

# 瞭解所有路由器的組態暫存器使用情況

## 目錄

---

### [簡介](#)

### [必要條件](#)

#### [需求](#)

#### [採用元件](#)

#### [慣例](#)

### [配置暫存器的用途](#)

### [配置暫存器值及其意義](#)

#### [配置](#)

##### [平台通用引數](#)

##### [位順序值](#)

### [排除配置暫存器故障](#)

#### [未知配置暫存器值故障排除](#)

#### [排除已知配置暫存器值的故障](#)

### [設定配置暫存器](#)

#### [從配置模式設定配置暫存器](#)

#### [從ROMmon設定配置暫存器](#)

### [相關資訊](#)

---

## 簡介

本文說明如何更新配置暫存器(config-register)以更改路由器行為。

## 必要條件

### 需求

本文件沒有特定需求。

### 採用元件

本文件所述內容不限於特定軟體和硬體版本。

本文中的資訊是根據特定實驗室環境內的裝置所建立。文中使用到的所有裝置皆從已清除（預設）的組態來啟動。如果您的網路運作中，請確保您瞭解任何指令可能造成的影響。

### 慣例


如需文件慣例的詳細資訊，請參閱[思科技術提示慣例](#)。

## 配置暫存器的用途

配置暫存器可用於以多種方式更改路由器行為，例如：

- 路由器如何啟動（進入ROMmon、NetBoot）
- 啟動選項（忽略配置，禁用啟動消息）
- 控制檯速度（終端模擬會話的波特率）

---

 注意：如果波特率設定為不同於預設速率，則CLI上會顯示奇數字元。檢查「通用平台引數」表，為不同的值設定波特`confreg`率。

---

可使用`config-register`命令從配置模式設定配置暫存器。從ROMmon執行`confreg`命令。發出`show version`命令以檢視組態暫存器的目前設定：

```
<#root>
```

```
Router#
```

```
show version
```

```
Cisco IOS XE Software, Version 16.10.01a
Cisco IOS Software [Gibraltar], ASR1000 Software (X86_64_LINUX_IOSD-UNIVERSALK9-M), Version 16.10.1a, R
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2018 by Cisco Systems, Inc.
Compiled Thu 29-Nov-18 03:47 by mcpre
```

```
Cisco IOS-XE software, Copyright (c) 2005-2018 by cisco Systems, Inc.
All rights reserved. Certain components of Cisco IOS-XE software are
licensed under the GNU General Public License ("GPL") Version 2.0. The
software code licensed under GPL Version 2.0 is free software that comes
with ABSOLUTELY NO WARRANTY. You can redistribute and/or modify such
GPL code under the terms of GPL Version 2.0. For more details, see the
documentation or "License Notice" file accompanying the Cisco IOS-XE software,
or the applicable URL provided on the flyer accompanying the Cisco IOS-XE
software.
```

```
ROM: IOS-XE ROMMON
```

```
Router uptime is 2 minutes
Uptime for this control processor is 5 minutes
System returned to ROM by Reload Command
System image file is "bootflash:asr1002x-universalk9.16.10.01a.SPA.bin"
Last reload reason: Reload Command
```

```
This product contains cryptographic features and is subject to United
States and local country laws governing import, export, transfer and
use. Delivery of Cisco cryptographic products does not imply
third-party authority to import, export, distribute or use encryption.
Importers, exporters, distributors and users are responsible for
compliance with U.S. and local country laws. By using this product you
agree to comply with applicable laws and regulations. If you are unable
to comply with U.S. and local laws, return this product immediately.
```

A summary of U.S. laws governing Cisco cryptographic products may be found at:  
<http://www.cisco.com/wwl/export/crypto/tool/stqrg.html>

If you require further assistance please contact us by sending email to  
[export@cisco.com](mailto:export@cisco.com).

License Type: Smart License is permanent  
License Suite: AdvUCSuiteK9  
Next reload License Suite: AdvUCSuiteK9  
The current throughput level is 10000000 kbps

Smart Licensing Status: UNREGISTERED/EVAL MODE

cisco ASR1002-X (2RU-X) processor (revision 2KP) with 1189381K/6147K bytes of memory.  
Processor board ID FOX1719GE28  
14 Gigabit Ethernet interfaces  
1 Ten Gigabit Ethernet interface  
32768K bytes of non-volatile configuration memory.  
4194304K bytes of physical memory.  
6684671K bytes of eUSB flash at bootflash:.  
0K bytes of WebUI ODM Files at webui:.

