Cisco Policy Suite 18.1.0 Release Notes (Restricted Release) (1)

First Published: March 16, 2018

Last Updated: November 08, 2021

IMPORTANT: CPS 18.1.0 is a Short Term Support (STS) release with availability and use restrictions. Contact your Cisco Account or Support representatives, for more information.

Introduction

This release note identifies new features and enhancements, limitations and restrictions, and open and resolved CDETS in Cisco Policy Suite (CPS) software version 18.1.0. Use this release note in combination with the documentation listed in the Related Documentation section.

This release note includes the following sections:

New and Changed Feature Information

This section identifies features that are new or modified in this release.

ANDSF

No new features or changes were introduced in this release.

ATS

SITE IoT Protocol Support

PATS is now enhanced to support the following new grammars:

- CoAP Server Grammars
- CoAP Client Grammars
- MQTT Grammars

For more information, contact your *Cisco Technical Support Representative*.

Support to Verify Order of AVPs in Diameter Messages

PATS is now enhanced to support verification of AVPs in the order received in Diameter messages.

For more information, contact your *Cisco Technical Support Representative*.

Support for Conditional Grammar to Compare String Values

PATS is now enhanced to execute conditional branching and compare string values within a feature file.

For more information, contact your *Cisco Technical Support Representative*.

Support Multiple Simultaneous Gx_CCR-U Messages

PATS is now enhanced to allow multiple simultaneous Gx_CCR-U messages.

For more information, contact your *Cisco Technical Support Representative*.

Behavior Changes

CSCvh06134 – MongoDB has no authentication configured

Old Behavior: When db_authentication_enable was not configured in Configuration.csv (i.e. when there was no configuration for mongo authentication), the default authentication was disabled.

New Behavior: Users must now configure MongoDB authentication and the parameter cannot be left empty. To disable authentication, the database authentication parameter must be set to FALSE. To enable authentication, the parameter must be set to TRUE, and admin and read-only passwords must be set. This is applicable only for new installations and not for upgrades.

Impact on Customer: Users must configure the database authentication parameter for new installations whether they want to enable it or not.

CSCvh02680 – Cluster Manager has default root password

Old Behavior: There was no password change enforced while installing Cluster Manager.

New Behavior: During new Cluster Manager installation (not upgrade) on VMware, users are forced to change the password.

Impact on Customer: This behavior change has been introduced for additional security. Users must now change the Cluster Manager password during new installation on VMware, and installation does not proceed with the default password.

CSCvi04590 – lwr - deploy.sh should show all interface information

Old Behavior: All the interface IP details are not printed during the execution of deploy.sh for LWR VMs.

New Behavior: The following updates have been done for deploy.sh/deploy_all.py:

- Removed following console messages:

  found match in hosts file

  General Configuration

  VmSpecs

  VLANs

- Removed following network related information:

  Internal

  221.1.1.32

  VM Network

  255.255.255.0

  0

  Management <<- network

  122.1.1.32 <<- address

  VM Network <<- target name

  10.225.115.1 <<- gateway

  255.255.255.0 <<- mask

  1 <<- device

  Virtual machine directory: XXXX

- Removed following unwanted files:

  scripts/deployer/templates/seed.iso

  scripts/deployer/templates/user-data

migrate_primary script default priority change (US19004)

Old Behavior: By default, migrate_primary script was setting priority 0 for all the provided database members.

New Behavior: The default priority set by the migrate_primary script has been changed to 1 for all the provided database members.

Geographic Redundancy

Failover Time Enhancement

The subscriber impact for data calls (Gx only) has been reduced below 1 second for failures and recovery scenarios.

For more information on scenarios, see *Failover Time Improvement* section in *CPS Geographic Redundancy Guide*.

Mobile

IPv6 Binding Health Check

CPS can now initiate a message that results in querying the binding database of the DRA allowing the PCRF to take corrective action based on the response.

For more information, see the following sections in the *CPS Mobile Configuration Guide*:

- *PolicyDRA Health Check* under *Diameter Configuration*
- *BindingDbHealthCheck* under *RxClient Service Configuration Objects*

The following new statistics have been added:

- bindDB_CCRU_AAR: AAR sent for PolicyDRA binding database health check when CCR-U is received.
- bindDB_Periodic_AAR: AAR sent for PolicyDRA binding database health check after the feature timer expiry.
- bindDB_AAA_*<resultCode>*: AAA received from PolicyDRA with error result codes.
- bindDB_Rel_RAR: RAR sent to clear Gx session due to PolicyDRA binding database unavailability.

You can disable the feature for all the APNs using the following:

- From Policy Builder: The feature can be disabled by unchecking the Binding Db or PolicyDRA Health Check option from Diameter plugin configuration.
- From Control Center: The feature can be disabled in runtime without publishing pb-config to runtime environment using the Control Center.

Also, **Binding Not Available at Policy DRA** alarm has been added which is generated when IPv6 binding for the sessions is not found at PolicyDRA.

For more information, refer to:

- *Application Notifications* table in *CPS SNMP, Alarms, and Clearing Procedures Guide*
- *Clearing Procedures* chapter in *CPS SNMP, Alarms, and Clearing Procedures Guide*
- *Testing Traps Generated by CPS* in *CPS Troubleshooting Guide*

Support for Conditional APN Aggregate Max Bitrate Grouped AVP

CPS now supports a new attribute "ConditionalApnAggregateMaxBitrate" in DefaultBearerQoS service configuration object.

For more information, see *CPS Mobile Configuration Guide*.

Support for Extended-BW-NR

CPS now supports higher QoS values for 3GPP Rel-15 specs (TS29.212, TS29.214). For this, a new checkbox **Rel15 Ext Bw Nr Supported** is added under Diameter Configuration.

For more information, see *Diameter Configuration Parameters* table in *CPS Mobile Configuration Guide*.

Support for Multiple Simultaneous Gx_CCA-U Messages

When Gx features for OneGxRulePerFlow is enabled, the gateway triggers simultaneous Gx-CCR-Us for APPLICATION-START within a short time span. This causes a burst of CCR-U messages on CPS. Because of the burst, CPS fails to process all the CCR-U messages due to "cache out of date" errors and sends DIAMETER_UNABLE_TO_DELIVER errors to the gateway. In order to support processing all the CCR-U messages, **Message Buffering Configuration** can be used.

You can configure up to 128 endpoints sending simultaneous CCR-U without increasing the timeout settings elsewhere in the network. By default, for backward compatibility, the configuration is disabled.

The following new statistics have been added:

- message_buffer_*[App-Name]*_*[Cmd-Code]*_trigger: Number of times message buffering was triggered for Diameter messages with particular application-id and command-code.
- message_buffer_*[App-Name]*_*[Cmd-Code]*_exceed: Number of times message buffer exceeded the configured maximum buffer size.
- message_buffer_*[App-Name]*_*[Cmd-Code]*_drop_error_[Error-code]: Number of times messages from the message buffer were dropped due to a specific error response from Policy Server (qns) VM.
- message_buffer_*[App-Name]*_*[Cmd-Code]*_drop_terminate: Number of times message in message buffer was dropped because the session termination request was received.
- message_buffer_*[App-Name]*_*[Cmd-Code]*_messages_dropped: Number of times a hole was detected and messages were dropped from the message buffer.
- message_buffer_*[App-Name]*_*[Cmd-Code]*_drop_response_timeout: Number of times message in message buffer was dropped because of timeout while waiting for response message from Policy Server (qns) VM.
- message_buffer_*[App-Name]*_*[Cmd-Code]*_drop_empty_buffer: Number of times the message buffer was dropped/removed after all the messages in it were released for processing.
- message_buffer_*[App-Name]*_*[Cmd-Code]*_buffertimer_expired: Number of times the primary timer for processing the buffered message got expired for a message buffer.

