and asynchronous requests without using a message reference.
- Utilizing dynamic rule values in URI of the REST request: The support is provided to use the Rules on Request URI of any load profile transactions. To use the rule value, the following value can be provided in the load testing REST send grammars.

{RULE.Rulename}



**Restriction** Currently, REST requests are supported.  
 Deprecated grammars do not support this feature. This feature is supported only for new grammar with the transaction.

---

For more information, contact your Cisco Account representative.

# Support for Conditional LFS Message Stubbing

## Feature Summary and Revision History

**Table 3: Summary Data**

Applicable Product(s) or Functional Area	ATS
Applicable Platform(s)	Not Applicable
Default Setting	Enabled – Configuration Required
Related Changes in This Release	Not Applicable
Related Documentation	Contact your Cisco Account representative

**Table 4: Revision History**

Revision Details	Release
First introduced	19.3.0

## Feature Description

ATS now provides support for conditional LFS Message Stubbing.

Details of the implementation on how specific steps from a feature file can be stubbed based on the criteria provided in the message bundle and config properties is captured in the *CPS Automation Testing Grammar Reference*.

The feature provides the following advantages:

- Specific steps of a complex call flow can be skipped easily with a change in the configuration and message bundle.
- If a transaction is skipped then its corresponding validation is skipped automatically.
- Skipping of step is also applicable where duplicate transaction ID is used.
- This feature also works for external feature file.





**Restriction**

Currently, this feature is available for LFS driver.

The skipping of the steps is currently only based on two parameter: InterfaceType and NodeName.

Skip is not supported if dynamic message filter is provided in the asynchronous call.

**Configuration**

To enable this feature, following properties needs to be added in the config properties file:

- **InterfaceType:** <LFSInstanceName>.InterfaceType.Skip=<Comma separated interface names>

**Example:**

```
LFS.Instance.Names=LFSInstance01
LFSInstance01.InterfaceType.Skip=N1, N2
```

- **NodeName:** <LFSInstanceName>.NodeName.Skip=<Comma separated node names>

**Example:**

```
LFS.Instance.Names=LFSInstance01
LFSInstance01.NodeName.Skip=amf1, amf2
```

For more information, contact your Cisco Account representative.

# Support for Regular Expressions

**Feature Summary and Revision History**

*Table 5: Summary Data*

Applicable Product(s) or Functional Area	ATS
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 6: Revision History*

Revision Details	Release
First introduced	19.3.0

### Feature Description

ATS now provides support for the usage of regular expressions in the array when an LFS message contains multiple similar pattern entries. The following operations can be performed:

- Filtering pattern-based array element using the regular expression.
- Predicate now supports multiple conditions.
- Both '&&' and '||' is now supported in the predicate filtering.

The '&&' operator can be applied when multiple conditions are to be satisfied while filtering the predicate.

The '||' operator can be applied when any of the multiple conditions are to be satisfied while filtering the predicate.



---

**Note** While using the '||' operator in the feature file it needs to be added with an escape character such as, \\|

---



---

**Restriction** Parenthesis are not supported within the predicate to group multiple conditions.

Multiple conditions are sequential.

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For more information, contact your Cisco Account representative.



## CHAPTER 4

# Geographic Redundancy

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- [Geographic Redundancy, on page 9](#)

## Geographic Redundancy

No new features or changes were introduced in this release.





## CHAPTER 5

### LWR

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- [LWR, on page 11](#)

### LWR

No new features or changes were introduced in this release.





## CHAPTER 6

# Mobile

- [Additional Dynamic Provisioning Parameters, on page 13](#)
- [Bill Cycle per Quota, on page 14](#)
- [CDRs when Multiple Services Configured, on page 15](#)
- [Display List of Active Alarms under diagnostics, on page 19](#)
- [Report Timestamp to the Millisecond in the Subscriber Trace Output Logs, on page 20](#)
- [Support for CSG Event Notifications, on page 21](#)
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## Additional Dynamic Provisioning Parameters

### Feature Summary and Revision History

**Table 7: 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 8: 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 9: 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 10: 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 11: 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 12: 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

