Configuration Generation Performance Enhancement

The Configuration Generation Performance Enhancement feature assists configuration management by enabling faster collection of running configuration file information. This feature is especially useful in managing large networks with numerous interfaces configured.

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Restrictions for Configuration Generation Performance Enhancement

The device on which the Configuration Generation Performance Enhancement feature is used must have enough memory available to store (cache) a large interface configuration file. For example, if the interface configurations take up 15 KB of memory, using this feature would require having an additional 15 KB of memory space available.

Information About Configuration Generation Performance Enhancement

Cisco IOS XE Software Configuration Storage

In the Cisco IOS XE software configuration model, the configuration state is maintained in a distributed manner, with each component storing its own configuration state. To retrieve configuration information, the software must poll every component to collect the distributed information. This configuration state retrieval operation is performed by a process known as nonvolatile generation (NVGEN), and it is used by command-line interface (CLI) commands such as **show running-configuration**, **write memory**, and **copy**

system:running-configuration to display or copy the running system configuration. When invoked, NVGEN queries each system component and each instance of interface or other configuration objects. A running configuration file is constructed as NVGEN traverses the system performing these queries.

Benefits of the Configuration Generation Performance Enhancement

Before the Configuration Generation Performance Enhancement feature was introduced, NVGEN always had to query the entire system and could generate only a total configuration. The time required to process the running configuration creates performance problems for configuration management, because completion of the NVGEN operation can take many minutes.

The Configuration Generation Performance Enhancement feature reduces the execution time for NVGEN processes and is especially useful for managing large configuration files that contain numerous interface configurations. This feature provides faster execution of commands that process the running system configuration by caching interface configuration information in system memory, and by retrieving only configuration information that has changed.

How to Configure the Configuration Generation Performance Enhancement

Configuring the Configuration Generation Performance Enhancement

Perform this task to enable the Configuration Generation Performance Enhancement.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **parser config cache interface**
4. **end**

DETAILED STEPS

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.

	Command or Action	Purpose
Step 3	**parser config cache interface** **Example:** `Device(config)# parser config cache interface`	Reduces the time required for the CLI to execute commands that manage the running system configuration, especially for large configuration files.
Step 4	**end** **Example:** `Device(config)# end`	Exits global configuration mode and returns to privileged EXEC mode.

Configuration Examples for the Configuration Generation Performance Enhancement

Configuring the Configuration Generation Performance Enhancement Example

The following example shows how to enable the Configuration Generation Performance Enhancement feature:

```
Device(config)# parser config cache interface
```

Verifying the Configuration Generation Performance Enhancement Example

You can verify that the **parserconfigcacheinterface** command has been enabled by checking for the command in the system configuration file displayed when you enter the **showrunning-configuration** EXEC command.

Note The first time you display the configuration file, you will not see much evidence of improvement in performance because the interface cache will be filled up. However, you will notice performance improvements when you enter subsequent NVGEN-type commands such as the **showrunning-config** EXEC command. Each time the interface configuration changes, the cache of the specified interface is flushed. The other interface data remains cached as before. Entering an NVGEN-type command after modifying the interface configuration will once again not show much evidence of improvement until the next NVGEN-type command is entered.

```
Device# show running-config
!
!
parser config cache interface
!
!
```

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 Configuration Generation Performance Enhancement

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 https://cfnng.cisco.com/. An account on Cisco.com is not required.

Table 1: Feature Information for the Configuration Generation Performance Enhancement Feature

Feature Name	Releases	Feature Information
Configuration Generation Performance Enhancement		The Configuration Generation Performance Enhancement feature assists configuration management by enabling faster collection of running configuration file information. This feature is especially useful in managing large networks with numerous interfaces configured. Commands associated with this feature: • **parser config cache interface** • **parser config partition** • **parser cache**