- message_buffer_*[App-Name]*_*[Cmd-Code]*_earlytimer_expired: Number of times the early timer (for early processing the buffered message) got expired for a message buffer.
- message_buffer_*[App-Name]*_*[Cmd-Code]*_earlytimer_processing: Number of times processing of buffered message was started after early timer (default 5 ms) expiration.
- message_buffer_*[App-Name]*_*[Cmd-Code]*_buffertimer_processing: Number of times processing of buffered message was started after buffer timer expiration.
- message_buffer_*[App-Name]*_*[Cmd-Code]*_drop_bufferwait_timeout: Number of times the messages in message buffer were dropped because of buffer wait timeout.

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

Support for Processing In-Flight Messages

CPS now supports the following new parameters in the qns.conf file:

- stack.parallel.shutdown – Used to shut down all the stacks simultaneously.
- tcp.hold.timer.after.dpr – Used to indicate the amount of time (ms) TCP connection is held towards all the peers after sending/receiving DPR.

For more information, see *CPS Advanced Tuning Guide*.

Support for Sy Server

CPS now supports configuration of an OCS Sy Server to manage policy counters that map to a subscriber's account balance template in an OCS node deployment.

A new Diameter client "Sy Client" is supported under Diameter Clients in Policy Builder.

You need to apply the policy configuration to load an Sy session to a Gy session. The MSISDNkey and USuMSubscriberIdkey are used to correlate the Gy and Sy sessions.

For more information, see *CPS Mobile Configuration Guide*.

WPS Handling with Dynamic ARP

RxSTGConfiguration service configuration has been updated to support the following output AVPs that allow the dynamic value expression and their ranges to be defined:

- **Dynamic-QoS-ARP-Priority-Level (Mandatory if feature is to be enabled):** This AVP can be bound to the new dynamic expression Priority-Level column. If value is null/not configured, then the Dynamic QoS ARP feature is disabled. If the value is configured, it overrides the integer PL value (if configured). The dynamic PL expression is either expected to match the Java regular expression: ^[dD](\\s*([+-/*])\\s*([0-9]+))?$ or must be an offset value (of syntax: [+-][0-9]+). In case the value is provided in offset form, the "D" is implicit. Thus "+8" corresponds to "D+8" in expression form, "-5" corresponds to "D-5" and similarly, "0" corresponds to "D".

- **Dynamic-QoS-ARP-Priority-Level-Default (optional):** In case default bearer does not have a Priority-Level, this value is used as dedicated bearer PL. If the value is null/not configured, the default value (15) is used.
- **Dynamic-QoS-ARP-Priority-Level-Min (optional):** This output AVP provides upper/lower bound for the calculated PL value using the dynamic expression provided under Dynamic-QoS-ARP-Priority-Level. If the value is null/not configured, the default value (1) is used.
- **Dynamic-QoS-ARP-Priority-Level-Max (optional):** The upper end of the valid PL range. If the value is null/not configured, the default value (15) is used.
- **Dynamic-QoS-Update-On-Change (optional):** This AVP controls whether the Rx rules must be updated on change in the dynamic PL value (for example, due to change in default bearer PL value). If value is null/not configured, the Rx rules are not updated with new dynamic PL value once installed.

Note: Using the offset form may have minor performance gains as compared to full expression.

Note: Range limits are not applied for default dynamic values.

Note: Dynamic expression has an implicit "Enforce" QoS action. The Action column value is ignored.

Note: If dynamic expression configured for Priority-Level is invalid, CPS ignores the expression and does not include the ARP parameters (since PL is set as null) in the rule install. This is true even if absolute PL value is configured (absolute value is ignored).

The following new statistics have been added:

- Rx dedicated bearer counters: The following Rx counters are created only when Dynamic QoS PL value is configured:

  rx_dynamic_qos_<*Media-Type*>_<*dynamic_PL*>

  where,

  <*Media-Type*> is the media type name for the dedicated bearer being created (via rule install). For example, AUDIO, VIDEO and so on.

  <*dynamic_PL*> is the dynamic Priority-Level value calculated for the rule being installed.

- Gx default bearer counters: The following counter is created to track each default bearer QoS Priority-Level value. This is created irrespective of whether or not dynamic QoS is configured for Rx bearers.

  gx_default_qos_<*PL*>

  where,

  <*PL*> is the Priority-Level value for the default bearer.

LWR

CPS Light Weight Replication (CPS LWR) is new in Release 18.1.0, LWR provides a data replication layer.

IMPORTANT: In release 18.1.0, LWR is not fully qualified and is available only for testing purposes. For more information, contact your Cisco Account representative.

LWR Installation

LWR can be set up in the following environments:

- an existing CPS and UDC installation
- a fresh CPS installation

For more information, contact your Cisco Account representative.

LWR Replication Framework

LWR is a high-speed, persistent replication layer that provides replication of streams of data over Apache Kafka real-time streaming platform.

To more efficiently manage the creation and use of dedicated and default bearers, LWR provides the ability to replicate data: LWR provides a replication layer to slice the user profile and share the states and is located at the edge of each CPS clusters deployed in various datacenters. This helps achieve a faster indication of deletion of the bearers.

For more information, contact your Cisco Account representative.

LWR Statistics and Alarms

The following new LWR notifications are introduced to indicate Broker Server connection issues:

- BrokerServerDown
- AllBrokerServerDown

For more information, contact your Cisco Account representative.

LWR Producers and Consumers for inter-PCRF Messages

The LWR framework works on the Apache Kafka platform. Kafka runs as a cluster on one or more servers. Each cluster stores streams of records in categories called topics. Each record consists of a key, a value, and a timestamp. LWR Manager uses the LWR Producers and Consumers to send and receive replicated data over distributed messaging systems. You can configure the LWR Producer and Consumer in the Policy Builder.

For more information, contact your Cisco Account representative.

Application Level Changes in UDC

CPS is enhanced to support modification and update of attributes between UDC and QNS nodes when LWR is configured.

For more information, contact your Cisco Account representative.

LWR Orchestration API and GUI

LWR provides the following features:

- A new script has been added to start the Kafka servers for LWR across all clusters in a region.
- The New System Configuration in CPS Policy Builder is updated to configure LWR plugin.

For more information, contact your Cisco Account representative.

LWR Operations APIs

A new test API is included, LWR API Fetch Profile, that can get the current user profile stored in LWR.

For more information, contact your Cisco Account representative.

MOG

Support for Extended-BW-NR

A new flag **Rel15 Ext Bw Nr Supported** is added under Diameter Configuration. When this flag is enabled, MOG negotiates the Extended-Max-Requested-BW-NR feature in AAR request and sends corresponding feature bit in Supported-Features in Feature-List-Id 2.

For more information, see *Diameter Configuration* in *CPS MOG Guide*.

Also, the following retrievers have been added:

- Extended-APN-Aggregate-Max-Bitrate-UL Status retriever is added to get the Extended-APN-Aggregate-Max-Bitrate-UL status from RAR message received from PCRF. This field is visible when any column of a CRD table is bound to Session/Policy state field in Policy Builder.
- Extended-APN-Aggregate-Max-Bitrate-DL Status retriever is added to get the Extended-APN-Aggregate-Max-Bitrate-DL status from RAR message received from PCRF. This field is visible when any column of a CRD table is bound to Session/Policy state field in Policy Builder.

New extended AVPs have also been added. For more information, see the following sections in *CPS MOG Guide*:

- *CRD Configuration for DPCC-Status-Report*
- *Dynamic-PCC-Requested-QoS AVP*
- *Dynamic-PCC-Result*
- *Re-Auth-Request (RAR)*
- *Callback*
- *AAR*
- *RAR*

Operations

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

Enhanced diagnostics.sh Command to Display Diameter Peers

The diagnostics.sh command is enhanced to provide peer information.

For more information, see *CPS Operations Guide*.

