

# Troubleshooting Tips for Powering On NonStop BladeSystems



© Copyright 2010 Hewlett-Packard Development Company, L.P.

**Legal Notice**

See Appendix : Legal Notice (page 9) for legal notices.

---

# About This Document

This document provides “Troubleshooting Tips” (page 7) to help you quickly diagnose and recover from problems powering on HP Integrity NonStop BladeSystems. The “Introduction” (page 5) also provides information that will help avoid startup issues.

## Supported Release Version Updates (RVUs)

This topic supports J06.03 and all subsequent J-series RVUs until otherwise indicated in a replacement publication.

## Intended Audience

This document is intended for anyone who is responsible for monitoring or servicing HP Integrity NonStop BladeSystems. While certain configuration and recovery tasks are for HP authorized service providers only, there are steps that any operator can take to prevent or quickly recover from problems powering on NonStop BladeSystems or individual server blades.

## New and Changed Information in This Edition

Version	Date	Changes
632168-001	August 2010	None. New document.

## Related Information

Information related to planning and basic operations for NonStop BladeSystems can be found in these documents:

- *NonStop BladeSystem Planning Guide*
- *NonStop Operations Guide for H-Series and J-Series RVU*
- *Locating and Troubleshooting DHCP, TFTP, and DNS Services on the NonStop Dedicated Service LAN*
- *Changing the DHCP, DNS, or BOOTP Server from System Consoles to CLIMs*
- *Changing the DHCP, DNS, or BOOTP Server from CLIMs to System Consoles*

Additional tasks, for HP authorized service providers only, are described in these documents:

- *NonStop BladeSystem Hardware Installation Manual*
- *NonStop Dedicated Service LAN Installation and Configuration Guide*
- *Configuring NonStop BladeSystems to Avoid System Startup Problems*

For Important Safety Information, Safety and Compliance, and Waste Electrical and Electronic Equipment (WEEE) information, see the HP Integrity NonStop Server Safety and Compliance collection in SAW at <http://www.hp.com/go/nonstop-support-docs>.



**NOTE:** NTL has moved to <http://www.hp.com/go/nonstop-docs> (external view) and <http://www.hp.com/go/nonstop-support-docs> (internal view.)

To get an alphabetical list of manuals in SAW, click the  icon next to the desired documentation collection, click **Technical Manuals** in the menu on the left, then click **Title** to sort a table of manuals by title.

---

## HP Encourages Your Comments

HP encourages your comments concerning this document. We are committed to providing documentation that meets your needs. Send any errors found, suggestions for improvement, or compliments to [docsfeedback@hp.com](mailto:docsfeedback@hp.com).

Include the document title, part number, and any comment, error found, or suggestion for improvement you have concerning this document.

---

# Introduction

This section describes the environment that must be in place in order for server blades in HP Integrity NonStop BladeSystems to be successfully reset, powered on, or power cycled. It includes pointers to proactive steps you or your service provider can take to help ensure trouble-free system startup. The “Troubleshooting Tips” (page 7) section that follows provides tips to help you quickly recover in the event of system or server blade startup problems.

In order to be reset or started, the server blades in NonStop BladeSystems require access to DHCP and TFTP services and a customized Halted State Services (HSS) firmware file, all of which must be located on either the primary and backup NonStop system consoles or on two designated CLuster I/O Modules (CLIMs) located on the dedicated service LAN.

## DHCP, DNS, and TFTP Services

DHCP, DNS, and TFTP services are configured on the dedicated service LAN by your service provider during system installation. Whether you have one or multiple NonStop BladeSystems connected to the LAN, there should always be two, and no more two, sources of these services on the LAN. You can migrate these services from the NonStop system consoles to CLIMs (and vice versa) using the OSM CLIM Boot Service Configuration Wizard. Because they are vital for powering on NonStop BladeSystems, it is important to know where these services are located on your LAN. If you don't know where they are located, unsure of their status, or need to disable additional sources of these services, see *Locating and Troubleshooting DHCP, TFTP, and DNS Services on the NonStop Dedicated Service LAN* in the NonStop Technical Library.

## Halted State Services (HSS) Firmware

While DHCP and TFTP services are provided on a per LAN basis for all systems connected to the dedicated service LAN, each NonStop BladeSystem requires that a customized HSS firmware file be present at the same location providing those DHCP and TFTP services, as TFTP is used by DHCP to download the HSS file to the server blades in the NonStop BladeSystems when powering on.

The customized HSS files are located:

- When stored on NonStop system consoles: C:\Images\NBsystem\_serial\_number.efi.
- When stored on CLIMs: /opt/hp/Images/NBsystem\_serial\_number.efi.

