Contextual Configuration Diff Utility

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The Contextual Configuration Diff Utility feature provides the ability to perform a line-by-line comparison of any two configuration files (accessible through the Cisco IOS XE Integrated File System [IFS]) and generate a list of the differences between them. The generated output includes information regarding configuration lines that have been added, modified, or deleted, and the configuration modes within which a changed configuration line exists.

Finding Feature Information

For the latest feature information and caveats, see the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the "Feature Information for Contextual Configuration Diff Utility" section on page 8.

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

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Prerequisites for Contextual Configuration Diff Utility

The format of the configuration files used for the Contextual Configuration Diff Utility feature must comply with standard Cisco IOS XE configuration file indentation rules as follows:

- Start all commands on a new line with no indentation, unless the command is within a configuration submode.
- Indent commands within a first-level configuration submode one space.
- Indent commands within a second-level configuration submode two spaces.
- Indent commands within subsequent submodes accordingly.

The router must have a contiguous block of memory larger than the combined size of the two configuration files being compared.

Restrictions for Contextual Configuration Diff Utility

If the router does not have a contiguous block of memory larger than the combined size of the two configuration files being compared, the diff operation fails.

Information About Contextual Configuration Diff Utility

Before using the Contextual Configuration Diff Utility feature, you should understand the following concepts:

- Benefits of the Contextual Configuration Diff Utility, page 2
- Contextual Configuration Diff Utility Output Format, page 2

Benefits of the Contextual Configuration Diff Utility

The Contextual Configuration Diff Utility feature provides the ability to perform a line-by-line comparison of any two configuration files (accessible through the Cisco IOS XE File System [IFS]) and generate a list of the differences between them. The generated output includes information regarding the following items:

- Configuration lines that have been added, modified, or deleted.
- Configuration modes within which a changed configuration line exists.
- Location changes of configuration lines that are order-sensitive. For example, the **ip access-list** and **community-lists** commands are order-sensitive commands dependent on where they are listed within a configuration file in relation to other Cisco IOS XE commands of similar type.

Contextual Configuration Diff Utility Output Format

Diff Operation

The Contextual Configuration Diff Utility feature uses the filenames of two configuration files as input. A diff operation is performed on the specified files and a list of differences between the two files is generated as output. Interpreting the output is dependent on the order in which the two files are

configured (**show archive config differences** command). In this section, we assume that the filename of the file entered first is file1 and the filename of the file entered second is file2. Each entry in the generated output list is prefixed with a unique text symbol to indicate the type of difference found. The text symbols and their meanings are as follows:

- A minus symbol (-) indicates that the configuration line exists in file1 but not in file2.
- A plus symbol (+) indicates that the configuration line exists in file2 but not in file1.
- An exclamation point (!) with descriptive comments is used to identify order-sensitive configuration lines whose location is different in file1 than in file2.

Incremental Diff Operation

Some applications require that the generated output of a diff operation contain configuration lines that are unmodified (in other words, without the minus and plus symbols). For these applications, an incremental diff operation can be performed, which compares a specified configuration file to the running configuration file (**show archive config incremental-diffs** command).

When an incremental diff operation is performed, a list of the configuration lines that do not appear in the running configuration file (in other words, configuration lines that only appear in the specified file that is being compared to the running configuration file) is generated as output. An exclamation point (!) with descriptive comments is used to identify order-sensitive configuration lines whose location is different in the specified configuration file than in the running configuration file.

How to Use the Contextual Configuration Diff Utility

This section provides the following procedure:

- Using the Contextual Configuration Diff Utility, page 3 (required)

Using the Contextual Configuration Diff Utility

This task describes how to use the Contextual Configuration Diff Utility feature.

SUMMARY STEPS

1. **enable**
2. **show archive config differences** [*file1 path* [*file2 path*][ignorecase]]
   or
   show archive config incremental-diffs [*file path*]
3. **exit**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. • Enter your password if prompted.

Step 2	**show archive config differences** [*file1 path*[*file2 path*][**ignorecase**]]
	or
	show archive config incremental-diffs *file*
	
	Example:
	`Router# show archive config differences harddisk:test1 bootflash:test2`
	or
	
	Example:
	`Router# show archive config incremental-diffs nvram:startup-config`
		Performs a line-by-line comparison of any two configuration files (accessible through the IFS) and generates a list of the differences between them.
		or
		Performs a line-by-line comparison of a specified configuration file to the running configuration file and generates a list of the configuration lines that do not appear in the running configuration file.

Step 3	**exit** **Example:** `Router# exit`	Exits to user EXEC mode.

Configuration Examples for the Contextual Configuration Diff Utility

This section contains the following configuration examples:

- Diff Operation: Example, page 4
- Incremental Diff Operation: Example, page 6

Diff Operation: Example

In this example, a diff operation is performed on the running and startup configuration files. Table 1 shows the configuration files used for this example.