Configuration register is 0x2102

配置暫存器的出廠預設設定為0x2102。這表示路由器必須嘗試從快閃記憶體載入Cisco IOS®軟體映像，並以控制檯速度9600波特載入啟動配置。

## 配置暫存器值及其意義

configreg

如果您知道配置暫存器的值，就可以確定其重要性。有關配置暫存器、潛在問題和修復的資訊，請收集show version命令或show tech-support命令的輸出，然後輸入到[Cisco CLI Analyzer](#)工具。



附註：只有註冊思科使用者才能訪問內部工具和錯誤資訊。

此表包含一些在大多數平台上有效的常用引數。



注意：在將路由器上的配置暫存器更改為下表中的值之一之前，請檢查相應的硬體安裝指南以驗證配置暫存器是否可用。

### 平台通用引數

配置暫存器集	路由器行為
0x102	<ul style="list-style-type: none"><li>忽略分隔符</li></ul>

	<ul style="list-style-type: none"> <li>• 9600主控台波特率</li> </ul>
0x1202	<ul style="list-style-type: none"> <li>• 1200波特率</li> </ul>
0x2101	<ul style="list-style-type: none"> <li>• 引導至載入程式</li> <li>• 忽略分隔符</li> <li>• 如果初始引導失敗，則引導至ROM</li> <li>• 9600主控台波特率</li> </ul>
0x2102	<ul style="list-style-type: none"> <li>• 忽略分隔符</li> <li>• 如果初始引導失敗，則引導至ROM</li> <li>• 大多數平台的9600控制檯波特率預設值</li> </ul>
0x2120	<ul style="list-style-type: none"> <li>• 引導至ROMmon</li> <li>• 19200控台速度</li> </ul>
0x2122	<ul style="list-style-type: none"> <li>• 忽略分隔符</li> <li>• 如果初始引導失敗，則引導至ROM</li> <li>• 19200控制檯波特率</li> </ul>
0x2124	<ul style="list-style-type: none"> <li>• NetBoot</li> <li>• 忽略分隔符</li> <li>• 如果初始引導失敗，則引導至ROM</li> <li>• 19200控台速度</li> </ul>
0x2142	<ul style="list-style-type: none"> <li>• 忽略分隔符</li> <li>• 如果初始引導失敗，則引導至ROM</li> <li>• 9600主控台波特率</li> <li>• 忽略非易失性RAM(NVRAM)的內容 ( 忽略配置 )</li> </ul>
0x2902	<ul style="list-style-type: none"> <li>• 忽略分隔符</li> <li>• 如果初始引導失敗，則引導至ROM</li> <li>• 4800主控台波特率</li> </ul>
0x2922	<ul style="list-style-type: none"> <li>• 忽略分隔符</li> <li>• 如果初始引導失敗，則引導至ROM</li> <li>• 38400控制檯波特率</li> </ul>

0x3122	<ul style="list-style-type: none"> <li>• 忽略分隔符</li> <li>• 如果初始引導失敗，則引導至ROM</li> <li>• 57600控制檯波特率</li> </ul>
0x3902	<ul style="list-style-type: none"> <li>• 忽略分隔符</li> <li>• 如果初始引導失敗，則引導至ROM</li> <li>• 2400控制檯波特率</li> </ul>
0 x 3922	<ul style="list-style-type: none"> <li>• 忽略分隔符</li> <li>• 如果初始引導失敗，則引導至ROM</li> <li>• 115200控制檯波特率</li> </ul>

 注意：另請記住，配置暫存器0x2142用於密碼恢復過程，因為它可以忽略NVRAM的內容。

如果表中沒有配置暫存器的值，則確定設定哪些位以計算值：

位順序值

位數	十六進位	意義
00-03	0x0000-0x000F	啟動欄位引數： <ul style="list-style-type: none"> <li>• 0x0000 — 保持在系統載入程式提示符下。</li> <li>• 0x0001 — 啟動板載快閃記憶體(EPROM)中的第一個系統映像。</li> <li>• 0x0002-0x000F — 指定預設的netboot檔名。啟用覆蓋預設網路引導檔名的引導系統命令。</li> </ul>
06	0040	<ul style="list-style-type: none"> <li>• 忽略NVRAM內容。</li> </ul>
07	0x0080	<ul style="list-style-type: none"> <li>• 禁用啟動消息。</li> </ul>
08	0x0100	<ul style="list-style-type: none"> <li>• Break已禁用。</li> </ul>
09	0x0200	<ul style="list-style-type: none"> <li>• 使系統選擇輔助載入程式。通常不使用此選項（設定為0）。</li> </ul>
10	0x0400	<ul style="list-style-type: none"> <li>• 全部為零的IP廣播。</li> </ul>