Updates to HSS firmware are delivered on the NonStop System Console DVD and downloaded to the system consoles as described in the *NonStop System Console Installer Guide*. After downloading a newer HSS version from the DVD, you are directed to use the OSM Low-Level Link to update the customized files used by each individual NonStop BladeSystem. OSM automatically detects whether Bootp services (a term that refers to DHCP and TFTP services as well as HSS files) are configured on NonStop system consoles or on designated CLIMs. Because of the importance of keeping HSS file versions consistent in both configured locations, OSM prompts you for Peer NSC credentials -- or when CLIMs are used, OSM pre-populates the Host Name fields with their IP addresses and prompts you for their credentials -- so the updated firmware file will be copied to both configured locations.

To update the HSS firmware currently running on your NonStop BladeSystem, OSM provides one action that will reset all the server blades and another action if you are only updating one server blade and do not want to reset all server blades. For more information see the OSM Low-Level Link online help.

## Configuring NonStop BladeSystems to Avoid Startup Problems

Because server blades in NonStop BladeSystems cannot power on without access to services and files located on either system consoles or CLIMs, there can be a problem when the server blades

try to power on before those consoles or CLIMs are available – which could potentially happen when recovering from a power outage.

HP is recommending new server blade configuration settings designed to greatly decrease the likelihood of this situation occurring. These new settings involve increasing both the number of boot path entries and the AutoBoot Retry Configuration value. NonStop BladeSystems shipped after J06.10 will have these new configuration values by default. HP recommends that the service providers check for, and implement if necessary, these new settings:

- For server blades in all existing NonStop BladeSystems shipped before J06.10.
- When adding a c7000 enclosure to a NonStop BladeSystem.
- When replacing a server blade in a NonStop BladeSystem.

The procedure for performing these configuration changes, available for service providers only, can be found in *Configuring NonStop BladeSystems to Avoid System Startup Problems* (located in the Service Information collection in the NonStop Technical Library).

---

## Troubleshooting Tips

This section provides tips to help you quickly diagnose the problem and recover in the event of problems powering on.

If a NonStop BladeSystem or individual server blade does not power on following a power outage or other situation in which the system is being powered on at roughly the same time as the NonStop system consoles or CLIMs that are providing the Bootp services, see “Startup Problems Resulting from a Power Outage” (page 7).

If one or more server blades in a NonStop BladeSystem are powered on (as indicated by a Green LED) but the OSM Low-Level Link reports the processor status as "Not Installed" or shows no status at all, try the following:

1. Close the OSM Low-Level Link session, wait two or three minutes, then log on again and check to see if the processors are running HSS now.
2. Make sure there are two and not more than two sources of DHCP, DNS, and TFTP services running on your dedicated service LAN. If you don't know where they are located or how to check or change their status, see *Locating and Troubleshooting DHCP, TFTP, and DNS Services on the NonStop Dedicated Service LAN*.

Make sure that the second source does not have overlapping DHCP lease ranges (how to do this is also described in *Locating and Troubleshooting DHCP, TFTP, and DNS Services on the NonStop Dedicated Service LAN*). If an overlap is discovered, note all the IP address leases assigned by the improperly configured DHCP source, reconfigure that DHCP source, and then reset all devices (iLO & OA) whose IP addresses were assigned by that DHCP source.



---

**NOTE:** DHCP, DNS, and TFTP services should be configured by your service provider during system installation, as described in the *NonStop BladeSystem Hardware Installation Manual* and the *NonStop Dedicated Service LAN Installation and Configuration Guide* -- both of which are available for service providers only.

---

3. Check to make sure that the customized HSS file for that NonStop BladeSystem is installed and is the same version in both locations where the DHCP and TFTP services are located:
    - When stored on NonStop system consoles: C:\Images\NBsystem\_serial\_number.efi.
    - When stored on CLIMs: /opt/hp/Images/NBsystem\_serial\_number.efi.
- If a valid HSS file – one containing the system serial number in the file name – is not found, see “Halted State Services (HSS) Firmware” (page 5) for information on how to create one.
4. Check the NonStop system console for an antivirus package that might be blocking DHCP or TFTP requests on ports 67, 68, or 69.
  5. Check the NonStop system console to see if a firewall might be blocking the DHCP or TFTP ports (67, 68, or 69).
  6. Upon making corrections or adjustments in any of the previous steps, try again to power cycle the NonStop BladeSystem or individual server blades that were not powering on earlier. If the problem still exists, telnet to the server blade iLO and log on. Enter CL to look through the Console Logs, starting from the last page, to see if any PXE or DHCP errors have been reported.

## Startup Problems Resulting from a Power Outage

This section provides additional tips in the event that NonStop BladeSystems, individual processors, or CLIMs fail to power on following a power outage or other situation in which the

system is being powered on at roughly the same time as the NonStop system consoles or CLIMs that are providing the Bootp services.