Table 1 Configuration Files Used for the Diff Operation Example

Running Configuration File	Startup Configuration File
no ip subnet-zero ip cef interface FastEthernet1/0 ip address 10.7.7.7 255.0.0.0 no ip route-cache no ip mroute-cache duplex half no ip classless snmp-server community public RO	ip subnet-zero ip cef ip name-server 10.4.4.4 voice dnis-map 1 dnis 111 interface FastEthernet1/0 no ip address no ip route-cache no ip mroute-cache shutdown duplex half ip default-gateway 10.5.5.5 ip classless access-list 110 deny ip any host 10.1.1.1 access-list 110 deny ip any host 10.1.1.2 access-list 110 deny ip any host 10.1.1.3 snmp-server community private RW

The following is sample output from the **show archive config differences** command. This sample output displays the results of the diff operation performed on the configuration files in Table 1.

```
Router# show archive config differences system:running-config nvram:startup-config

+ip subnet-zero
+ip name-server 10.4.4.4
+voice dnis-map 1
 +dnis 111
interface FastEthernet1/0
 +no ip address
 +shutdown
+ip default-gateway 10.5.5.5
+ip classless
+access-list 110 deny ip any host 10.1.1.1
+access-list 110 deny ip any host 10.1.1.2
+access-list 110 deny ip any host 10.1.1.3
+snmp-server community private RW
-no ip subnet-zero
interface FastEthernet1/0
 -ip address 10.7.7.7 255.0.0.0
-no ip classless
-snmp-server community public RO
```

Incremental Diff Operation: Example

In this example, an incremental diff operation is performed on the startup and running configuration files. Table 2 shows the configuration files used for this example.

Table 2 Configuration Files Used for the Incremental Diff Operation Example

Startup Configuration File	Running Configuration File

ip subnet-zero
ip cef
ip name-server 10.4.4.4
voice dnis-map 1
  dnis 111
interface FastEthernet1/0
  no ip address
  no ip route-cache
  no ip mroute-cache
  shutdown
  duplex half
ip default-gateway 10.5.5.5
ip classless
access-list 110 deny ip any host 10.1.1.1
access-list 110 deny ip any host 10.1.1.2
access-list 110 deny ip any host 10.1.1.3
snmp-server community private RW
	no ip subnet-zero
	ip cef
	interface FastEthernet1/0
	  ip address 10.7.7.7 255.0.0.0
	  no ip route-cache
	  no ip mroute-cache
	  duplex half
	no ip classless
	snmp-server community public RO

The following is sample output from the **show archive config incremental-diffs** command. This sample output displays the results of the incremental diff operation performed on the configuration files in Table 2.

```
Router# show archive config incremental-diffs startup-config

ip subnet-zero
ip name-server 10.4.4.4
voice dnis-map 1
 dnis 111
interface FastEthernet1/0
 no ip address
 shutdown
ip default-gateway 10.5.5.5
ip classless
 access-list 110 deny   ip any host 10.1.1.1
 access-list 110 deny   ip any host 10.1.1.2
 access-list 110 deny   ip any host 10.1.1.3
snmp-server community private RW
```

Additional References

This section provides references related to the Contextual Configuration Diff Utility feature.

Related Documents

Related Topic	Document Title
Information about managing configuration files	Managing Configuration Files
Commands for managing configuration files	The *Cisco IOS Configuration Fundamentals Command Reference*

Standards

Standards	Title
No new or modified standards are supported by this feature, and support for existing standards has not been modified by this feature.	—

MIBs

MIBs	MIBs Link
No new or modified MIBs are supported by this feature, and support for existing MIBs has not been modified by this feature.	To locate and download MIBs for selected platforms, Cisco IOS XE releases, and feature sets, use Cisco MIB Locator found at the following URL: http://www.cisco.com/go/mibs

RFCs

RFCs	Title
No new or modified RFCs are supported by this feature, and support for existing RFCs has not been modified by this feature.	—

Technical Assistance

Description	Link
The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies. To receive security and technical information about your products, you can subscribe to various services, such as the Product Alert Tool (accessed from Field Notices), the Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) Feeds. Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.	http://www.cisco.com/techsupport

Feature Information for Contextual Configuration Diff Utility

Table 3 lists the features in this module and provides links to specific configuration information.

Use Cisco Feature Navigator to find information about platform support and software image support. Cisco Feature Navigator enables you to determine which Cisco IOS XE software images support a specific software release, feature set, or platform. To access Cisco Feature Navigator, go to http://www.cisco.com/go/cfn. An account on Cisco.com is not required.

Note Table 3 lists only the Cisco IOS XE software release that introduced support for a given feature in a given Cisco IOS XE software release. Unless noted otherwise, subsequent releases of that Cisco IOS XE software release also support that feature.

Table 3 Feature Information for Contextual Configuration Diff Utility

Feature Name	Releases	Feature Information
Contextual Configuration Diff Utility	Cisco IOS XE Release 2.1	The Contextual Configuration Diff Utility feature provides the ability to perform a line-by-line comparison of any two configuration files and generate a list of the differences between them. The generated output includes information regarding configuration lines that have been added, modified, or deleted, and the configuration modes within which a changed configuration line exists. In Cisco IOS XE Release 2.1, this feature was introduced on Cisco ASR 1000 Series Routers. The following sections provide information about this feature: • Benefits of the Contextual Configuration Diff Utility, page 2 • Contextual Configuration Diff Utility Output Format, page 2 • Using the Contextual Configuration Diff Utility, page 3 The following commands were modified by this feature: **show archive config differences**, **show archive config incremental-diffs**.