5,11,12	0x0020、 0x0800、0x1000	<ul style="list-style-type: none"> <li>• 控制檯線路速度</li> </ul>
13	0x2000	<ul style="list-style-type: none"> <li>• 在網路引導失敗時引導預設ROM軟體</li> </ul>
14	0x4000	<ul style="list-style-type: none"> <li>• IP廣播沒有淨號碼</li> </ul>
15	0x8000	<ul style="list-style-type: none"> <li>• 啟用診斷消息</li> <li>• 忽略NVRAM內容</li> </ul>

## 排除配置暫存器故障

配置暫存器的設定不當會導致很多問題，例如：

- 配置檔案被忽略。
- 控制檯沒有輸出或垃圾輸出。
- 引導至ROMmon。

將配置暫存器更改為適當的引數，例如出廠預設值為0x2102，以便解決這些問題。

## 未知配置暫存器值故障排除

如果配置暫存器值未知，請嘗試與路由器建立Telnet或控制檯會話。然後可以檢查show version輸出以確定配置暫存器的值：

```
<#root>
```

```
Router#
```

```
show version
```

```
Cisco IOS XE Software, Version 16.10.01a
Cisco IOS Software [Gibraltar], ASR1000 Software (X86_64_LINUX_IOSD-UNIVERSALK9-M), Version 16.10.1a, R
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2018 by Cisco Systems, Inc.
Compiled Thu 29-Nov-18 03:47 by mcpre
```

```
Cisco IOS-XE software, Copyright (c) 2005-2018 by cisco Systems, Inc.
All rights reserved. Certain components of Cisco IOS-XE software are
licensed under the GNU General Public License ("GPL") Version 2.0. The
software code licensed under GPL Version 2.0 is free software that comes
with ABSOLUTELY NO WARRANTY. You can redistribute and/or modify such
GPL code under the terms of GPL Version 2.0. For more details, see the
documentation or "License Notice" file accompanying the Cisco IOS-XE software,
or the applicable URL provided on the flyer accompanying the Cisco IOS-XE
```

software.

ROM: IOS-XE ROMMON

```
Router uptime is 1 minute
Uptime for this control processor is 4 minutes
System returned to ROM by Reload Command
System image file is "bootflash:asr1002x-universalk9.16.10.01a.SPA.bin"
Last reload reason: Reload Command
```

This product contains cryptographic features and is subject to United States and local country laws governing import, export, transfer and use. Delivery of Cisco cryptographic products does not imply third-party authority to import, export, distribute or use encryption. Importers, exporters, distributors and users are responsible for compliance with U.S. and local country laws. By using this product you agree to comply with applicable laws and regulations. If you are unable to comply with U.S. and local laws, return this product immediately.

A summary of U.S. laws governing Cisco cryptographic products may be found at:  
<http://www.cisco.com/wwl/export/crypto/tool/stqrg.html>

If you require further assistance please contact us by sending email to [export@cisco.com](mailto:export@cisco.com).

```
License Type: Smart License is permanent
License Level: adventerprise
Next reload license Level: adventerprise
The current throughput level is 10000000 kbps
```

Smart Licensing Status: UNREGISTERED/EVAL MODE

```
cisco ASR1002-X (2RU-X) processor (revision 2KP) with 1189381K/6147K bytes of memory.
Processor board ID FOX1719GE28
14 Gigabit Ethernet interfaces
1 Ten Gigabit Ethernet interface
32768K bytes of non-volatile configuration memory.
4194304K bytes of physical memory.
6684671K bytes of eUSB flash at bootflash:.
0K bytes of WebUI ODM Files at webui:.
```


Configuration register is 0x2142

如果無法建立主控台作業階段，或只看到垃圾字元，則可能是由於路由器和終端模擬軟體之間的速度不相符所致。嘗試更改終端模擬軟體的波特率。可能的速率包括1200、2400、4800、9600、19200、38400、57600和115200。建立會話後，可以發出show version命令來確定設定。如果路由器處於ROMmon模式，您可以嘗試發出boot命令來手動引導作業系統。

```
rommon 4 > boot bootflash:asr1002x-universalk9.16.10.01a.SPA.bin
```

有關配置暫存器集的重要性以及潛在問題和修復的資訊，請收集show version命令或show tech-support命令的輸出，然後輸入到[Cisco CLI Analyzer](#)工具。

