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HPE NonStop Core Licensing Guide

Abstract

This guide describes core licensing for the HPE NonStop systems that support this licensing feature and is intended for personnel who configure and manage NonStop systems.

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Contents

About This Manual	6
Revision History.....	6
NonStop core licensing overview.....	7
NonStop systems that require a core license.....	7
Core licensing prerequisites.....	8
NonStop core license considerations for L-Series.....	8
NonStop Metered Licensing (L21.06 or later RVUs).....	8
NonStop Application Direct Interface functionality with core licensing.....	8
NonStop X Cluster Solution Enablement (L17.02 or later RVUs).....	8
HPE Virtualized NonStop licensing.....	9
NSDC Functionality.....	9
Multiple NSDC Licenses Staging.....	10
Displaying NSDC information.....	10
NSDC Activation and Deactivation.....	11
NSDC Expiration and Depletion.....	11
NSK EMS Events for NSDC.....	12
NonStop Flexible Core Functionality.....	13
Core Enablement System Message.....	13
NonStop core license tasks.....	14
Upgrading and migrating core license files.....	14
Determining the number of cores enabled and available.....	15
Displaying information on the cores present and enabled.....	15
Scenarios that require a new core license.....	15
Ordering the core license file.....	16
Troubleshooting.....	17
Core license file is missing or invalid at coldload.....	17
Core license file was inadvertently purged or renamed.....	17
Server Connection is disallowed when NSADI is enabled.....	17
EMS event has occurred.....	18
Halt code in %1700 range has occurred.....	18
NonStop core license validation and management tools	19
Core License Validation (CLICVAL) tool.....	19
Acquiring CLICVAL for your NonStop environment.....	19
Validating a core license file with CLICVAL.....	19
OSM Service Connection Tool.....	19
Frequently asked questions.....	21



Websites.....24

Support and other resources.....25

 Accessing Hewlett Packard Enterprise Support.....25

 HPE product registration.....25

 Accessing updates.....25

 Remote support.....26

 Warranty information.....26

 Regulatory information.....26

 Documentation feedback.....27



About This Manual

Revision History

Part number	Publication date	Summary of changes
10-150008-Q424	August 2024	Updated <u>NonStop core licensing overview</u> section.
10-150008-Q124	December 2023	Added <u>Frequently Asked Question</u> section.
10-150008-Q422	September 2022	- Added NonStop Flexible Core Licensing information in the <u>NonStop core licensing overview</u> section. - Added a new topic <u>NonStop Flexible Core Functionality</u> after the section <u>NSDC Functionality</u>. - Updated the following sections: <u>Core Enablement System Message</u> <u>Displaying information on the cores present and enabled</u>
10-150008-Q421	November 2021	- Added NonStop Metered licensing information in the <u>NonStop core licensing overview</u> section. - Added a new <u>NonStop Metered Licensing (L21.06 or later RVUs)</u> section. - Updated the following sections: <u>NSDC Expiration</u> <u>NSDC Depletion</u> <u>Core Enablement System Message</u> <u>Scenarios that require a new core license</u> <u>Ordering the core license file</u>
838441-009	November 2020	Updated to support HPE NonStop NS4 and HPE NonStop NS8 systems introduced in L20.10.
838441-008	May 2019	Updated the following topics: <u>NSDC Functionality</u> <u>NSDC Activation and Deactivation</u> <u>NSDC Expiration</u> <u>NSDC Depletion</u>



NonStop core licensing overview

NonStop core licensing is a nontransferable, HPE-only feature that allows you to order a system with 1, 2, 4, or more cores (or Instruction Processing Units (IPUs)) enabled in each of its processors, depending on the processor type. The number of cores enabled on your system is determined by the core license file. The core license file is required and preinstalled on some NonStop systems.

