Cisco Policy Suite 25.1.0 Release Notes for PCRF

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Introduction

This Release Note identifies installation notes, limitations, and restrictions, and open and resolved CDETS in Cisco Policy Suite (CPS) software version 25.1.0. Use this Release Note in combination with the documentation listed in the *Related Documentation* section.

NOTE: The PATS/ATS, ANDSF, and MOG products have reached end of life and are not supported in this release. Any references to these products (specific or implied), their components or functions in this document are coincidental and are not supported. Full details on the end of life for these products are available at: https://www.cisco.com/c/en/us/products/wireless/policy-suite-mobile/eos-eol-notice-listing.html.

This Release Note includes the following sections:

- New and Changed Feature Information
- Installation Notes
- Limitations
- Open and Resolved CDETS
- Related Documentation
- Obtaining Documentation and Submitting a Service Request

New and Changed Feature Information

For information about a complete list of features and behavior changes associated with this release, see the *CPS Release Change Reference*.

Installation Notes

Download ISO Image

Download the 25.1.0 software package (ISO image) from:

https://software.cisco.com/download/home/284883882/type/284979976/release/25.1.0

Cisco Confidential

Md5sum Details

PCRF

2a3a41a1aa7a99d8fae162cddefe5245 Base_25.1.0.qcow2.SPA.tar.gz

0a79a736e16c9503f4d4fb35ad845a70 Base_25.1.0.vmdk.SPA.tar.gz

231be7cd582d9c9536e0bc8aba7d7ab9 CPS_25.1.0.iso.SPA.tar.gz

Component Versions

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

Table 1 - Component Versions

Component	Version
API Router	25.1.0
Audit	25.1.0
Balance	25.1.0
Cisco API	25.1.0
Cisco CPAR	25.1.0
Congestion Reference Data	25.1.0
Control Center	25.1.0
Core	25.1.0
CSB	25.1.0
Custom Reference Data	25.1.0
DHCP	25.1.0
Diameter2	25.1.0
DRA	25.1.0
Fault Management	25.1.0
IPAM	25.1.0
ISG Prepaid	25.1.0
LDAP	25.1.0
LDAP Server	25.1.0
LWR	25.1.0
Microservices Enablement	25.1.0
Notification	25.1.0

Component	Version
Policy Intel	25.1.0
POP-3 Authentication	25.1.0
RADIUS	25.1.0
Recharge Wallet	25.1.0
SCE	25.1.0
Scheduled Events	25.1.0
SPR	25.1.0
UDC	25.1.0
UDSN Interface	25.1.0
Unified API	25.1.0

Additional security has been added in CPS to verify the downloaded images.

Image Signing

Image signing allows for the following:

- Authenticity and Integrity: Image or software has not been modified and originated from a trusted source.
- Content Assurance: Image or software contains code from a trusted source, like Cisco.

Software Integrity Verification

To verify the integrity of the software image you have from Cisco, you can validate the md5sum checksum information against the checksum identified by Cisco for the software.

Image checksum information is available through **cisco.com Software Download Details**. To find the checksum, hover the mouse pointer over the software image on cisco.com.

If md5sum is correct, run *tar -zxvf* command to extract the downloaded file.

The files are extracted to a new directory with the same name as the downloaded file name without extension (.tar.gz).

The extracted directory contains the certificate files (.cer), python file (cisco_x509_verify_release.py), digital certificate file (.der), readme files (*.README), signature files (.signature) and installation files (.iso .vmdk, .qcow2 and .tar.gz).

Certificate Validation

To verify whether the installation files are released by Cisco System Pvt. Ltd and are not tampered/modified or infected by virus, malware, spyware, or ransomware, follow the instruction given in corresponding *.README file.

NOTE: Every installation file has its own signature and README file. Before following the instructions in the README file, make sure that cisco.com is accessible from verification server/host/machine/computer. In every README file, a Python command is provided which when executed connects you to cisco.com to verify that all the installation files are released by cisco.com or not. Python 2.7.4 and OpenSSL is required to execute cisco_x509_verify_release.py script.

New Installations

- VMware Environment

VMware Environment

To perform a new installation of CPS 25.1.0 in a VMware environment, see the *CPS Installation Guide for VMware*.

NOTE: After installation is complete, you need to configure at least one Graphite/Grafana user. Grafana supports Graphite data source credential configuration capability. Graphite data source requires common data source credential to be configured using Grafana for Grafana user. Data source credential must be configured after fresh installation. If you fail to add the user, then Grafana will not have access to Graphite database, and you will get continuous prompts for Graphite/Grafana credentials.

All Grafana users configured will be available after fresh installation. However, you need to configure the Graphite data source in Grafana UI.

For more information on updating graphite data source, see *Configuring Graphite User Credentials in Grafana* in CPS Operations Guide.

Upgrade Alma Linux to 8.10 in PCRF

In CPS 25.1.0 release, Alma Linux version is upgraded from 8.9 to 8.10 along with upgrading to latest rpm packages and their dependencies.