---

 附註：只有註冊思科使用者才能訪問內部工具和錯誤資訊。

---

## 排除已知配置暫存器值的故障

如果您知道配置暫存器的值，請檢視Configuration Register表以確定行為。如果可以通過Telnet訪問路由器，請建立與路由器的會話。如果不是，將終端模擬程式設定為配置暫存器集指示的波特率，以建立控制檯會話，其中9600波特率是預設值。

## 設定配置暫存器

檢視「配置暫存器」表，確定所需的配置暫存器集（通常為0x2102）。

### 從配置模式設定配置暫存器

發出config-register命令以設定組態暫存器：

```
<#root>
```

```
Router#
```

```
Router#
```

```
configure terminal
```

```
Enter configuration commands, one per line. End with CNTL/Z.
```

```
Router(config)#
```

```
config-register 0x2102
```

```
Router(config)#
```

```
end
```

```
Router#
```

```
show version
```

```
Cisco IOS XE Software, Version 16.10.01a
```

```
Cisco IOS Software [Gibraltar], ASR1000 Software (X86_64_LINUX_IOSD-UNIVERSALK9-M), Version 16.10.1a, R
```

```
Technical Support: http://www.cisco.com/techsupport
```

```
Copyright (c) 1986-2018 by Cisco Systems, Inc.
```

```
Compiled Thu 29-Nov-18 03:47 by mcpre
```

```
Cisco IOS-XE software, Copyright (c) 2005-2018 by cisco Systems, Inc.
```

```
All rights reserved. Certain components of Cisco IOS-XE software are
```

```
licensed under the GNU General Public License ("GPL") Version 2.0. The
```

```
software code licensed under GPL Version 2.0 is free software that comes
```

```
with ABSOLUTELY NO WARRANTY. You can redistribute and/or modify such
```

```
GPL code under the terms of GPL Version 2.0. For more details, see the
```

```
documentation or "License Notice" file accompanying the Cisco IOS-XE software,
```

```
or the applicable URL provided on the flyer accompanying the Cisco IOS-XE
```

```
software.
```



ROM: IOS-XE ROMMON

Router uptime is 6 minutes  
Uptime for this control processor is 9 minutes  
System returned to ROM by Reload Command  
System image file is "bootflash:asr1002x-universalk9.16.10.01a.SPA.bin"  
Last reload reason: Reload Command

This product contains cryptographic features and is subject to United States and local country laws governing import, export, transfer and use. Delivery of Cisco cryptographic products does not imply third-party authority to import, export, distribute or use encryption. Importers, exporters, distributors and users are responsible for compliance with U.S. and local country laws. By using this product you agree to comply with applicable laws and regulations. If you are unable to comply with U.S. and local laws, return this product immediately.

A summary of U.S. laws governing Cisco cryptographic products may be found at:  
<http://www.cisco.com/wwl/export/crypto/tool/stqrg.html>

If you require further assistance please contact us by sending email to [export@cisco.com](mailto:export@cisco.com).

License Type: Smart License is permanent  
License Level: adventerprise  
Next reload license Level: adventerprise  
The current throughput level is 10000000 kbps

Smart Licensing Status: UNREGISTERED/EVAL MODE

cisco ASR1002-X (2RU-X) processor (revision 2KP) with 1189381K/6147K bytes of memory.  
Processor board ID FOX1719GE28  
14 Gigabit Ethernet interfaces  
1 Ten Gigabit Ethernet interface  
32768K bytes of non-volatile configuration memory.  
4194304K bytes of physical memory.  
6684671K bytes of eUSB flash at bootflash:.  
0K bytes of WebUI ODM Files at webui:.

Configuration register is 0x2142 (will be 0x2102 at next reload)

路由器重新載入後，新的配置暫存器集將變為活動狀態。

<#root>

Router#

reload

System configuration has been modified. Save? [yes/no]:

n

Proceed with reload? [confirm]

## 從ROMmon設定配置暫存器

如果路由器處於ROMmon模式，請使用confreg命令設定配置暫存器：

```
<#root>
```

```
rommon 1 >
```

```
confreg 0x2102
```

您必須重置或重新通電才能使新配置暫存器生效。

## 相關資訊

- [為什麼路由器在重新啟動時丟失其配置？](#)
- [密碼復原程序](#)
- [軟體配置暫存器](#)
- [技術支援與文件 - Cisco Systems](#)

## 關於此翻譯

思科已使用電腦和人工技術翻譯本文件，讓全世界的使用者能夠以自己的語言理解支援內容。請注意，即使是最佳機器翻譯，也不如專業譯者翻譯的內容準確。Cisco Systems, Inc. 對這些翻譯的準確度概不負責，並建議一律查看原始英文文件（提供連結）。