Each core license file contains:

- The system serial number of the system that is being licensed.
- The number of processors licensed to run on that system.
- The base number of cores that are licensed to run in all processors in the system.
- The system class (L-series RVUs; ignored on J-series RVUs). The system class values are 0 (high-end system) and 1 (entry-class system).
- NonStop Application Direct Interface (NSADI) enablement (L16.05 and later RVUs; ignored on prior L-series and J-series RVUs). If enabled, the system is licensed to use the NSADI functionality. For details, see **NonStop Application Direct Interface functionality with core licensing**.
- Clustering enablement (L17.02 and later RVUs).
- NonStop Metered licensing enablement (L21.06 and later RVUs).
- A designation whether the license is for a Virtualized NonStop system (vNS) supported on L17.02 and later RVUs or for a Virtualized Converged NonStop X NS2 system supported on L18.02 and later RVUs. The following items only apply to vNS systems and NS2 systems.
 - Number of HPE NonStop Virtualized CLuster I/O Modules (vCLIMs) licensed for the system.
 - Number of HPE Virtualized NonStop System Consoles (vNSCs) licensed for the vNS system.
 - System license termination date. On Virtualized NonStop, the system is licensed for Monthly License Charge (MLC) or three, four, or five-year terms.
- A designation whether NonStop Dynamic Capacity (NSDC) licensing is enabled on vNS systems running L18.02 and later, on NS7 systems running L18.08 and later, or on NS8 systems. The following items only apply to NSDC licenses.
 - Number of days that are licensed for NSDC use (NSDC capacity).
 - Number of cores allowed to temporarily be enabled by the NSDC license.
 - Start and end date of the NSDC license.
- A designation whether NonStop Flexible Core licensing is enabled (available on L22.09 and later RVUs with NonStop Metered licensing).
- A designation whether IPsec licensing is disabled (available on L24.08 and later RVUs).

NonStop systems that require a core license

The core license file is required on the following NonStop systems, and comes preinstalled by manufacturing on all the following except for the Virtualized NonStop systems.

- NB54000c or NB54000c-cg
- NB56000c or NB56000c-cg



- NS2, NS3, NS4, NS7, and NS8
- vNS systems

Core licensing prerequisites

Prerequisites for using core license files on NonStop systems

- J06.13 RVU or later on NB54000c or NB54000c-cg
- J06.16 RVU or later on NB56000c or NB56000c-cg
- All systems running L-Series require a core license.

Prerequisites for deploying core licensing

- Installed in the `$SYSTEM.ZLICENSE` subvolume
- File type 407
- Secured for network read: NGGG
- Regularly backed up with the other files on `$SYSTEM`

NonStop core license considerations for L-Series

NonStop Metered Licensing (L21.06 or later RVUs)

As of L21.06, NonStop Metered licensing is enabled through the core license. Metered licensing is a new type of system licensing based on CPU utilization that supports a consumption-based pricing model.

NonStop Application Direct Interface functionality with core licensing

As an L-Series RVU only feature, core licensing enables or disables NSADI functionality on NonStop X systems. The NSADI product provides a user-level library that allows NonStop user applications to communicate with applications hosted on a Linux server using the Remote Direct Memory Access (RDMA) technology, bypassing the TCP/IP stack. NSADI supports establishing connectivity with external Linux servers using these services:

- IB Verbs
- Remote Direct Memory Access (RDMA) Communication Manager (CM)
- RDMA Sockets (sockets)

NSADI functionality in a CPU uses the System Class of the CPU.

For more information, see the *NSADI Reference Manual*.

NonStop X Cluster Solution Enablement (L17.02 or later RVUs)

As of L17.02, core licensing enables or disables IB/RoCE clustering. For backwards compatibility with prior L-series RVUs, the T0953 NonStop X Cluster Solution license originally introduced in L15.08 continues to be supported. This license allows, for example, L16.05 customers using the legacy T9053 licensing to continue to work with the legacy licensing when they upgrade to L17.02.

This allows for the enablement of:



- InfiniBand clustering between NonStop NS7 systems
- RoCE clustering between vNS systems

For clustering on NS7 systems, see the *HPE NonStop X Cluster Solution Manual*.

For clustering on vNS systems, see the *HPE Virtualized NonStop Deployment and Configuration Guide for VMware*.