- If a NonStop BladeSystem does not start after power has been restored, it is most likely because the system tried to access the HSS file before the system consoles or CLIMs on which the file is located were available. If this happens, the processors will not show up in the OSM Low-Level Link, so you must log on directly to the iLO web interface to reset or power on the processors. But first, make sure that at least one of the system consoles or CLIMs used to provide Bootp services (DHCP, TFTP and HSS files) is running. If you don't know where those services are being hosted on your dedicated service LAN, see *Locating and Troubleshooting DHCP, TFTP, and DNS Services on the NonStop Dedicated Service LAN*.

This might also be the cause for just some of the processors not starting, as the processors all look for the HSS file individually. Here also, since those processors will not show up in the OSM Low-Level Link, you must log on to the iLO web interface to reset or power on the processors.



---

**NOTE:** To avoid this problem in the future, see “Configuring NonStop BladeSystems to Avoid Startup Problems” (page 5).

---

- If individual processors do not start after power has been restored:
  - Check to see in the Onboard Administrator (OA) has denied it power:
    1. Log on to the server blade iLO.
    2. On the **System Status** tab, click on the link to go to to the **System Event Log**.
    3. Look for any power on-related error messages, such as “POWERON\_DENIED\_BUSY\_ERROR.”
    4. To recover, press the power button on the server blade or use OA interface to power on the server blade.
  - Check to see if the server blade is set to “Remain powered off:”
    1. Log on to the server blade iLO.
    2. On the **Virtual Devices** tab, click **Power & Reset** in the left pane.
    3. Check the **System Restore Power Settings**. If set to "Remain Powered Off," change it to "Automatically Power On," then click **Submit**.
    4. To power on the server blade, either:
      - Using the **System Power Control** setting, select “Power On” and click **Submit**.
      - Push the power button in the front of the server blade.
- If a CLIM does not start after power has been restored:

Check to see if the server blade is set to “Remain powered off:”

  1. Log on to the CLIM iLO.
  2. On the **Power Management** tab, check the **Power Configuration Settings**.
  3. If "Automatically Power on Server" is set to "No," change it to "Yes," then click **Submit**.
  4. Power on the CLIM using the **Virtual Power** button.

Check the iLO log for any power-related errors:

  1. Log on to the CLIM iLO.
  2. Select **iLO 2 Log** in the left pane.
  3. Look for sensor or power-related events in the log in the right pane.

---

# Legal Notice

## Legal Notice

Confidential computer software. Valid license from HP required for possession, use or copying. Consistent with FAR 12.211 and 12.212, Commercial Computer Software, Computer Software Documentation, and Technical Data for Commercial Items are licensed to the U.S. Government under vendor's standard commercial license.

**Warranty** The information contained herein is subject to change without notice. The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

Export of the information contained in this publication may require authorization from the U.S. Department of Commerce.

**Acknowledgements** Microsoft®, Windows®, Windows NT®, Windows® XP, and Windows Vista® are U.S. registered trademarks of Microsoft Corporation. Intel® and Intel® Itanium® are trademarks of Intel Corporation in the U.S. and other countries. Java™ is a US trademark of Sun Microsystems, Inc.. Motif, OSF/1, UNIX®, X/Open®, and the X device is a trademark of X/Open Company Ltd. in the UK and other countries. OSF, OSF/1, OSF/Motif, Motif, and Open Software Foundation are trademarks of the Open Software Foundation in the U.S. and other countries.

© 1990, 1991, 1992, 1993 Open Software Foundation, Inc. The OSF documentation and the OSF software to which it relates are derived in part from materials supplied by the following: © 1987, 1988, 1989 Carnegie-Mellon University. © 1989, 1990, 1991 Digital Equipment Corporation. © 1985, 1988, 1989, 1990 Encore Computer Corporation. © 1988 Free Software Foundation, Inc. © 1987, 1988, 1989, 1990, 1991 Hewlett-Packard Company. © 1985, 1987, 1988, 1989, 1990, 1991, 1992 International Business Machines Corporation. © 1988, 1989 Massachusetts Institute of Technology. © 1988, 1989, 1990 Mentat Inc. © 1988 Microsoft Corporation. © 1987, 1988, 1989, 1990, 1991, 1992 SecureWare, Inc. © 1990, 1991 Siemens Nixdorf Informations systeme AG. © 1986, 1989, 1996, 1997 Sun Microsystems, Inc. © 1989, 1990, 1991 Transarc Corporation. OSF software and documentation are based in part on the Fourth Berkeley Software Distribution under license from The Regents of the University of California. OSF acknowledges the following individuals and institutions for their role in its development: Kenneth C.R.C. Arnold, Gregory S. Couch, Conrad C. Huang, Ed James, Symmetric Computer Systems, Robert Elz. © 1980, 1981, 1982, 1983, 1985, 1986, 1987, 1988, 1989 Regents of the University of California. OSF MAKES NO WARRANTY OF ANY KIND WITH REGARD TO THE OSF MATERIAL PROVIDED HEREIN, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. OSF shall not be liable for errors contained herein or for incidental consequential damages in connection with the furnishing, performance, or use of this material.

