



Cisco 7300 Series Power-On Diagnostics

Feature History

Release	Modification
12.1(10)EX2	This feature was introduced.
12.2(18)S	This feature was introduced on Cisco 7304 routers running Cisco IOS Release 12.2 S.

This document describes the Cisco 7300 Series Power-On Diagnostics feature and contains the following sections:

- [Feature Overview, page 1](#)
- [Supported Platforms, page 3](#)
- [Supported Standards, MIBs, and RFCs, page 3](#)
- [Configuration Tasks, page 4](#)
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Feature Overview

With the Cisco 7300 Series Power-On Diagnostics feature you can configure your Cisco 7300 series router to run diagnostic tests on the installed network services engines (NSEs) installed in your system. Use the **diagnostic level power-on** command to enable power on diagnostics. The power-on diagnostics run only when the system is in the process of booting from a power on or is rebooting after a system crash. User-initiated system reloads do not initiate power on diagnostics to be performed though the **diagnostic level power-on** command has been configured.



Note

Any failure in the power-on diagnostics results in the boot of the software being aborted.

[Table 1](#) lists possible error messages which may be generated upon reboot when Power-On Diagnostics is enabled.

Table 1 Power-On Diagnostic Error Messages

CPU Cache Error Messages
Uncached Memory Access Fails (Addr Pattern) - Execute Memory Test to verify problem
Read Miss Fails to fill Cache - CPU Cache Invalidation mechanism fails
Read Miss Disturbed Physical Memory Contents
Uncached Memory Access Fails (Increment Pattern)
Altering Physical Memory Affects Cached Data (Increment Pattern)
Cache Read Hit disturbed Physical memory contents (Increment Pattern)
CacheClean Failed
System Memory Error Messages
Testing DRAM..... Error in Data Path Test: Expected:0XXXXXXXXX. Read:0YYYYYYYY Failed
Testing DRAM over 256MB Error in Data Path Test: Expected:0XXXXXXXXX. Read:0YYYYYYYY Failed

Benefits

- Online diagnostics tests report any hardware failures after booting after a router crash or power cycle.

Restrictions

- Enabling Power-On Diagnostics increases bootup time.
- Any failure in the power-on diagnostics results in the boot of the software being aborted.

Related Features and Technologies

- Cisco 7300 High Availability NSE Redundancy

Related Documents

- [Cisco IOS Configuration Fundamentals Command Reference](#), Release 12.1
- [Cisco IOS Configuration Fundamentals Configuration Guide](#), Release 12.1
- [Cisco 7300 Series High Availability NSE Redundancy](#)
- [Cisco 7300 Series Platform-Specific Commands](#)
- [Cisco 7304 Router Installation and Configuration Guide](#)

- [Cisco 7304 Router Quick Start Guide](#)
- [Cisco 7304 Troubleshooting](#)
- [Network Services Engine Installation and Configuration Guide](#)

Supported Platforms

- Cisco 7300 series

Availability of Cisco IOS Software Images

Platform support for particular Cisco IOS software releases is dependent on the availability of the software images for those platforms. Software images for some platforms may be deferred, delayed, or changed without prior notice. For updated information about platform support and availability of software images for each Cisco IOS software release, refer to the online release notes or, if supported, Cisco Feature Navigator.

Supported Standards, MIBs, and RFCs

Standards

No new or modified standards are supported by this feature.

MIBs

No new or modified MIBs are supported by this feature.

To obtain lists of supported MIBs by platform and Cisco IOS release, and to download MIB modules, go to the Cisco MIB website on Cisco.com at the following URL:

<http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml>

RFCs

No new or modified RFCs are supported by this feature.

Configuration Examples

This section provides the following configuration example:

- [Configuring Power-On Diagnostics Example, page 5](#)

Configuring Power-On Diagnostics Example

The following example shows how to enable power-on diagnostic tests for the NSEs installed in a Cisco 7300 series router:

```
diagnostic level power-on
```

When power-on diagnostic tests are enabled, output similar to the following is displayed upon system reboot after a router crash or power cycle:

```
.  
. .  
. .  
System Power On Diagnostics  
DRAM Size .....128 MB  
Testing DRAM.....Passed  
Level2 Cache .....Present  
Testing Level2 Cache (256 KB)Passed  
Level3 Cache .....Present  
Testing Level3 Cache (1024 KB)Passed  
  
System Power On Diagnostics Complete
```

Command Reference

This section documents the new command introduced by this feature. All other commands used with this feature are documented in the Cisco IOS Release 12.1 command reference publications, and in the document *Cisco 7304 Series Platform-Specific Commands*.

- **diagnostic level**

diagnostic level

To turn on power-on diagnostic tests for the network service engines (NSEs) installed in a Cisco 7300 series router, use the **diagnostic level** command in privileged EXEC configuration mode. There is no **no** form of this command.

diagnostic level { power-on | bypass }

Syntax Description

power-on	Power-on diagnostic tests are performed at system bootup on the NSEs.
bypass	No diagnostic tests are performed. This is the default.

Defaults

No diagnostic tests are performed.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.1(10)EX2	This command was introduced.
12.2(18)S	This command was introduced on Cisco 7304 routers running Cisco IOS Release 12.2 S.

Usage Guidelines

Use this command to enable power-on diagnostic tests to run on the installed NSEs of a Cisco 7300 series router when the system is booted. It is recommended that you issue this command only if you are experiencing problems with an NSE and are planning on rebooting the router. Issuing this command causes an increase in the boot time.

Examples

The following example shows how to enable diagnostic power-on tests:

```
diagnostic level power-on
```

The following sample output shows the output that is displayed upon system bootup after a power cycle or router crash:

```
.
.
.
System Power On Diagnostics
DRAM Size .....128 MB
Testing DRAM.....Passed
Level2 Cache .....Present
Testing Level2 Cache (256 KB)Passed
Level3 Cache .....Present
Testing Level3 Cache (1024 KB)Passed

System Power On Diagnostics Complete
```

**Note**

This output is displayed when the system is booting, not when the command is issued.

Related Commands

Command	Description
debug redundancy	Enables NSE redundancy debugging.
show c7300	Displays the types of cards (NSE and line cards) installed in a Cisco 7300 series router.
show redundancy (7300)	Displays redundancy information for the active and standby NSEs.

■ diagnostic level