NOTE: Clustering is only supported on high-end systems. A maximum of 24 systems/384 NonStop CPUs are supported.

HPE Virtualized NonStop licensing

Virtualized NonStop

Additional licensing information is included in the Core License for the licensing of vNS systems, which are supported from L17.02 onwards. This information includes the licensing of NonStop Virtualized CLuster I/O Modules (vCLIMs) and Virtualized NonStop System Consoles (vNSCs), and a license termination date.

After deploying a vNS system and initially coldloading, a copy of the core license must also be installed in the `$SYSTEM.ZLICENSE` subvolume of the vNS system using the OSM Core License Guided Procedure.

The licensing of vCLIMs is separated into these categories:

- Licensed number of Storage vCLIMs
- Licensed number of IP vCLIMs
- Licensed number of Telco vCLIMs

Virtualized Converged NonStop X NS2

NS2 has the following characteristics:

- Core licensing allows one or two cores per vNSK CPU.
- L18.02 or a later RVU required.
- Requires single physical NSC in the same rack as the NS2 system.
- NonStop Dynamic Capacity (NSDC) is not supported.

NSDC Functionality

NonStop Dynamic Capacity (NSDC) is a new feature which allows for the temporary activation of additional cores (IPUs) per CPU on an on-demand basis. NSDC is enabled through the Core License, which specifies the base IPU count that the system is licensed for, and with NSDC (if enabled) also specifies the IPU count to which the system can temporarily be upgraded to. There are two supported NSDC configurations:

- 2-to-4 cores (2 base cores which can temporarily be increased to 4 cores), or
- 4-to-6 cores (4 base cores which can temporarily be increased to 6 cores).

A temporary increase in the number of enabled cores is called an NSDC activation, and a decrease back to the base number of cores is called an NSDC deactivation. The IPUCOM tool provides options to activate and deactivate NSDC (for details, see the *TACL User Guide*).

The NSDC license specifies the licensed number of days of NSDC usage at the higher IPU level that the license provides. Each day or portion of a day of usage at the higher IPU count will result in a day of the licensed capacity being consumed.



The available NSDC capacity at any point in time is the licensed number of days minus the number of days of NSDC usage. The available capacity and other information about the current NSDC status can be obtained through IPUCOM.

The NSDC license also specifies a start and end date for the use of the NSDC license. The start date is the issue date of the license, and the end date is the date the NSDC license expires. The NSDC start and end dates and associated expiration and depletion times are relative to the local system time.

When an NSDC license expires or becomes depleted (available NSDC capacity days goes to 0) while the system is actively running extra cores, the extra cores will be disabled and processes running on the extra cores will be moved to the base cores (unless other NSDC enablements have been staged, as discussed in **Multiple NSDC Licenses Staging**).

NSDC licenses can be ordered with capacity in 30-day units (multiples of 30 days), with a one-year term (the end date is one year after the beginning of the month following the start date). For example, if a license start date is 12 January 2018, the license is valid until 1 February 2019 (one year after 1 February 2018).

EMS events are periodically generated leading up to an NSDC expiration or depletion to provide notification of either of these conditions occurring, as discussed in **NSK EMS Events for NSDC**.

Multiple NSDC Licenses Staging

Additional NSDC licenses, beyond the currently enabled NSDC license, can be staged in the system in a manner that allows the additional NSDC licenses to be auto-enabled by the system when the current NSDC license expires or depletes. This is known as NSDC pre-enablement, and allows additional NSDC licenses to be obtained and staged in the system to ensure continuously enabled NSDC licensing across the expiration or depletion of the currently enabled NSDC license.

A pre-enabled NSDC license is simply a new Core License with NSDC enabled with a later start date than the NSDC license currently enabled on the system. It is enabled in the usual manner (using OSM Service Connection). Enabling an NSDC license with a later start date (whose base number of cores and NSDC number of cores matches the current NSDC license) will result in the new NSDC license getting put in a pre-enablement area of the NonStop kernel, and auto-enabled when the current NSDC license expires or depletes. If more than one NSDC license is pre-enabled, the pre-enabled licenses will be ordered by start date. The one with the earliest start date will be auto-enabled upon depletion or expiration of the current license. Information about NSDC pre-enablements can be displayed through the IPUCOM tool or programmatically as discussed in the **Displaying NSDC information**.