SNMP Alarm Additions or Changes

IPv6 Binding Health Check

Binding Not Available at Policy DRA alarm has been added which is generated when IPv6 binding for the sessions is not found at PolicyDRA.

For more information, refer to:

- *Application Notifications* table in *CPS SNMP, Alarms, and Clearing Procedures Guide*
- *Clearing Procedures* chapter in *CPS SNMP, Alarms, and Clearing Procedures Guide*
- *Testing Traps Generated by CPS* in *CPS Troubleshooting Guide*

Statistics Additions or Changes

IPv6 Binding Health Check

The following new statistics have been added:

- bindDB_CCRU_AAR: AAR sent for PolicyDRA binding database health check when CCR-U is received.
- bindDB_Periodic_AAR: AAR sent for PolicyDRA binding database health check after the feature timer expiry.
- bindDB_AAA_*<resultCode>*: AAA received from PolicyDRA with error result codes.

- bindDB_Rel_RAR: RAR sent to clear Gx session due to PolicyDRA binding database unavailability.

Support for Multiple Simultaneous Gx_CCA-U Messages

The following new statistics have been added:

- message_buffer_*[App-Name]_[Cmd-Code]*_trigger: Count for number of times message buffering was triggered for the diameter messages with particular application-id and command-code.
- message_buffer_*[App-Name]_[Cmd-Code]*_exceed: Count the number of times message buffer exceeded the configured max buffer size.
- message_buffer_*[App-Name]_[Cmd-Code]*_drop_error_[Error-code]: Count the number of times messages from the message buffer were dropped due to a specific error response from Policy Server (qns) VM.
- message_buffer_*[App-Name]_[Cmd-Code]*_drop_terminate: Count the number of times message in message buffer were dropped because the session termination request was received.
- message_buffer_*[App-Name]_[Cmd-Code]*_messages_dropped: Count the number of times a hole was detected and messages were dropped from the message buffer.
- message_buffer_*[App-Name]_[Cmd-Code]*_drop_response_timeout: Count the number of times message in message buffer were dropped because of timeout while waiting for response message from Policy Server (qns) VM.
- message_buffer_*[App-Name]_[Cmd-Code]*_drop_empty_buffer: Count the number of times the message buffer is dropped/removed after all the messages in it are released for processing.
- message_buffer_*[App-Name]_[Cmd-Code]*_buffertimer_expired: Count the number of times the primary timer for processing the buffered message got expired for a message buffer.
- message_buffer_*[App-Name]_[Cmd-Code]*_earlytimer_expired: Count the number of times the early timer (for early processing the buffered message) got expired for a message buffer.
- message_buffer_*[App-Name]_[Cmd-Code]*_earlytimer_processing: Count the number of times processing of buffered message was started after early timer (default 5 ms) expiration.
- message_buffer_*[App-Name]_[Cmd-Code]*_buffertimer_processing: Processing of buffered message was started after buffer timer expiration.
- message_buffer_*[App-Name]_[Cmd-Code]*_drop_bufferwait_timeout: Count the number of time the messages in message buffer were dropped because of buffer wait timeout.

WPS Handling with Dynamic ARP

The following new statistics have been added:

- Rx dedicated bearer counters: The following Rx counters are created only when Dynamic QoS PL value is configured:

  rx_dynamic_qos_<*Media-Type*>_<*dynamic_PL*>

  where,

<*Media-Type*> is the media type name for the dedicated bearer being created (via rule install). For example, AUDIO, VIDEO and so on.

<*dynamic_PL*> is the dynamic Priority-Level value calculated for the rule being installed.

- Gx default bearer counters: The following counter is created to track each default bearer QoS Priority-Level value. This is created irrespective of whether dynamic QoS is configured for Rx bearers.

  gx_default_qos_<*PL*>

  where,

  <*PL*> is the value is the Priority-Level value for the default bearer.

LWR Statistics

The following new LWR statistics have been added:

Statistics	Description
node1.kafka-replication.gauge.kafka-underreplicated-partitions	Number of under-replicated partitions (| ISR | < | all replicas |). Alert, if value is greater than 0.
node1.kafka-partitions.gauge.kafka-offline-partitions-count	Number of partitions that do not have an active leader and are hence not writable or readable. Alert, if value is greater than 0.
node1.kafka-partitions.gauge.kafka-partition-count	Number of partitions on this broker. This should be mostly even across all brokers.
node1.kafka-leaders.gauge.kafka-leader-count	Number of leaders on this broker. This should be mostly even across all brokers. If not, set auto.leader.rebalance.enable to true on all brokers in the cluster.
node1.kafka-replication.gauge.kafka-max-lag	Maximum lag in messages between the follower and leader replicas. This is controlled by the replica.lag.max.messages config
node1.kafka-request-queue.gauge.kafka-request-queue-size	Size of the request queue. A congested request queue will not be able to process incoming or outgoing requests.
node1.kafka-broker-topic-metrics.BytesInPerSec.counter	Aggregate incoming byte rate.
node1.kafka-broker-topic-metrics.BytesOutPerSec	Aggregate outgoing byte rate.
node1.kafka-broker-topic-metrics.TotalProduceRequestsPerSec.counter	Produce request rate.
node1.kafka-broker-topic-metrics.TotalFetchRequestsPerSec.counter	Fetch request rate.

node1.kafka-broker-topic-metrics.FailedProduceRequestsPerSec.counter	Produce request rate for requests that failed.
node1.kafka-broker-topic-metrics.FailedFetchRequestsPerSec.counter	Fetch request rate for requests that failed.
node1.kafka-broker-topic-metrics.BytesRejectedPerSec.counter	Rate of rejected bytes.
node1.kafka-broker-topic-metrics.FetchMessageConversionsPerSec.counter	Fetch message down conversion rate.
node1.kafka-broker-topic-metrics.ProduceMessageConversionsPerSe.counter	Produce message down conversion rate.
node1.kafka-broker-topic-metrics.MessagesInPerSec.counter	Aggregate incoming message rate.
node1.kafka-broker-topic-metrics.ReplicationBytesInPerSec.counter	Incoming byte rate due to internal replication.
node1.kafka-broker-topic-metrics.ReplicationBytesOutPerSec.counter	Outgoing byte rate due to internal replication.
node1.kafka-network-request-metrics.RequestsPerSec.counter.request.FetchConsumer	Request rate for fetch consumer request.
node1.kafka-network-request-metrics.RequestsPerSec.counter.request.FetchFollower	Request rate for fetch follower request.
node1.kafka-network-request-metrics.RequestsPerSec.counter.request.Produce	Request rate for produce request.
node1.kafka-network-request-metrics.TotalTimeMs.counter.request.FetchConsumer	Total time in milliseconds to serve the fetch consumer request.