**Policy Reporting Fields**

*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

**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

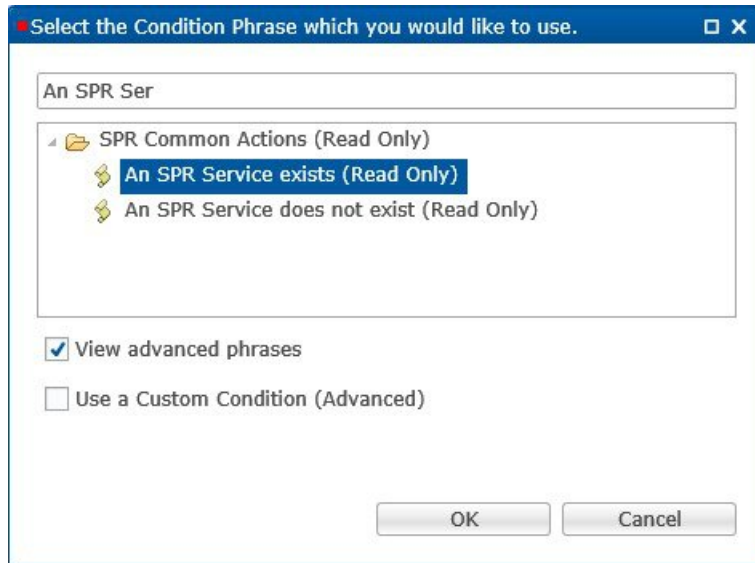
**Literal**  
Value

**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.

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



**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 13: 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 14: 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 15: 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 <b>Reference Data &gt; Diameter Clients &gt; Diameter Clients</b> 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 16: 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 17: 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 18: 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*





## CHAPTER 7

# MOG

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- [MOG, on page 25](#)

# MOG

No new features or changes were introduced in this release.





## CHAPTER 8

# Operations

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- [API Additions or Changes, on page 27](#)
- [MIB Additions or Changes, on page 27](#)
- [KPI Additions or Changes, on page 27](#)
- [Log Additions or Changes, on page 27](#)
- [SNMP Alarm Additions or Changes, on page 27](#)
- [Statistics Additions or Changes, on page 27](#)

## API Additions or Changes

No changes were introduced in this release.

## MIB Additions or Changes

No changes were introduced in this release.

## KPI Additions or Changes

No changes were introduced in this release.

## Log Additions or Changes

## SNMP Alarm Additions or Changes

No changes were introduced in this release.

## Statistics Additions or Changes

No changes were introduced in this release.





## CHAPTER 9

# Performance Improvement

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- [Performance Improvement, on page 29](#)

## Performance Improvement

No new features or changes were introduced in this release.







# CHAPTER 10

## Platform

- [Replica-set Status of All Members](#), on page 31

## Replica-set Status of All Members

### Feature Summary and Revision History

**Table 19: 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	CPS Operations Guide

**Table 20: Revision History**

Revision Details	Release
First introduced	19.3.0

### Feature Description

CPS now provides the status from all the defined members of replica-set instead of only first ONLINE member using `diagnostics.sh --get_replica_status` command.

- If there is no issue in connectivity or network then replica-set status looks like:

```

|-----|
|-----|
| SESSION:set01
|
| Status via arbitervip:27717 sessionmgr01:27717 sessionmgr02:27717
|
| Member-1 - 27717 : 221.1.1.38 - SECONDARY - sessionmgr02

```

```

- ON-LINE - 0 sec - 2 |
| Member-2 - 27717 : 221.1.1.37 - PRIMARY - sessionmgr01
- ON-LINE - ----- - 3 |
| Member-3 - 27717 : 221.1.1.40 - ARBITER - arbitervip
- ON-LINE - ----- - 0 |
|-----|
|-----|