Displaying NSDC information

Procedure

- Display the available NSDC capacity and other NSDC information using the IPUCOM command:

```
IPUCOM -NSDC info
```

This command displays information about the currently enabled NSDC license, as well as any pre-enabled NSDC licenses, as shown in the following example.



```

IPUCOM utility -
(c) Copyright 2010-2018 Hewlett Packard Enterprise Development LP
NSDC information:

```

info			Base NSDC				Start Date	End Date
enabled	version	active	Num IPU	Num IPU	licensed days	available days	MM/DD/YYYY	MM/DD/YYYY
1	2	0	2	4	30	10	05/23/2018	06/01/2019

```

NSDC pre-enablenents:
Info version=1
Licensed      Start      End
Days          Date       Date
-----
30            06/27/2018  07/01/2019

```

- To programmatically obtain information about the currently enabled NSDC license, see Attribute 99 in the `PROCESSOR_GETINFOLIST_` procedure in the *Guardian Procedure Calls Reference Manual*.
- To programmatically display information about pre-enabled NSDC licenses, see Attribute 101 in the `PROCESSOR_GETINFOLIST_` procedure in the *Guardian Procedure Calls Reference Manual*.

NSDC Activation and Deactivation

NSDC activations or deactivations are performed using the following new options in the IPUCOM tool:

```
IPUCOM -NSDC {on | off}
```

A successful activation (`IPUCOM -NSDC on`) will enable additional cores. A successful deactivation (`IPUCOM -NSDC off`) will reduce the number of cores back to the base level.

An NSDC activation will fail:

- if the Core License is not enabled for NSDC
- if the available NSDC capacity is 0
- if the NSDC license has expired

For additional details, see the *TACL User Guide*.

NOTE: Any bindings of processes to IPU's via the IPUCOM tool or via the `IPUAFFINITY_SET_` API will be cleared on an NSDC activation or deactivation, or in general across any change in the number of enabled IPU's. If such bindings are needed across such a change they will have to be re-established after each such change. For information on the `IPUAFFINITY_SET_` API see the *Guardian Procedure Calls Reference Manual*.

NSDC Expiration and Depletion

NSDC Expiration

The NSDC license specifies an end date for the use of NSDC. Once the end date is passed, the NSDC license expires and can no longer be used. A new NSDC license will need to be obtained to continue to use NSDC on the system. The specific time when an NSDC expiration occurs is the 00:00 half-hour on the day after the NSDC end date in the license, relative to the local system time.



NSDC Depletion

The NSDC license specifies the licensed number of days of NSDC capacity. As NSDC is activated and deactivated, the system keeps track of the usage and consumes one day of usage at the end of each day in which NSDC was active. The available NSDC capacity is updated at the end of each day, decrementing the available capacity by one day if there has been any usage during the day. The end of the day, when the available capacity is decremented, is in the 23:30 half-hour. When the available NSDC capacity reaches 0, the NSDC license is said to be depleted. The specific time when an NSDC depletion occurs is the 00:00 half-hour on the day after the NSDC capacity goes to 0, relative to the local system time.



WARNING: If NSDC is active, even for a short time, across the end-of-day check, NSDC will be seen as being used at the higher core count on both days. For example, if the end-of-day check occurs at 23:47 on May 1 and NSDC is activated to the higher core count at 23:40 on May 1 and then deactivated 15 minutes later at 23:55 the available capacity will be decremented by 1 day in the 23:47 check on May 1 and then by another day in the 23:47 check on May 2. NSK Event 311 is emitted at the time of the end-of-day check if the available capacity is below the depletion threshold (see NSK EMS Events for NSDC) and NSK Event 314 is emitted at that time if NSDC has been active during the day and the available capacity is above the threshold.

