

CPS Release Change Reference, Release 26.1.0

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CONTENTS

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PREFACE

Preface v

About This Guide v

Audience v

Additional Support vi

Conventions (all documentation) vi

Communications, Services, and Additional Information vii

Important Notes viii

CHAPTER 1

Feature Changes 1

26.1.0 Feature and Changes 1

CHAPTER 2

vDRA 3

Decrypt TLS traffic 3

Feature summary and revision history 3

TLS traffic decryption 3

Best practice for session key management 4

Restart the application to apply changes 4

Configure TLS capture decryption 4

Decrypt TLS packets using ECDSA algorithms 5

Decrypt TLS packets using RSA algorithms 5

Generate ECDSA certificates 6

VMware disk encryption 7



Preface

- About This Guide, on page v
- Audience, on page v
- Additional Support, on page vi
- Conventions (all documentation), on page vi
- Communications, Services, and Additional Information, on page vii
- Important Notes, on page viii

About This Guide

Note The documentation set for this product strives to use bias-free language. For purposes of this documentation set, bias-free is defined as language that does not imply discrimination based on age, disability, gender, racial identity, ethnic identity, sexual orientation, socioeconomic status, and intersectionality. While any existing biased terms are being substituted, exceptions may be present in the documentation due to language that is hardcoded in the user interfaces of the product software, language used based on RFP documentation, or language that is used by a referenced third-party product.

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.

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.

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.
- 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
bold font	Commands and keywords and user-entered text appear in **bold** font.
italic font	Document titles, new or emphasized terms, and arguments for which you supply values are in *italic* 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.

Conventions	Indication
[ ]	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.



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



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

- To receive timely, relevant information from Cisco, sign up at Cisco Profile Manager.
- To get the business results you're looking for with the technologies that matter, visit Cisco Services.
- To submit a service request, visit Cisco Support.
- To discover and browse secure, validated enterprise-class apps, products, solutions and services, visit Cisco DevNet.
- To obtain general networking, training, and certification titles, visit Cisco Press.
- To find warranty information for a specific product or product family, access Cisco Warranty Finder.