node1.kafka-network-request-metrics.TotalTimeMs.counter.request.FetchFollower	Total time in milliseconds to serve the fetch follower request.
node1.kafka-network-request-metrics.TotalTimeMs.counter.request.Produce	Total time in milliseconds to serve the produce request.
node1.kafka-network-request-metrics.RequestQueueTimeMs.counter.request.FetchConsumer	Time that the fetch consumer request waits in the request queue.
node1.kafka-network-request-metrics.RequestQueueTimeMs.counter.request.FetchFollower	Time that the fetch follower request waits in the request queue.
node1.kafka-network-request-metrics.RequestQueueTimeMs.counter.request.Produce	Time that the produce request waits in the request queue
node1.kafka-network-request-metrics.LocalTimeMs.counter.request.FetchConsumer	Time taken to process the fetch consumer request at the leader.
node1.kafka-network-request-metrics.LocalTimeMs.counter.request.FetchFollower	Time taken to process the fetch follower request at the leader.
node1.kafka-network-request-metrics.LocalTimeMs.counter.request.Produce	Time taken to process the produce request at the leader.
node1.kafka-network-request-metrics.RemoteTimeMs.counter.request.FetchConsumer	Time for which the fetch consumer request waits for the follower.
node1.kafka-network-request-metrics.RemoteTimeMs.counter.request.FetchFollower	Time that the fetch consumer request waits for the follower.
node1.kafka-network-request-metrics.RemoteTimeMs.counter.request.Produce	Time the produce request waits for the follower. This is non-zero for produce requests when acks is set to all

node1.kafka-network-request-metrics.ResponseQueueTimeMs.counter.request.FetchConsumer	Time the fetch consumer request waits in the response queue
node1.kafka-network-request-metrics.ResponseQueueTimeMs.counter.request.FetchFollower	Time the fetch follower request waits in the response queue
node1.kafka-network-request-metrics.ResponseQueueTimeMs.counter.request.Produce	Time the produce request waits in the response queue
node1.kafka-network-request-metrics.ResponseSendTimeMs.counter.request.FetchConsumer	Time taken to send the response for a fetch consumer request
node1.kafka-network-request-metrics.ResponseSendTimeMs.counter.request.FetchFollower	Time taken to send the response for a fetch follower request
node1.kafka-network-request-metrics.ResponseSendTimeMs.counter.request.Produce	Time taken to send the response for a produce request
node1.kafka-network-request-metrics.MessageConversionsTimeMs.counter.request.Produce	Time taken for down conversions for a produce request
node1.kafka-network-request-metrics.TemporaryMemoryBytes.counter.request.Produce	Temporary memory size for processing for a produce request
node1.kafka-zookeeper.counter.kafka-zookeeper-disconnects-per-sec	Zookeeper client is currently disconnected from the ensemble. The client lost its previous connection to a server and it is currently trying to reconnect. The session is not necessarily expired.
node1.kafka-zookeeper.counter.kafka-zookeeper-expires-per-sec	The ZooKeeper session has expired. When a session expires, we can have leader changes and even a new controller.
node1.counters.LWR_DATA_HIT_CACHE.qns_count	Count of subscribers information already present in Kafka broker
node1.counters.LWR_DATA_MISS_CACHE.qns_count	Count of subscriber information not present in Kafka broker

node1.counters.LWR_WRITE_DATA.qns_count	Counts write operations on Kafka through application
node1.actions.LwrGetDataAction.qns_stat.success	Number of successful requests from UDC to get LWR data
node1.actions.LwrGetDataAction.qns_stat.total_time_in_ms	Total time in milliseconds for request from UDC to get LWR data
node1.actions.LwrGetDataAction.qns_stat.avg	Average number of requests from UDC to get LWR data
node1.actions.LwrGetDataAction.qns_stat.error	Number of unsuccessful requests from UDC to get LWR data
node1.actions.IlwrWriteData.qns_stat.success	Number of successful requests from UDC to write LWR data
node1.actions.ILwrWriteData.qns_stat.total_time_in_ms	Total time in milliseconds for request from UDC to write LWR data
node1.actions.ILwrWriteData.qns_stat.avg	Average number of requests from UDC to write LWR data
node1.actions.ILwrWriteData.qns_stat.error	Number of unsuccessful requests from UDC to write LWR data

Platform

Policy Reporting

IP-CAN Session KPI

CPS can now export the session data in form of CDR records so that it can be processed to generate any kind of statistics such as, Session lifetime statistics.

Enhancements have been done to include the ability to write date fields as timestamps and expose Charging Rule Base Names (as part of Gx Session field) for use in CDR during session termination.

As a part of this enhancement, a new flag *Date Attributes As Timestamp* has been added. For more information, see *Replicate CSV* section in *CPS Policy Reporting Guide*.

Performance Improvement

With this feature implementation, full cluster/HA upgrade using **option#2** (Upgrade to different build within same release (eg: 1.0 build 310 to 1.0 build 311)) is supported. Also the time required to complete upgrade per cluster has been reduced to within 1 hour.

In-Service Upgrade Time Improvement

No new features or changes were introduced in this release.

Product Security

No new features or changes were introduced in this release.

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 Requirement Support for CPS 18.1.0

CPS now supports the following PSB requirements:

- Prevents Xpath manipulation
- Sanitizes untrusted HTML content
- Sanitizes sub-context in each HTML

UDC

No new features or changes were introduced in this release.

vDRA

Binding Key Flexibility

Using this feature, you can do the following:

- Binding Creation profiles are configurable on a per-APN basis.
- Binding lookup profiles are configurable based on Ingress Peer group (Origin Host/Origin Realm).
- Wildcard support for each parameter.

For more information, see the following sections in *CPS vDRA Configuration Guide*:

- *Binding Key Profile Read Map*
- *Binding Key Profile Creation Map*

DRA System and Mongo Timers

CLI command has been added to configure the mongo connection settings.

For more information, see binding *db-connection-settings* and *show running-config binding db-connection-settings* sections in *CPS vDRA Operations Guide*.

Shared Applications Across Multiple Peer Connections

vDRA Peer API is now enhanced to support multiple peer connections between a pair of peer FQDNs (local / remote).

The Peer API is used to view details of endpoints and peers. Previously, a peer connection could only support a single application. With this enhancement, vDRA supports:

- A single peer connection between a pair of endpoints can have multiple application IDs.
- Multiple peer connections between a pair of endpoints can have one or more application IDs.

This provides higher throughput without requiring more peer FQDNs. To support this enhancement, vDRA Peer API includes parame ters that are now arrays to support more than one value: applicationIds, ownIpAddresses, remoteIPAddress

For more information, see the *CPS vDRA Operations Guide*.

Datacenter-Aware IPv6 Sharding

DRA Binding now supports datacenter-aware IPv6sharding. The following new commands are introduced in this release for this feature:

- database cluster <db name> ipv6-zone-sharding true/false: Enable zone-based sharding for IPv6 database. When zone-based sharding is enabled on IPv6 database, hash-based sharding can still be configured on other databases.
- database cluster <db name> ipv6-zones-range <zone-name> zone-range <range-name> start <pool starting address> end <pool ending address>: Create a zone with a range of addresses. You can specify more than one range.
- database cluster <db name> shard <shard name> zone-name <zone-name>: Add a shard to the zone.

For more information, see the *CPS vDRA Operations Guide*.

UI Enhancements

Display Site Name in the CPS GUI

CPS now supports the display of hostname in the login dialog box and system banner of CPS GUIs (Policy Builder, Control Cente r, CPS Central and CPS DRA).

It indicates which system is being modified which helps to prevent errors or misconfigurations.

For more information, see the following guides:

- *CPS Mobile Configuration Guide*

- *CPS Central Administration Guide*
- *CPS vDRA Administration Guide*
- *CPS CCI Guide for Full Privilege Administrators*
- *CPS CCI Guide for View Only Administrators*

Support to Disconnect Active Peer Endpoints in CPS DRA

CPS DRA is now enhanced to support a facility to disconnect an active peer for admin users only.

The DRA Peer Monitoring page now provides a refresh option next to the toggle for active/inactive peer endpoints to refresh the table data.

For more information, see *CPS vDRA Administration Guide*.

Installation Notes

Download ISO Image

Download the 18.1.0 software package (ISO image) from:

https://software.cisco.com/download/release.html?i=!y&mdfid=284883882&softwareid=284979976&release=18.1.0&os

Md5sum Details

89bd8265cab7ba1976c3f4462eb3bf57	CPS_18.1.0_Base.qcow2.release.tar.gz
ed502909384f27680801a8d4f9acdcc6	CPS_18.1.0_Base.vmdk.release.tar.gz
413cfb9d2bdb21d9d624abe0aa84d9f1	CPS_18.1.0.release.iso
91416a612ec897453fea12e55b42a5be	CPS_Microservices_18.1.0_Base.release.qcow2
650cbb33e3100f24534eff973761b80f	CPS_Microservices_18.1.0_Base.release.vmdk
cd307d2a847e64a4ed8e86be6478ac6e	CPS_Microservices_18.1.0_Deployer.release.qcow2
aab8826b7b10a8f12618d549a344de4f	CPS_Microservices_18.1.0_Deployer.release.vmdk
0049b30b4a782a0a44c3bfb040f85a62	CPS_Microservices_DRA_18.1.0.release.iso
baec44e2fe2e323816f96b8dbdf32f43	CPS_Microservices_DRA_Binding_18.1.0.release.iso

Component Versions

The following table lists the component version details for this release.