```



**Note** Two horizontal line separators are added between different members of replica sets.

- If there is an issue in connectivity or network then replica-set status looks like:

```

|-----|
|-----|
| SESSION:set07
|
| Status via arbitervip:27727 sessionmgr01:27727
|
| Member-1 - 27727 : 221.1.1.37 - SECONDARY - sessionmgr01
- ON-LINE - 0 sec - 2 |
| Member-2 - 27727 : 221.1.1.38 - PRIMARY - sessionmgr02
- ON-LINE - ----- - 3 |
| Member-3 - 27727 : 221.1.1.40 - ARBITER - arbitervip
- ON-LINE - ----- - 0 |
| Member-4 - 27727 : 221.1.1.59 - UNKNOWN - sessionmgr03
- OFF-LINE - 0 sec - 1 |
| Member-5 - 27727 : 221.1.1.60 - UNKNOWN - sessionmgr04
- OFF-LINE - 18015 days - 1 |
|-----|
| Status via sessionmgr02:27727 sessionmgr03:27727
|
| Member-1 - 27727 : 221.1.1.37 - SECONDARY - sessionmgr01
- ON-LINE - 0 sec - 2 |
| Member-2 - 27727 : 221.1.1.38 - PRIMARY - sessionmgr02
- ON-LINE - ----- - 3 |
| Member-3 - 27727 : 221.1.1.40 - ARBITER - arbitervip
- ON-LINE - ----- - 0 |
| Member-4 - 27727 : 221.1.1.59 - SECONDARY - sessionmgr03
- ON-LINE - 0 sec - 1 |
| Member-5 - 27727 : 221.1.1.60 - UNKNOWN - sessionmgr04
- OFF-LINE - 18015 days - 1 |
|-----|
| Status via sessionmgr04:27727 sessionmgr05:27727
|
| Mongoddb Daemon or Host is down
|
|-----|

```



**Note** One horizontal line separator is added between different members of replica-set.

For more information, see *diagnostics.sh* section in the *CPS Operations Guide*.



## CHAPTER 11

# Policy Reporting

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- [Policy Reporting](#), on page 33

## Policy Reporting

No new features or changes were introduced in this release.





# CHAPTER 12

## Product Security

- [Support for CentOS 7.6 version, on page 35](#)

### Support for CentOS 7.6 version

#### Feature Summary and Revision History

**Table 21: Summary Data**

Applicable Product(s) or Functional Area	CPS
Applicable Platform(s)	-
Default Setting	Not Applicable
Related Changes in This Release	Not Applicable
Related Documentation	Not Applicable

**Table 22: Revision History**

Revision Details	Release
CentOS upgraded to 7.6 (1810) Kernel upgraded to 3.10.0-957.10.1.el7	19.3.0
Kernel upgraded to 3.10.0-957.5.1.el7	19.2.0
Kernel upgraded to 3.10.0-957.el7	19.1.0
First introduced: kernel upgraded to 3.10.0-862.14.4.el7.x86_64	18.5.0

## Feature Description

CPS now extends support for CentOS version 7.6 (1810) with the kernel upgraded to 3.10.0-957.10.1.el7 version. The CPS packages have been upgraded to be compatible with the updated CentOS version. With this support, CPS is integrated with a more secure and reliable platform.

For service related issues, you can use `journalctl` to get `systemctl` logs.

The following tables list the vulnerabilities that have been fixed as a part of this release:

**Table 23: Cisco Internal Alert Manager (CIAM) CVEs**

CVE	Name
CVE-2013-4458	GNU glibc getaddrinfo Function Stack Overflow Vulnerability
CVE-2013-1914	GNU glibc getaddrinfo() Function Stack Memory Exhaustion Vulnerability
CVE-2013-4332	GNU glibc Memory Allocation Functions Heap-Based Buffer Overflow Vulnerability
CVE-2013-0242	GNU glibc Regular Expression Matching Routines Denial of Service Vulnerability
CVE-2013-4237	GNU glibc readdir_r() Function Buffer Overflow Vulnerability
CVE-2018-1088	Glusterfs Snapshot Scheduler Privilege Escalation Vulnerability
CVE-2018-5407	Computing Processor PortSmash Side-Channel Information Disclosure Vulnerability
CVE-2018-1086	ClusterLabs pcs Debug Parameter Removal Bypass Information Disclosure Vulnerability
CVE-2018-10852	SSSD UNIX Pipe Information Disclosure Vulnerability
CVE-2018-18559	Linux Kernel Use-After-Free Race Condition Vulnerability
CVE-2018-18397	Linux Kernel userfaultfd Implementation Unauthorized Access Vulnerability
CVE-2018-14646	Linux Kernel __netlink_ns_capable() Function NULL Pointer Dereference Denial of Service Vulnerability
CVE-2018-17972	Linux Kernel proc_pid_stack() Function Kernel Task Stack Contents Disclosure Vulnerability
CVE-2018-14633	Linux Kernel chap_server_compute_md5() Stack Buffer Overflow Denial of Service Vulnerability

**Table 24: Nessus CVEs**

CVE	Name
CVE-2019-6454	CentOS 7 : systemd (CESA-2019:0368)
CVE-2018-9568	CentOS 7 : kernel (CESA-2019:0512)
CVE-2018-18445	CentOS 7 : kernel (CESA-2019:0512)
CVE-2018-17972	CentOS 7 : kernel (CESA-2019:0512)