With Alma Linux 8.10, the kernel version is modified to:

```
# rpm -qa | grep kernel-[0-9]
kernel-4.18.0-553.45.1.el8_10.x86_64

# cat /etc/redhat-release
AlmaLinux release 8.10 (Cerulean Leopard)

# uname -a
Linux localhost.localdomain 4.18.0-553.45.1.el8_10.x86_64 #1 SMP Wed Mar 19 09:44:46 EDT 2025
x86_64 x86_64 x86_64 GNU/Linux
```

Upgrade MongoDB Version 7.0

This release provides support for MongoDB version 7.0. Following are the supported and unsupported CPS releases to upgrade to Mongo 7.0.

- Supported CPS Releases for upgrading to 7.0:

  You can upgrade CPS 24.2.0 (using mongoDB version 6.0.14) to CPS 25.1.0 (using mongoDB version 7.0.14). Upgrade to MongoDB 7.0 is supported only from MongoDB 6.0.

  For example, if you are running a 5.0 series (CPS 24.1.0), you must first upgrade to MongoDB 6.0 (CPS 24.2.0) before you can upgrade to MongoDB 7.0 (CPS 25.1.0).

- Un Supported CPS Releases for upgrading to 7.0:

  Any CPS versions prior to CPS 24.2.0 (using MongoDB version 6.0.14) such as CPS 24.1.0 (using MongoDB version 5.0.20), 23.1.0 or 23.2.0 (using MongoDB version 4.4.18), CPS22.2.0 (using MongoDB version 4.2.20), or CPS 22.1.1 (using MongoDB version 4.0.27), and previous versions of CPS does not support direct upgrade to CPS 25.1.0 (using MongoDB version 7.0.14).

  To upgrade the Replica set to 7.0, go to https://www.mongodb.com/docs/manual/release-notes/ 7.0-upgrade-replica-set/

  The compatible Java driver for 7.0 is 3.12.9.

MongoDB recovery Script for Network Partition Resilience

Starting with CPS 24.1.0 release, that use MongoDB 5.0, when a majority of replica set members are unavailable, the MongoDB storage undergoes exponential growth, potentially resulting in a complete database crash.

MongoDB recovery Script for Network Partition Resilience is designed to handle such scenarios during failover, so that majority of the replica set members are available.

The following configuration.csv parameters are introduced as part of this feature:

- enable_mongodb_majority_failover_monit - Set the value as true or false to enable or disable the feature respectively. Default Value: false
- majority_failover_monit_cycles- Set the time interval value in seconds to periodically run the MongoDB recovery Script. Default Value: 450 Seconds (recommended to use 180 seconds for better performance)
- majority_failover_action - Choose any of the following actions on the member which is/are down.
    - REDUCE_PRIORITY - Reduce the priority and vote of the member to 0. (Default, Recommended)
    - REMOVE_MEMBER - Remove the member from the replica set.
- majority_failover_iteration_threshold - Number of iterations the MongoDB recovery Script can wait before taking majority_failover_action on a member that is is down. Default Value: 3

  Following is the sample configuration:

  ```
  enable_mongodb_majority_failover_monit,true,
  majority_failover_monit_cycles,450,
  majority_failover_action,REDUCE_PRIORITY,
  majority_failover_iteration_threshold,3
  ```

NOTE: The above MongoDB configuration.csv parameter values change from deployment to deployment, depending on factors such as disk usage and the number of SM VMs per site. We recommend you use appropriate values, as default values might not be suitable for all deployments.

To enable this feature:

1. Edit the configuration.csv file with appropriate values for suggested parameters.
2. Run `import_deploy.sh` (from cluman).
3. Verify if the feature is enabled in the "monit summary" output as shown in the sample output.

```
[root@localhost ~]# monit summary | grep mongodb_majority_failover
mongodb_majority_failover OK Program
[root@localhost ~]#
```

Support for VMware OVF Tool 4.6.3

Previously, VMware OVF Tool 4.3.0 was used up to the CPS 24.2 release, but it was susceptible to several security vulnerabilities. These vulnerabilities have been addressed in the latest VMware OVFTool 4.6.3 version. For detailed instructions on installing VMware OVFTool 4.6.3, refer to the *CPS Installation Guide for VMware* and *CPS Migration and Upgrade Guide.*

Support for ESXi Hypervisor 8.0.3

This release provides support for VMware ESXi™ Hypervisor 8.0.3 version.For details about deploying CPS on ESXi 8.0.3, refer to the *CPS Installation Guide for VMware Guide* and *CPS Migration and Upgrade Guide.*

Migrate an Existing CPS Installation

To migrate an existing CPS installation, see the *CPS Migration and Upgrade Guide*.

CPS migration is supported only from CPS 24.2.0 to CPS 25.1.0.

CPS 24.2.0 release provides support for VMware ESXi™ Hypervisor 7.0.3 as well as 8.0.3.