Table 1 Component Versions

Component	Version
ANDSF	18.1.0.release
API router	18.1.0.release
Audit	18.1.0.release
Balance	18.1.0.release
Cisco API	18.1.0.release
Cisco CPAR	18.1.0.release
Congestion Reference Data	18.1.0.release
Control Center	18.1.0.release
Core	18.1.0.release
CSB	18.1.0.release
Custom Reference Data	18.1.0.release
DHCP	18.1.0.release
Diameter2	18.1.0.release
DRA	18.1.0.release
Entitlement	18.1.0.release
Fault Management	18.1.0.release
ISG Prepaid	18.1.0.release
LDAP	18.1.0.release
LDAP Server	18.1.0.release
LWR	18.1.0.release
Microservices Enablement	18.1.0.release
Notification	18.1.0.release
NSLB	18.1.0.release
Policy Intel	18.1.0.release
POP-3 Authentication	18.1.0.release
Recharge Wallet	18.1.0.release
SCEF	18.1.0.release
Scheduled Events	18.1.0.release
SPR	18.1.0.release
UDC	18.1.0.release
UDSC Interface	18.1.0.release

Component	Version
Unified API	18.1.0.release

New Installations

- VMware Environment
- OpenStack Environment

VMware Environment

To perform a new installation of CPS 18.1.0 in a VMware environment, see *CPS Installation Guide for VMware*, Release 18.1.0.

OpenStack Environment

To perform a new installation of CPS 18.1.0 in an OpenStack environment, see *CPS Installation Guide for OpenStack*, Release 18.1.0.

Migrate an Existing CPS Installation

Note: In-service software migration to 18.1.0 is not supported from CPS 13.1.0, CPS 14.0.0, and CPS 18.0.0.

Upgrade an Existing CPS Installation

To upgrade an existing CPS installation, see *CPS Migration and Upgrade Guide*, Release 18.1.0. CPS upgrade is supported from CPS 13.1.0, CPS 14.0.0, and CPS 18.0.0.

Post Migration/Upgrade Steps

Re-Apply Configuration Changes

After the migration/upgrade is finished, compare your modified configuration files that you backed up earlier with the newly installed versions. Re-apply any modifications to the configuration files.

Verify Configuration Settings

After the migration/upgrade is finished, verify the following configuration settings.

Note: Use the default values listed below unless otherwise instructed by your Cisco Technical Representative.

Note: During the migration/upgrade process, these configuration files are not overwritten. Only during a new install will these settings be applied.

- `/etc/broadhop/qns.conf`
  - `-Dmongo.client.thread.maxWaitTime.balance=1200`
  - `-Dmongo.connections.per.host.balance=10`

- -Dmongo.threads.allowed.to.wait.for.connection.balance=10
- -Dmongo.client.thread.maxWaitTime=1200
- -Dmongo.connections.per.host=5
- -Dmongo.threads.allowed.to.wait.for.connection=10
- -Dcom.mongodb.updaterIntervalMS=400
- -Dcom.mongodb.updaterConnectTimeoutMS=600
- -Dcom.mongodb.updaterSocketTimeoutMS=600
- -DdbSocketTimeout.balance=1000
- -DdbSocketTimeout=1000
- -DdbConnectTimeout.balance=1200
- -DdbConnectTimeout=1200
- -Dcontrolcenter.disableAndsf=true
- -DnodeHeartBeatInterval=9000
- -DdbConnectTimeout.balance=1200
- -Dstatistics.step.interval=1
- -DshardPingLoopLength=3
- -DshardPingCycle=200
- -DshardPingerTimeoutMs=75
- -Ddiameter.default.timeout.ms=2000
- -DmaxLockAttempts=3
- -DretryMs=3
- -DmessageSlaMs=1500
- -DmemcacheClientTimeout=200
- -Dlocking.disable=true

Note: The following setting should be present only for GR (multi-cluster) CPS deployments:

```
-DclusterFailureDetectionMS=1000
```

Note: In an HA or GR deployment with local chassis redundancy, the following setting should be set to true. By default, it is set t o false.

```
-Dremote.locking.off
```

- /etc/broadhop/diameter_endpoint/qns.conf
  - -Dzmq.send.hwm=1000
  - -Dzmq.recv.hwm=1000

Reconfigure Service Option

After upgrading from previous release to the current CPS release, Service option configured with Subscriber -Id becomes invalid and you need to reconfigure multiple Subscriber Id in SpendingLimitReport under Service Configurations.

Verify logback.xml Configuration

Make sure the following line exists in the logback.xml file being used. If not, then add the line:

<property scope="context" name="HOSTNAME" value="${HOSTNAME}" />

To ensure logback.xml file changes are reflected at runtime, the scanPeriod must be explicitly specified:

<configuration scan="true" scanPeriod="1 minute">

Note: In case scanPeriod is missing from already deployed logback.xml file, the application needs to be restarted for the updated scanPeriod configuration to be applicable.

After completing the updates in logback.xml, execute the following command to copy the file to all the VMs:

SSHUSER_PREFERROOT=true copytoall.sh /etc/broadhop/logback.xml /etc/broadhop/logback.xml

Additional Notes

This section provides additional notes necessary for proper installation/working of CPS.

- CSCvf52617: GR_ST: Grafana stops displaying all mongostats in dashboard when Primary member of one DB goes down

  Issue: In case any member of a replica-set is not reachable, you will not be able to see Mongo statistics in grafana. Not reachable can happen due to network problems or blade going down or member is intentionally stopped.

  Workaround: Make non-reachable member reachable. For example:

— If the member is intentionally stopped then one has to start using /etc/init.d/sessionmgr-* start script.

— If there is a network issue, then this issue the network issue needs to be fixed.

- Session Manager Configuration: After a new deployment, session managers are not automatically configured.

a. Edit the /etc/broadhop/mongoConfig.cfg file to ensure all of the data paths are set to /var/data and not /data.

b. Then execute the following command from pcrfclient01 to configure all the replication sets:

```
/var/qps/bin/support/mongo/build_set.sh --all --create
```

- Default gateway in lb01/lb02: After the installation, the default gateway might not be set to the management LAN. If this is the case, change the default gateway to the management LAN gateway
- By default, pending transaction feature is enabled. If you are not using it, Cisco recommends to disable pending transaction feature post deployment.

  To disable pending transaction, the following parameter can be configured in /etc/broadhop/qns.conf file:

  ```
  com.broadhop.diameter.gx.pending_txn.attempts=0
  ```

  After adding the parameter in qns.conf file, restart all VMs.

- CSCvb74725: Avoid manual steps in API based GR installation

  Issue: The fresh install of API based GR installation does not execute set priority properly.

  Workaround:

a. The fresh install of API does not execute set priority properly. You need to set the priority manually by executing the following command:

```
set_priority.sh --db all
```

b. You need to delete the default ring configuration present in cache_config database. After fresh install in case Active/Active Geo-HA feature is enabled, default ring configuration needs to be deleted manually. To remove/replace ring config, following two options are available:

   - Delete directly from database. Remove from "cache_config", if "shards" is empty. This may need restart of qns services.

     OR

   - Run OSGi command `setSkRingSet <ringId> <setId> <servers>` which replaces existing values.

c. Unused replica-set need to be removed manually.

