



## Configuring Data Encryption

---

- [Finding Feature Information, on page 1](#)
- [Prerequisites for Configuring Data Encryption, on page 1](#)
- [Restrictions for Configuring Data Encryption, on page 1](#)
- [Information About Data Encryption, on page 2](#)
- [How to Configure Data Encryption, on page 2](#)
- [Configuration Examples for Configuring Data Encryption, on page 3](#)

### Finding Feature Information

Your software release may not support all of the features documented in this module. For the latest feature information and caveats, see the release notes for your platform and software release.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to <http://www.cisco.com/go/cfn>. An account on Cisco.com is not required.

### Prerequisites for Configuring Data Encryption

- Cisco 1260, 3500, 3600, 801, 1140, 1310, and 1520 series access points support Datagram Transport Layer Security (DTLS) data encryption.
- You can use the device to enable or disable DTLS data encryption for a specific access point or for all access points.
- Non-Russian customers who use the Cisco device do not need a data DTLS license.

### Restrictions for Configuring Data Encryption

- Encryption limits throughput at both the device and the access point, and maximum throughput is desired for most enterprise networks.
- If your device does not have a data DTLS license and if the access point associated with the device has DTLS enabled, the data path will be unencrypted.

- In images that do not have a DTLS license, the DTLS commands are not available.

## Information About Data Encryption

The device enables you to encrypt Control and Provisioning of Wireless Access Points (CAPWAP) control packets (and optionally, CAPWAP data packets) that are sent between the access point and the device using DTLS. DTLS is a standards-track Internet Engineering Task Force (IETF) protocol based on TLS. CAPWAP control packets are management packets exchanged between a device and an access point while CAPWAP data packets encapsulate forwarded wireless frames. CAPWAP control and data packets are sent over separate UDP ports: 5246 (control) and 5247 (data). If an access point does not support DTLS data encryption, DTLS is enabled only for the control plane, and a DTLS session for the data plane is not established.

## How to Configure Data Encryption

### Configuring Data Encryption (CLI)

#### SUMMARY STEPS

1. **configure terminal**
2. **ap link-encryption**
3. **end**
4. **show ap link-encryption**
5. **show wireless dtls connections**

#### DETAILED STEPS

	Command or Action	Purpose
<b>Step 1</b>	<b>configure terminal</b> <b>Example:</b> Device# <code>configure terminal</code>	Enters global configuration mode.
<b>Step 2</b>	<b>ap link-encryption</b> <b>Example:</b> Device(config)# <code>ap link-encryption</code>	Enables data encryption for all access points or a specific access point by entering this command. The default value is disabled.  Changing the data encryption mode requires the access points to rejoin the device.
<b>Step 3</b>	<b>end</b> <b>Example:</b> Device(config)# <code>end</code>	Returns to privileged EXEC mode. Alternatively, you can also press <b>Ctrl-Z</b> to exit global configuration mode.
<b>Step 4</b>	<b>show ap link-encryption</b> <b>Example:</b>	Displays the encryption state of all access points or a specific access point. This command also shows authentication errors, which track the number of integrity

	Command or Action	Purpose
	Device# show ap link-encryption	check failures and replay errors. Relay errors help in tracking the number of times the access point receives the same packet.
<b>Step 5</b>	<b>show wireless dtls connections</b>  <b>Example:</b> Device# show wireless dtls connections	Displays a summary of all active DTLS connections.  <b>Note</b> If you experience any problems with DTLS data encryption, enter the <b>debug dtls ap {all   event   trace}</b> command to debug all DTLS messages, events, or traces.

### Related Topics

[Displaying Data Encryption States for all Access Points: Examples](#), on page 3

# Configuration Examples for Configuring Data Encryption

## Displaying Data Encryption States for all Access Points: Examples

This example shows how to display the encryption state of all access points or a specific access point. This command also shows authentication errors, which track the number of integrity check failures and replay errors. Relay errors help in tracking the number of times the access point receives the same packet:

```
Device# show ap link-encryption
          Encryption  Dnstream  Upstream  Last
AP Name      State      Count     Count     Update
-----
3602a        Enabled      0         0         Never
```

This example shows how to display a summary of all active DTLS connections:

```
Device# show wireless dtls connections
AP Name      Local Port  Peer IP      Peer Port  Ciphersuite
-----
3602a        Capwap_Ctrl 10.10.21.213 46075      TLS_RSA_WITH_AES_128_CBC_SHA
3602a        Capwap_Data 10.10.21.213 46075      TLS_RSA_WITH_AES_128_CBC_SHA
```