For details about deploying CPS on ESXi 7.0.3 / 8.0.3, refer to the CPS Installation Guide for VMware.

ISSM considerations from CPS 24.2 to CPS 25.1:

Due to security enhancements and configuration file changes, specific versions of the VMware OVF tool are required for each CPS release:

- CPS 24.2: Requires VMware OVF Tool 4.3.0
- CPS 25.1: Requires VMware OVF Tool 4.6.3

Important:

- VMware OVF tool 4.3.0 is not compatible with CPS 25.1
- VMware OVF Tool 4.6.3 is not compatible with CPS 24.2

Recommendation:

Install and use the correct VMware OVF Tool version on your Cluman VM that corresponds to the CPS release you are using. Using an incompatible version may result in errors or unexpected behavior.

Before migration, you need to configure at least one Graphite/Grafana user. Grafana supports Graphite data source credential configuration capability. Graphite data source requires common data source credential to be configured using Grafana for Grafana user. Data source credential must be configured before migration. If you fail to add the user, then Grafana will not have access to Graphite database, and you will get continuous prompts for Graphite/Grafana credentials.

All Grafana users configured will be available after migration. However, you need to configure the graphite data source in Grafana UI.

For more information on updating graphite data source, see *Configuring Graphite User Credentials in Grafana* in CPS Operations Guide.

For more information, consult your Cisco Technical Representative.

Post Migration/Upgrade Steps

Re-Apply Configuration Changes

After the migration/upgrade is complete, 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 Account 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 to 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

Change Mongo Storage Engine from MMapV1 to WiredTiger in CPS Product

Starting from CPS 22.1.1 release, MongoDB Storage Engine is changed from MMAPv1 to WiredTiger.

WiredTiger storage engine change in MongoDB Server requires additional CPU resources of ~15% and additional memory (RAM) resources of ~40% in the Session Manager VMs. WiredTiger consumes up to ~40% extra memory from total memory(RAM) than MMapV1.

For example, If the sessionmgr VM (150GB) with MMapV1 uses 60GB, then WiredTiger requires 120GB(MMapV1 usage 60GB + 40% of total memory).

As per mongo documentation, the wiredtigercachegb can be configured as [50% of (RAM - 1 GB)] in the VM.

If “n” mongo processes are running in the VM, the wiredtigercachegb can be configured as [50% of (RAM - 1 GB)]/n per mongo process.

For example, in the setup:

• Sessionmgr VMs configured RAM: 157GB

• The number of mongo processes will be running on VM: 6

• Each process cache size can be configured : [50% of (157GB-1GB)]/6 ==> 78/6 = 13GB(can rounded to 12 GB)

NOTE: OS can consume 40-50GB of buffer/cache memory towards system/kernel operations.

The following values must be configured in mongoConfig.cfg:

• WT_CACHESIZEGB=12

• WT_CACHEARBSIZEGB=1

Additional Notes

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

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

  a. Edit the */etc/broadhop/mongoConfig.cfg* file to ensure all 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 disabling 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 using *stopall.sh*/*startall.sh* or *restartall.sh* command.

- 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

- Inconsistency in DPR sent by CPS on executing `monit stop` command

  Issue: When `monit stop all` is executed on Policy Director (LB) VMs with active VIP, DPR is not sent to all the diameter peers.

  Conditions: `monit stop all` executed on Policy Director (LB) VMs with active VIP

  Cause: DPR is sent to all the connected diameter peers. However, since `monit stop all` is executed , all the processes on the Policy Director (LB) go down including corosync/haproxy. As a result, some of the DPR messages go out and some are not delivered based on the order of the services going down.

  Workaround: Instead of `monit stop all`, you can stop all the qns process on Policy Director (LB) VMs by executing `monit stop qns-2/3/4` and then issue a `monit stop all` comand.

  With this workaround, processes such as, haproxy/coronsync are up when DPR messages are generated, CPS makes sure that all DPR messages generated by the Policy Directors are delivered.

- Grafana page not loading after upgrade or installation.

  Issue: Grafana page does not load after upgrade/installation.

  Workaround: Restart grafana process with the following command docker exec grafana:

  ```
  supervisorctl restart grafana
  ```

Open and Resolved CDETS

The following sections list open and resolved CDETS for this release.

For your convenience in location 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

There are no specific open CDETS in this release.

Resolved CDETS

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

Table 3 - CPS Resolved CDETS

CDETS ID	Headline
CSCwm70454	aido_server is calling set_priority for all replica-sets when anyone set's member is down
CSCwn04958	CPS 24.1 snmpwalk v3 is getting failed with Unknown user error.
CSCwn81494	JMX Terminal script is stopping with invalid file
CSCwo22006	MONGO step down command is failing
CSCwo07015	Puppet takes more time to complete post DNS server configuration

Related Documentation

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

Release-Specific Documents

For more information on the Cisco Policy Suite, refer to the documents for this release available at:

https://www.cisco.com/c/en/us/support/wireless/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.

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