   There is no API support for removing replica-set. So you need to remove the replica-set manually by executing the following command:

   ```
   build_set.sh --<databasename> --remove-replica-set <setname>
   ```

   For example,

   ```
   build_set.sh --spr --remove-replica-set --setname set04
   ```

d. If someone changes `qns.conf` parameters using API post system is deployed using PATCH method, then `restartall.sh` has to be executed manually so that configuration changes become effective.

e. You need to be set the priority manually for members after adding via addMember API by executing the following command:

   ```
   set_priority.sh --db all
   ```

- CSCvd30781: set_priority.sh broken ImportError: No module named util when running set_priority.sh on pcrfclient01

  Issue: `set_priority.sh` from pcrfclient01 and pcrfclient02 is broken. No module named util is found when running `set_priority.sh`.

  Workaround: Execute `set_priority.sh` from Cluster Manager. If you do not have replication network on the Cluster Manager, you need to copy the **util** sub-directory from the Cluster Manager to pcrfclient01 and pcrfclient02.

  Source on Cluster Manager: `/var/qps/install/current/scripts/modules/util`

  Destination on pcrfclient01/02: `/var/qps/bin/install/current/scripts/modules/util`

- CSCvc66672: System is crashing when run more than 6k tps

  Issue: High response time is observed when system is running with all the default features installed and has Gx traffic with 6K TPS.

  Consideration: It is recommended to create session replica-set as per performance requirements for scaling.

  Solution:

  - Create/update /etc/broadhop/mongoConfig.cfg file on Cluster Manager VM to create session cache shards in criss-cross fashion.

    [SESSION-SET1]

    SETNAME=set01

OPLOG_SIZE=5120

ARBITER=arbitervip:27717

ARBITER_DATA_PATH=/var/data/sessions.1

MEMBER1=sessionmgr01:27717

MEMBER2=sessionmgr02:27717

DATA_PATH=/var/data/sessions.1/1

[SESSION-SET1-END]

[SESSION-SET2]

SETNAME=set07

OPLOG_SIZE=5120

ARBITER=arbitervip:27727

ARBITER_DATA_PATH=/var/data/sessions.7

MEMBER1=sessionmgr02:27727

MEMBER2=sessionmgr01:27727

DATA_PATH=/var/data/sessions.1/2

[SESSION-SET2-END]

- For further information on how to create replica sets, see Create Specific Replica-set and Session Cache Replica-set sections in CPS Installation Guide for VMware.
- Set session database priority so that the PRIMARY members will be on separate VM:

```
cd /var/qps/bin/support/mongo
./set_priority.sh --db session
```

For more information on `set_priority.sh` script, see *CPS Operations Guide* and *CPS Geographic Redundancy Guide*.

- To create session shards, see the Create Session Shards section in CPS Installation Guide for VMware.

- CSCve40105: Session databases do not recover on power outage

  Issue: Session databases do not recover after full system outage.

  Condition: Replica configuration is not available after system outage on Arbiter VIP. This is verified using the following command (XXXXX is port number):

  ```
  mongo --host arbitervip:XXXXX --eval "rs.isMaster()['info']" --quiet
  Does not have a valid replica set config
  ```

  Probable Cause: This happens as VIP was up on different pcrfclient (e.g. pcrfclient01) when outage took place and after recovery it is on another pcrfclient (e.g. pcrfclient02). Thus, previous mongo configuration is not available with current active pcrfclient and recovery script is not able to recover data.

  Workaround: User has to flip the VIP when the session databases mounted on tmpfs do not recover after full system outage. To force a switchover of the arbiter VIP to the other pcrfclient, you have to execute the following command:

```
ssh arbitervip service corosync stop

service corosync stop
```

- CSCvg28401: CPS diameter dictionary gets corrupted when there is a change in custom AVP list.

  Issue: CPS Diameter dictionary gets corrupted when there is a change in custom AVP list.

  Probable Cause: The dictionary corruption happens when Policy Builder is published with custom AVP changes. This results in one thread of execution clearing up the AVP cache and populating the cache with the updated AVPs.

  During this, if the thread of call processing uses the AVP cache before it is populated with the AVPs, it pushes NullAvpRepresentation object in the cache for which it did not find any definition. This results in decoding failure of the Diameter message. This is a race condition which manifests during high TPS.

  Workaround: After configuring custom AVP list, restart CPS using the `restartall.sh` script.

- Add support to disable syncing carbon database and bulk stats files (ISSM)

  Add the following flags in */var/install.cfg* file:

  SKIP_BLKSTATS

  SKIP_CARBONDB

  Example to disable synching:

  SKIP_BLKSTATS=1

  SKIP_CARBONDB=1

- Add the following parameters in */var/install.cfg* file to skip installation type selection and initialization steps during ISSU/ISSM:

  INSTALL_TYPE

  INITIALIZE_ENVIRONMENT

  Example:

  INSTALL_TYPE=mobile

  INITIALIZE_ENVIRONMENT=yes

- CSCvi48586: change_passwd.sh script is getting stuck for root user after fresh deploy.

  Issue: change_passwd.sh script is getting stuck for root user after fresh installation.

  Workaround: The point where the script gets stuck, enter the existing password (not the changed one) for the root user. The script runs successfully after this point in few seconds.

- CSCvi21871: Permission denied when connecting DRA cli and not able to connect dra central

  Issue: Permission denied when connecting to DRA orchestrator CLI with the default admin credentials.

  Workaround: Log into the orchestrator container from the master VM and reload the aaa_init.xml file into confd.

  cps@master-0:/data/orchestrator$ docker exec -it orchestrator bash

  root@orchestrator:/# /var/confd/bin/confd_load -l -m /data/cdb/aaa_init.xml

  root@orchestrator:/# exit

  exit

cps@master-0:/data/orchestrator$

Limitations and Restrictions

This section covers the following topics:

Limitations

- The following restriction applies to LWR:
    - In this release, LWR supports read and write of one user attribute to the replication framework specific to the ADTM bearer counting attribute.

      In future releases, UDC and other applications will be enhanced to provide support of new attributes or user profile details that may require replication
- Solicited Application Reporting

  The following are some restrictions on configuration for the new service options:
    - The pre-configured ADC rule generated by CRD lookup has ADC-Rule-Install AVP definition with support for only three AVPs ADC-Rule-Name, TDF-Application-Identifier, Mute-Notification.
    - For AVPs that are multi-valued, CRD tables are expected to have multiple records - each giving the same output.
    - Comma(,) is not a valid character to be used in values for referenced CRD column in SdToggleConfiguration.
    - AVP Table currently only supports OctetStringAvp value for AVP Data-type.
- During performance testing, it has been found that defining a large number of QoS Group of Rule Definitions for a single session results in degraded CPU performance. Testing with 50 QoS Group of Rule Definitions resulted in a 2x increase in CPU consumption. The relationship appears to be a linear relationship to the number of defined QoS Group of Rule Definitions on a service.
- Hour Boundary Enhancement

  Change in cell congestion level when look-ahead rule is already installed:

  If a cell congestion value changes for current hour or any of the look-ahead hours, there will be no change in rule sent for the rules that are already installed.

  No applicability to QoS Rules:

  The look-ahead works for PCC rules only where we have rule activation/deactivation capabilities and can install upcoming changes in advance. However, if the RAN Congestion use case is changed to use the QoS-Info AVP instead of using PCC rules, we need to fall back to the current RAR on the hour boundary implementation for that use case since the standard do not let us install QoS-info changes ahead of time like we can with PCC rules.
- The Cluster Manager's internal (private) network IP address must be assigned to the host name “installer” in the `/etc/hosts` file. If not, backup/restore scripts (`env_import.sh`, `env_export.sh`) will have access issues to OAM (pcrfclient01/pcrfclient02) VMs.
- The Linux VM message.log files repeatedly report errors similar to the following:

`vmsvc [warning] [guestinfo] RecordRoutingInfo: Unable to collect IPv4 routing table.`
This is a known issue affecting ESXi 5.x. Currently, there is no workaround for this. The messages.log file entries are cosmetic and can be safely ignored. For more information, see http://kb.vmware.com/selfservice/microsites/search.do?language=en_US&cmd=displayKC&externalId=2094561

- CSCva02957: Redis instances continue to run, even after redis is disabled using the parameter `-DenableQueueSystem=false` in qns.conf (`/etc/broadhop/`) file and `/etc/broadhop/redisTopology.ini` file.
- CSCva16388: A split-brain scenario (that is, VIPs are up on both nodes) can still occur when there is connectivity loss between lb01 and lb02 and not with other hosts.