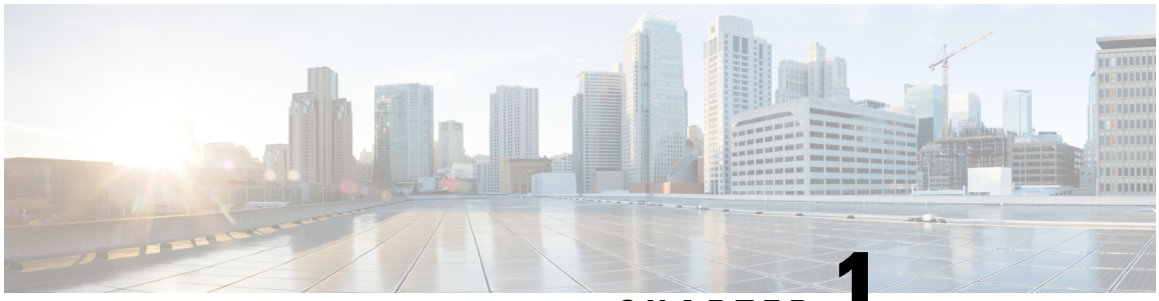
Cisco Bug Search Tool

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

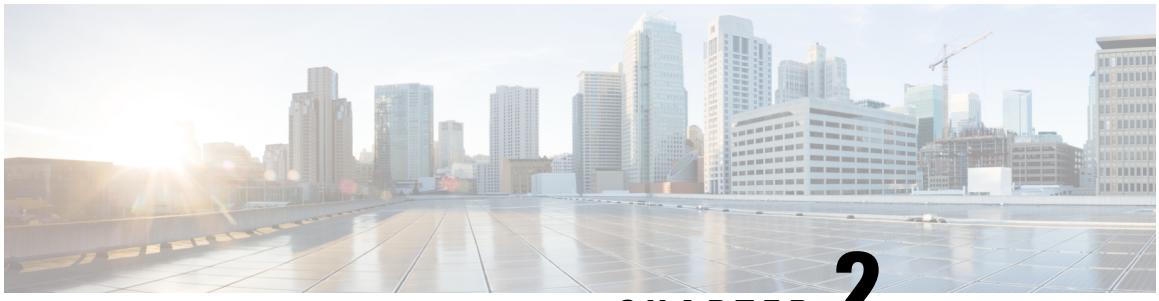
Feature Changes

- 26.1.0 Feature and Changes, on page 1

26.1.0 Feature and Changes

Table 1: New feature information

Features	Applicable Product(s)/ Functional Area	Release Introduced/ Modified
VMware disk encryption , on page 7	vDRA	26.1.0
Decrypt TLS traffic, on page 3	vDRA	26.1.0



CHAPTER 2

vDRA

- Decrypt TLS traffic, on page 3
- VMware disk encryption , on page 7

Decrypt TLS traffic

Feature summary and revision history

Table 2: Summary Data

Applicable Product(s) or Functional Area	vDRA
Applicable Platform(s)	Not Applicable
Default Setting	Enabled – Configuration Required
Related Changes in This Release	Not Applicable
Related Documentation	• *CPS vDRA Operations Guide*

Table 3: Revision History

Revision Details	Release
First introduced.	26.1.0

TLS traffic decryption

TLS traffic decryption is a diagnostic capability that:

- enables the decryption of captured encrypted TLS packets for troubleshooting purposes,
- supports various cipher suites including RSA and ECDSA-based algorithms, and

- allows network administrators to view deciphered Diameter traffic in external analysis tools.

This feature allows for the inspection of raw message bytes that would otherwise be inaccessible due to TLS encryption. Depending on the algorithm used during the handshake, decryption requires either a static private key or a dynamic session key log.

Understanding cipher suites for decryption

The system supports a wide range of cipher suites for TLS and mTLS. The following ciphers are preferred for decryption:

ECDSA Ciphers

- TLS_ECDSA_WITH_AES_128_GCM_SHA256
- TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384

ECDHE-RSA Ciphers

- TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256
- TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384
- TLS_DHE_RSA_WITH_AES_128_GCM_SHA256
- TLS_DHE_RSA_WITH_AES_256_GCM_SHA384

Best practice for session key management

We recommend collecting the captured session key file immediately after capturing the traffic. Because the system only maintains the most recent backup file during application restarts, continuous restarts may result in the loss of the specific premaster session keys required for decryption.

Restart the application to apply changes

Ensure that you restart the application after enabling or disabling the TLS capture decryption feature. A restart is necessary for the changes to take effect and requires a re-establishment of peer connections

Configure TLS capture decryption

Enable or disable the capture of session keys used for decrypting TLS traffic.

This feature is enabled by default and is used to capture the premaster session keys required for decrypting ECDHE-RSA or ECDHE-ECDSA ciphers.

Use these steps to configure TLS decryption.

Before you begin

Ensure you have administrative access to the CLI.

Procedure

Step 1 Access the system CLI.

Example:

Step 2 To enable the feature, enter the **dra tls-capture-decryption enable true** command.

Step 3 Verify whether TLS capture is decrypted by using the **show running-config dra tls-capture-decryption** command.

Example:

```
tls-capture-decryption tls-certificate
admin@orchestrator[vpas-A1-master-0]# show running-config dra tls-capture-decryption
dra tls-capture-decryption enable true
admin@orchestrator[vpas-A1-master-0]# docker connect diameter-endpoint-s104
```

Step 4 To disable the feature, enter the **dra tls-capture-decryption enable false** command.

Step 5 Verify the configuration by using **show running-config dra tls-capture-decryption** command.

Example:

```
admin@orchestrator[vpas-A1-master-0]# dra tls-capture-decryption enable false
Setting enable as false
Success! Data written to: dra-tls-capture-decryption/enable
admin@orchestrator[vpas-A1-master-0]# show running-config dra tls-capture-decryption
```

The system updates the decryption capture setting. The changes will be active after the next application restart.

Decrypt TLS packets using ECDSA algorithms

View deciphered Diameter traffic in Wireshark when using ECDSA-based encryption.

ECDSA decryption requires a session key log file (pre-master secret) collected during the handshake.

