

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 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.

- Prerequisites for Contextual Configuration Diff Utility, on page 1
- Restrictions for Contextual Configuration Diff Utility, on page 1
- Information About Contextual Configuration Diff Utility, on page 2
- How to Use the Contextual Configuration Diff Utility, on page 3
- Configuration Examples for the Contextual Configuration Diff Utility, on page 4
- Additional References, on page 8
- Feature Information for Contextual Configuration Diff Utility, on page 9

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 device 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

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 by using the **show archive config differences** command. Interpreting the output is dependent on the order in which the two files are specified in the 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 identifies 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 by using the **show archive config incremental-diffs** command, which compares a specified configuration file to the running configuration file ().

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 appear only in the specified file that is being compared to the running configuration file) is generated as output. An exclamation point (!) with descriptive comments identifies 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

Performing a Line-by-Line File Comparison Using the Contextual Configuration Diff Utility

SUMMARY STEPS

1. **enable**
2. Enter one of the following:
   - **show archive config differences** [*file1* [*file2*]]
   - **show archive config incremental-diffs** *file*
3. **exit**

DETAILED STEPS

Procedure

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

Step 2	Enter one of the following:
	• **show archive config differences** [*file1* [*file2*]]
	• **show archive config incremental-diffs** *file*
	Example:
	`Device# show archive config differences running-config startup-config`
	Example:
	`Device# show archive config incremental-diffs nvram:startup-config`
		Performs a line-by-line comparison of any two configuration files (accessible through the Cisco IOS File System 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.
		Note
		When the **show archive config differences** command is executed without specifying any file parameters, the command compares the running configuration file to the startup configuration file by default. Specifically:
		• If no filename arguments are provided, the command assumes the first configuration file is the running configuration and the second is the startup configuration.

	Command or Action	Purpose
		• If only one filename argument is provided, the command assumes the second configuration file is the running configuration.
Step 3	**exit** **Example:** `Device# exit`	Exits to user EXEC mode.

Configuration Examples for the Contextual Configuration Diff Utility

Diff Operation Example

In this example, a diff operation is performed on the running and startup configuration files. The table below 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 subnet-zero
ip cef	ip cef
interface FastEthernet1/0	ip name-server 10.4.4.4
ip address 10.7.7.7 255.0.0.0	voice dnis-map 1
no ip route-cache	dnis 111
no ip mroute-cache	interface FastEthernet1/0
duplex half	no ip address
no ip classless	no ip route-cache
snmp-server community public RO	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 the table below.

```
Device# 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. The table below 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	no ip subnet-zero
ip cef	ip cef
ip name-server 10.4.4.4	interface FastEthernet1/0
voice dnis-map 1	ip address 10.7.7.7 255.0.0.0
dnis 111	no ip route-cache
interface FastEthernet1/0	no ip mroute-cache
no ip address	duplex half
no ip route-cache	no ip classless
no ip mroute-cache	snmp-server community public RO
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 incremental-diffs**command. This sample output displays the results of the incremental diff operation performed on the configuration files in the table below.

```
Device# 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

The following sections provide references related to the Configuration Partitioning feature.

Related Documents

Related Topic	Document Title
Running configuration performance enhancement--**parserconfigcache** for interfaces.	Configuration Generation Performance Enhancement
Provisioning of customer services, Config Rollback, Config Locking, and configuration access control	Contextual Configuration Diff Utility
Configuration management--Config change logging.	Configuration Change Notification and Logging
Configuration management --Quick-save for config change logging[1].	Configuration Logger Persistency
Cisco IOS software configuration access control and config session locking ("Config Lock").	Exclusive Configuration Change Access and Access Session Locking

[1] The "Configuration Logger Persistency" feature allows saving just the commands entered since the last startup-config file was generated, rather than saving the entire startup configuration.

Standards

Standard	Title
No standards are associated with this feature.	--

MIBs

MIB	MIBs Link
No new or modified MIBs are supported by this feature, and support for existing MIBs has not been modified by this feature.	--

RFCs

RFC	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

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

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

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 commands were modified by this feature: **show archive config differences**, **show archive config incremental-diffs**.