Common Vulnerabilities and Exposures (CVE)

No CVEs were found in this release.

Open and Resolved CDETS

The following sections list open and resolved CDETS for this release. For your convenience in locating CDETS in Cisco's Bug Toolkit, the caveat titles listed in this section are drawn directly from the Bug Toolkit database. These caveat titles are not intended to be read as complete sentences because the title field length is limited. In the caveat titles, some truncation of wording or punctuation might be necessary to provide the most complete and concise description.

Note: If you are a registered cisco.com user, view Bug Toolkit on cisco.com at the following website:

https://tools.cisco.com/bugsearch

To become a registered cisco.com user, go to the following website:

https://tools.cisco.com/RPF/register/register.do?exit_url=

Open CDETS

The following table lists the open CDETS in this release.

CPS Open CDETS

Table 2 CPS Open CDETS

CDETS ID	Headline
CSCve14860	Multiple repeated Rx AAR attempts causing high CPU load on qns nodes
CSCve87564	ISSM:'/mnt/iso/migrate.sh rollback' cli triggers restart for set-2
CSCvf54495	unterminated sessions remain in memcache and cause session lookup issues
CSCvg50997	ISO installation New Deployment Initial Installation failed due to puppet failure

CDETS ID	Headline
CSCvg94228	PCRF is stuck in a loop of ccr-u cca-u when both qos-mod-failure and apn-ambr failure occur together
CSCvg99670	SNMP - VM UP trap for pcrfclient01 is not coming when pcrfclient01 is cold started.
CSCvh02307	External Code for Profile mapping without "Empty Value AVP" config results in a policy error
CSCvh13287	PB2 Central does not work for IE
CSCvh21186	After doing rollback 18.0->12.0, sessionmgr's init.d scripts are not copied to set-1 pcrfclientXX VM
CSCvh23048	build-Set may be failing to add NODE_TYPE port to /etc/broadhop.profile file during exeuction
CSCvh25616	Incoming request not dropped when no match for host lookup
CSCvh45982	/etc/profile.d/broadhop.sh has incorrect values for path on AIO and HA VMs
CSCvh51816	Alarms from Notifications are not cleared correctly when configuration changes
CSCvh56527	udc exception during ISSU upgrade
CSCvh70971	SLR-Inter timeout/delayed response is getting mapped to SLR-Initial request.
CSCvh95120	CPS supposed to send the Allocation-Retention-Priority.Priority-Level AVP in CCA-I
CSCvh95585	SY calls does not go through when the same realm is configured as for Gy + SY call
CSCvh97995	CPS-18.0.0 Release Missing /home/qns-{su,ro,admin} ssh keys
CSCvh99832	Frequent GC kicking in on high load
CSCvi01695	Create shards api shows success even though failure was diagnosed due to failed rebalance
CSCvi02391	Grafana showing ups and downs even after states are ok in top_qps.sh on a particular site of GR
CSCvi07631	CPS12.1: EDR Generated with inconsistent data when PB Config changes
CSCvi08304	Destination host AVP is missing in AAR with multi-stack enabled
CSCvi08541	RAR is going through both sites when cross site broadcast message is configured in A-A GR
CSCvi10404	LdapChangeMessage received by receiver isn't equivalent to broadcasted message.
CSCvi11085	Wrong log rotation in the whisper logs consumes all available disk space
CSCvi11217	CPS continuously sending Sy_STR, even when Sy-STA w/5030 received
CSCvi11367	clearCache OSGi command only clears two caches out of four
CSCvi18248	vDRA troubleshooting guide is not correct
CSCvi18522	After ISSU Rollback,Pcrfclient02 Diagnostics gets stuck after startall/stopall or restartall process
CSCvi18647	If TPS is more than 3K then successful TPS graph is jittering
CSCvi19580	CPS is intermittently not sending Multi-Smart users usage SMS notifs
CSCvi20579	PCRF initiating SD_RAR without waiting on the TSR retry response in TSA
CSCvi23619	After ISSU, diag shows list of alarms not cleared, while conn btwn LB & PCEF/CSCF/TDF clients came up
CSCvi28348	BindingDbAlarmManager.? - Semaphore not provided for bindingalarmdb Locking

CDETS ID	Headline
CSCvi34182	Sy session not initiated upon SPR profile change via Wrapper
CSCvi34480	UDC node passwords are not changed with change_passwd.sh
CSCvi36386	Netloc UntrustedWLAN Issue with AVP 3GPP-SGSN-MCC-MNC being forwarded to PCSCF
CSCvi38019	Observing high response time and error & Timeout in Sol-3 call-model when goes beyond 6KTPS
CSCvi39355	Failed to retrieve origin-realm from diamter req msg. seen in service qns logs
CSCvi41221	CDR logging feature entries are lost on upgrading to new ISO.
CSCvi48586	change_passwd.sh script is getting stuck for root user after fresh deploy

Microservices Open CDETS

Table 3 Microservices Open CDETS

CDETS ID	Headline
CSCvg91883	SCTP Multihoming: DRA not sending IP details in INIT_ACK when IPv6 is primary and IPv4 is secondary.
CSCvh51963	vPAS DRA: Mongo Shard-Members go into STARTUP2 after reaching MAX Memory capacity
CSCvh77676	vPAS DRA: Diameter Relay for Inbound VIP is also connecting
CSCvi01193	VMs are out of time sync when any VM is restarted
CSCvi21871	Permission denied when connecting DRA cli and not able to connect dra central
CSCvi35520	Upgrade stalls if PB does not have endpoints configured for any director
CSCvi36185	DRA on Docker is not deleting old containers on upgrade

Resolved CDETS

This section lists the resolved/verified CDETS in this release.

CPS Resolved CDETS

Table 4 CPS Resolved CDETS

CDETS ID	Headline
CSCvc92363	CPS GR: Grafana stops displaying mongostats post GR failover
CSCve75282	Multiple credits under the quota subject to rollover feature is not working
CSCvf74053	Pb2-GUI:"Unauthorized User (Redirect to login)" appears suddenly during Contrl center confg on chrome
CSCvf95380	CPU spikes, PB timeout, and KPI drops on PB Publish
CSCvg58408	TAC: env_export.sh script does not backup mongo DBs when set name ends in 2
CSCvg91183	Alarms are not displayed in diagnostics when mongo instance of GR Site2 db is down on arbiter
CSCvg91460	NTP are not in sync and TIME_WAIT increases after Sessionmgr VM restart/suspend