Ensure TLS capture decryption is enabled in the CLI. Use these steps to decrypt TLS packets using ECDSA.

Procedure

Step 1 Capture the traffic in PCAP format.

Step 2 Download the captured session key file from the system path. `/etc/tls/certs/tlsSessionKeys.txt`

Step 3 Open the PCAP in Wireshark and filter for the specific transactions using IP and port.

Step 4 Navigate to `Edit > Preferences > Protocols > TLS`

Step 5 In the **(Pre)-Master-Secret log filename** field, upload the downloaded session key file. Clikc **OK**

Step 6 Right-click the application data in the packet list and choose **Decode As....**

Step 7 Select **Diameter**.

The encrypted application data is transformed into readable Diameter packets.

Decrypt TLS packets using RSA algorithms

View deciphered Diameter traffic in Wireshark when using RSA-based encryption.

Decrypting RSA requires the private key that corresponds to the public key used for encryption. Use these steps to decrypt TLS packets using RSA.

Before you begin

Ensure to obtain private key file.

Procedure

Step 1 Capture the traffic in PCAP format from he diameter container while traffic is active.

Step 2 Open the PCAP file in Wireshark.

Step 3 Navigate to `Edit > Preferences` and then expand **Protocols** and select **TLS** (or SSL in older versions).

Step 4 Open the **RSA Keys List** and click **Edit**.

Step 5 Add the IP address, port details, and the local path to the **Private Key** and then click **OK**.

Step 6 Select a TLS packet, right-click, and choose **Decode As...**

Step 7 Set the **Current** value to **Diameter** for the specified port.

The data section after the TCP segment displays the deciphered Diameter packet in a readable format.

Generate ECDSA certificates

Create the necessary certificates to use ECDSA ciphers.

ECDSA ciphers require ecparam-generated certificates for the TLS handshake.

Use these steps to generate ECDSA certificates.

Procedure

Step 1 Generate the ECDSA private key using the prime256v1 curve.

Example:

```
openssl ecparam -genkey -name prime256v1 -out ecdsa-key.pem
```

Step 2 Create the certificate using the generated key.

Example:

```
openssl req -new -x509 -key ecdsa-key.pem -out ecdsa-cert.pem -days 365
```

After completing these steps, the ecdsa-key.pem and ecdsa-cert.pem files are ready for installation.

VMware disk encryption

Feature Summary and Revision History

Table 4: Summary Data

Applicable Product(s) or Functional Area	CPS vDRA
Applicable Platform(s)	Not Applicable
Default Setting	Disabled – Configuration Required to Enable
Related Changes in This Release	Not Applicable
Related Documentation	*CPS vDRA Installation Guide for VMware*

Table 5: Revision History

Revision Details	Release
First introduced.	26.1.0

Feature Description

VMwareDdsk encryption is a security feature that:

- provides data-at-rest protection for virtual machine disks (VMDKs),
- Encrypts only the primary disk, not the secondary disks. The secondary disk stores only Prometheus data and saved ISO files, so it must remain intact during ISSM because it contains persistent data. Encrypting the secondary disk could lead to data corruption.
- leverages the AES-256-XTS algorithm for robust encryption, and
- integrates with VMware vSphere 7.0U2 and later versions to secure virtual environments.

This solution specifically targets the primary disks of Diameter Routing Agent (DRA) virtual machines to ensure compliance with security standards such as ISO/IEC 27001 and NIST SP 800-53.

A Native Key Provider (NKP) is a vSphere component that simplifies VM encryption management by removing the requirement for an external Key Management Server (KMS),:generates and manages cryptographic keys directly within the vCenter Server, and enables features like Encrypted vMotion and Encrypted Fault Tolerance (FT).

System requirements for VMware disk encryption

To enable disk encryption for DRA, the environment must meet these specifications:

Hardware and firmware:

- VMware-certified hardware equipped with AES-NI.

- BIOS with AES-NI enabled.

Software and licensing:

- vCenter Server version 7.0U2 or later.
- ESXi version 7.0 or later.
- VMware Enterprise Plus license.
- DRA Release 26.1 or later

For more information on the CLI commands, refer to the *CPS vDRA Operation Guide*.