*Table 25: CentOS 7 CVEs*

<b>CVE</b>	<b>Name</b>
CVE-2004-2761	CentOS 7 : polkit (CESA-2019:0230)
CVE-2018-5407	CentOS 7 : openssl (CESA-2019:0483)







# CHAPTER 13

## Security Enhancements

- [Security Enhancements](#), on page 39

### Security Enhancements

This section lists enhancements introduced to support Cisco Product Security Requirements and the Product Security Baseline (PSB). For more information about Cisco Product Security Requirements, refer to: <https://www.cisco.com/c/en/us/about/security-center/security-programs/secure-development-lifecycle/sdl-process.html>

### PSB Requirements Support for CPS Platform

#### Feature Summary and Revision History

**Table 26: 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 27: Revision History**

Revision Details	Release
First introduced	19.3.0

#### Feature Description

CPS now provides passphrase generation. By following guidelines, you can create a passphrase/password, an alternative randomly generated passphrase is provided by passwdqc module where you can use that passphrase, or you can create your own.

Starting CPS 19.3.0 release:

- The administrative passphrase lifetime (`PASS_MAX_DAYS`) has been increased to 99999 from 60.
- Warn age (`PASS_WARN_AGE`) has been increased to 15 from 7.
- Minimum length (`PASS_MIN_LEN`) has been decreased to 4 from 8.

As the administrative passphrase lifetime is 99999, `PASS_WARN_AGE` parameter is not useful.

For more information, see *Update Default Credentials* section in *CPS Installation Guide for VMware*.



## CHAPTER 14

# UDC

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- [UDC, on page 41](#)

## UDC

No new features or changes were introduced in this release.



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**Note** When you upgrade/migrate or performing a fresh install for UDC setup, if required, you need to add the cluster ID in `/etc/broadhop/iomanager/qns_other.conf` file.

For example, `-Dcom.broadhop.run.clusterId=cluster-A`

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# CHAPTER 15

## UI Enhancements

- [Enhancement to Display the ISO Version on the GUI, on page 43](#)
- [Policy Builder Enhancements, on page 44](#)

### Enhancement to Display the ISO Version on the GUI

#### Feature Summary and Revision History

*Table 28: 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	Not Applicable

*Table 29: Revision History*

Revision Details	Release
First introduced	19.3.0

#### Feature Description

The **About** dialog box is now enhanced to provide information about the ISO version of the installed CPS.

To view the ISO version, do one of the following:

- On the Policy Builder interface, go to **Tools > About Policy Builder**. The **About Policy Builder** dialog box is displayed with the ISO information.
- On the Control Center interface, click **Help > About**. The **About Control Center** dialog box appears with the ISO details.

- On the CPS Central interface, click **Help > About**. The **CPS Central** dialog box is displayed with the installed ISO version.

## Policy Builder Enhancements

### Feature Summary and Revision History

**Table 30: 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 31: Revision History**

Revision Details	Release
First introduced	19.3.0

### Feature Description

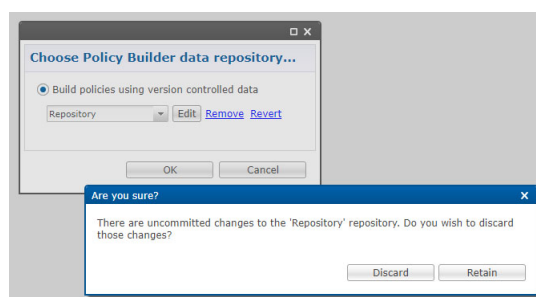
CPS now supports the following enhancements in Policy Builder:

- Configurable logout option has been added on the banner.



- Validation prompt during login - The prompt is presented only if there are uncommitted changes to the selected repository.

When you click OK button after Repository selection, you are presented with a validation prompt.



- When **Discard** is selected, the uncommitted changes are discarded.

- When **Retain** is selected, the uncommitted changes are retained.
- If the dialog box is dismissed without pressing a button (ESC key, close(x) icon), the uncommitted changes are retained.







## CHAPTER 16

### vDRA

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- [vDRA, on page 47](#)

### vDRA

In this release, vDRA is not supported. For more information, contact Cisco Technical representative.