CDETS ID	Headline
CSCvg94925	Default Inbound Message Queue size of 15000 is too high and can cause memory issues
CSCvg94953	upgrade status api shows "in-progress" following successful out-of-service upgrade
CSCvg96958	Missing and incorrect information for bulkstats in QPS_Statistics.xls
CSCvh07104	NPE in rebalance CacheRing task
CSCvh12120	tacacs lookup failed messages in /var/log/messages
CSCvh13708	Apirouter Thread is eating up CPU when system is Idle.
CSCvh22887	CPS is not removing APN bearer details on sending Gx_RAR with Session-Release-cause
CSCvh31779	debugAvp not getting updated after mapped logical avp values get changed
CSCvh47999	PATCH is not running for ldap configuration YAML
CSCvh48001	CPS to return AAA response in sync mode when there is no need to trigger Gx RAR
CSCvh49180	SPR is down after ISSU upgrade from 13.0.1 to 18.0.0
CSCvh49614	Null Pointer Exception on UDC MIND refresh while sending update request to qns
CSCvh50919	Multiple/Simultaenous UDC_MODIFY Requests for the same subscriber leading to data corruption
CSCvh51791	When there is no SMSC config in PB, the Manager class must clear all previous configs
CSCvh52903	c.b.policy.impl.RulesPolicyService - action. java.util.ConcurrentModificationException: null
CSCvh53386	MoG BOOST is not getting applied while service un-pause after emergency service end.
CSCvh53960	PCRF is installing default POST rules even though UDC has got the subscriber profile from LDAP
CSCvh54824	httpd service is not running when freash install is done with ldap parameters on pcrfclient01/02
CSCvh57044	Getting VM down trap for non QPS_LOCAL_HOSTS hosts
CSCvh59691	ObjectClass going in LdapModificationMessage inspite of isAddOnly being configured to true
CSCvh61852	Too many timeout logs in qns logs for Sync SLR messages after patch upgrade.
CSCvh62171	Import Policy is failing with svn lock error
CSCvh68954	NPE when STR is received for Rx session over SoS APN after CCR-T of SoS APN is received
CSCvh69483	Log rotate terminated abruptly for /var/log/consul/consul.log, too many open file descriptors in LB
CSCvh78214	Destination realm in STR is getting wild carded instead of MOG getting it from AAA
CSCvh80131	build_set fails for arbitervip in mongoconfig
CSCvh85919	UDC related changes are missing in jmxplugin.conf file
CSCvh86008	init.d scripts of db takes > 20s is status check making db process to restart cont
CSCvh86081	Multiple calls to uniq on unsorted list in env_mongo.sh and Bad command call MONGO_DUMP
CSCvh87137	Protected BIT not set correctly on LI AVPs
CSCvh89463	qns process in QNS VM does not recover when backup sessionmgr's are down

CDETS ID	Headline
CSCvh91209	CPS12.1: No RAR for RefreshQuota/UpdateProfile with Gy only
CSCvh92633	Message Buffering Configuration should not depend on "Message Timeout and Retry Configuration"
CSCvh94767	EDRs logs are generated by QNS but not found in pcrfclient, EDRs are not found in csv also
CSCvh96657	NullPointerException observed during NSH call-model
CSCvh97411	clearCache OSGI command not available in console
CSCvh97787	UDC Stale session timer is not kicking in
CSCvi03162	GR CPS to return AAA response in sync mode when there is no need to trigger Gx RAR F1886
CSCvi06505	Threshold value is not being calculated correctly some times by CPS
CSCvi08187	Handling scenario of request message responseTimeout within buffer or retry
CSCvi08304	Destination host AVP is missing in AAR with multi-stack enabled
CSCvi09540	Unified Api to set correct content length of multi byte character
CSCvi11575	BEMS760096 - Missing and incorrect stats definition for bulkstats in QPS_Statistics.xls
CSCvi18017	while doing backup/restore of mongo DB it always consider ADMIN DB with any option suppli ed
CSCvi20557	changed UDC session retention behavior upon no response tries exhaustion
CSCvi33349	'Revert All' is throwing error in PB2

Microservices Resolved CDETS

Table 5 Microservices Resolved CDETS

CDETS ID	Headline
CSCvf74053	Pb2-GUI:"Unauthorized User(Redirect to login)" appears suddenly during Contrl center confg on chrome
CSCvf95380	CPU spikes, PB timeout, and KPI drops on PB Publish
CSCvg97729	vPAS DRA: Importing CRD is not matching the column header name
CSCvh07104	NPE in rebalance CacheRing task
CSCvh42117	CPS does not grant quota to session C in the scenario described in summary section
CSCvh46135	vPAS DRA: Weave fails to start on AIO
CSCvh49555	New entry of "network dns host" is not working without diameter-endpoints restart
CSCvh62171	Import Policy is failing with svn lock error
CSCvh70814	Grafana : Database records counts not consistent !
CSCvh71563	DRA- Issue with DRA outbound peers - Not able to process RAA due to wrong port handling
CSCvh73108	Broken build due to binutils 2.26.1-1ubuntu1~16.04.3
CSCvh74626	CPS 12.1 consolidated-session.log showing N/A for SESSION_COUNT

CDETS ID	Headline
CSCvh79262	NPE Exception while fetching own and remote ports for peer java.nio.channels.ClosedChannelException
CSCvh85128	LOW_MEM alarm raised constantly on director VM
CSCvh87425	ping of network configured dns is not working affecting relay
CSCvh89463	qns process in QNS VM does not recover when backup sessionmgr's are down
CSCvh91034	Binding Key Profile Read Map table is having empty entry under Binding Key Profile table.
CSCvh94767	EDRs logs are generated by QNS but not found in pcrfclient, EDRs are not found in csv also
CSCvi06625	Old field of "applicationId" needs to be removed from all DRA APIs
CSCvi07252	Add http proxy for container builds when required
CSCvi11782	DRA adds an extra session id AVP in response when there is a Timeout for any request
CSCvi11966	DRA adds Auth-Application-Id AVP to STA when configurable error code is greater than/equal to 4000
CSCvi15083	Relay EndPoint EXPIRED and draControlVersion memory leak in DraControlPlaneThread
CSCvi15680	There is no option of "no_peer_route" in blueprint table of error_profile but DRA throws this error

Related Documentation

This section contains information about the documentation available for Cisco Policy Suite.

Release-Specific Documents

Refer to the following documents for better understanding of Cisco Policy Suite.

- *CPS ANDSF Configuration Guide*
- *CPS ANDSF SNMP and Alarms Guide*
- *CPS Backup and Restore Guide*
- *CPS CCI Guide for Full Privilege Administrators*
- *CPS CCI Guide for View Only Administrators*
- *CPS Central Administration Guide*
- *CPS Geographic Redundancy Guide*
- *CPS Installation Guide - OpenStack*
- *CPS Installation Guide – VMware*
- *CPS Migration and Upgrade Guide*
- *CPS Mobile Configuration Guide*
- *CPS MOG API Reference*
- *CPS MOG Guide*
- *CPS MOG Installation Guide - OpenStack*
- *CPS MOG SNMP, Alarms, and Clearing Procedures Guide*

- *CPS MOG Troubleshooting Guide*
- *CPS Operations Guide*
- *CPS Policy Reporting Guide*
- *CPS SNMP, Alarms and Clearing Procedures Guide*
- *CPS Troubleshooting Guide*
- *CPS Unified API Reference Guide*
- *CPS UDC API Reference*
- *CPS UDC Guide*
- *CPS UDC Installation Guide*
- *CPS UDC MoP for Session Migration*
- *CPS UDC SNMP and Alarms Guide*
- *CPS vDRA Administration Guide*
- *CPS vDRA Configuration Guide*
- *CPS vDRA Installation Guide - OpenStack*
- *CPS vDRA Operations Guide*
- *CPS vDRA SNMP and Alarms Guide*
- *CPS vDRA Troubleshooting Guide*

These documents can be downloaded from the following links:

- All Guides
  https://www.cisco.com/c/en/us/support/wireless/quantum-policy-suite-mobile/products-installation-and-configuration-guides-list.html

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, using the Cisco Bug Search Tool (BST), submitting a service request, and gathering additional information, see What's New in Cisco Product Documentation, at: http://www.cisco.com/c/en/us/td/docs/general/whatsnew/whatsnew.html.

Subscribe to What's New in Cisco Product Documentation, which lists all new and revised Cisco technical documentation, as an RSS feed and deliver content directly to your desktop using a reader application. The RSS feeds are a free service.