NSK EMS Events for NSDC

NSK EMS events will be generated for the following NSDC-related conditions. A depletion threshold of 20 or 30 days is used in events related to depletions. The threshold is 20 days if the licensed capacity is 30, otherwise, the threshold is 30 days.

- **NSK event 315:** NSDC enablement event: informational event to notify that a NonStop Dynamic Capacity (NSDC) license has been enabled, disabled, pre-enabled, or auto-enabled. This event is generated in L18.08 and later RVUs.
- **NSK event 311:** NSDC depletion event: periodically generated leading up to a depletion, as discussed in **NSDC Depletion and Expiration Events**.
- **NSK event 313:** NSDC expiration event: periodically generated leading up to an expiration as discussed in **NSDC Depletion and Expiration Events**.
- **NSK event 314:** NSDC is-active information event: logged at the end of the day if NSDC has been active during the day and the available NSDC capacity is greater than the depletion threshold.
- **NSK event 312:** NSDC depletion information event: logged at the end of the day if NSDC has not been active during the day and the available NSDC capacity is less than or equal to the depletion threshold.
- **NSK event 309:** NSDC activation/deactivation event: logged whenever NSDC is successfully activated or deactivated.

If there are NSDC pre-enablements, then their capacity and end date are considered. The total time to depletion or time to expiration must be above or below the 20- or 30-day threshold to emit the corresponding event.

For information about EMS events related to NSDS or Core Licensing, see Chapter 64 NSK (NonStop Kernel) Messages in the *Operator Messages Manual*.

NSDC Depletion and Expiration Events

If the available NSDC capacity is less than or equal to the depletion threshold, NSDC depletion events (NSK event 311) are periodically generated as follows when NSDC has been active during the day.

- If the available NSDC capacity is > 7 days, an NSDC depletion event (311) is emitted once a day at the end of the day.
- If the available NSDC capacity is ≤ 7 days and > 2 days, an NSDC depletion event (311) is emitted once an hour.
- If the available NSDC capacity is < 2 days, an NSDC depletion event (311) is emitted every 30 minutes.



NSDC expiration events are periodically generated leading up to an expiration on a similar time schema as given for the depletion events, except that the expiration threshold is always 30 days, with the expiration events (NSK event 313) starting when the time-until-expiration is < 30 days.

NonStop Flexible Core Functionality

NonStop Flexible Core licensing allows customers to dynamically change the number of enabled IPU on their system when used with NonStop Metered licensing. NonStop Flexible Core is similar to NSDC functionality, but allows setting the number of enabled IPU in a more flexible manner. This can be set to any of the supported IPU counts (for example, 2 cores, 4 cores, or 6 cores on NS7 or NS8 systems) without any expiration or depletion across the system license.

The `IPUCOM` command is used to change the number of enabled IPU under a Flexible Core license and also to obtain information about the current state of the Flexible Core license. For more information see, *TACL User Guide*.

EMS events are generated when the number of enabled IPU change under NonStop Flexible Core licensing or when NonStop Flexible Core licensing is enabled or disabled. For information about these EMS events see, **Chapter 64 NSK (NonStop Kernel) Messages** in the *Operator Messages Manual*.

Core Enablement System Message

The Core Enablement system message (-149) is sent to interested processes when:

- the number of enabled IPU or CPU changes
- NSDC licensing is enabled or disabled
- the NonStop Metered System licensing changes
- NonStop Flexible Core licensing changes

To receive this message, a process must register itself through the `PROCESS_MONITOR_VCORE_` API. This message can be useful for ISVs to properly handle their license validation checks. For more information on this system message, see the *Guardian Procedure Errors and Messages Manual*. For more information on `PROCESS_MONITOR_VCORE_`, see the *Guardian Procedure Calls Reference Manual*.



NonStop core license tasks

Upgrading and migrating core license files

Procedure

- To upgrade the number of cores or other core licensing values on a system:
 1. Order a core license from HPE by writing to license.manager@hpe.com.
 2. Obtain the new core license file from the HPE license manager.
 3. Install the license file on your system through the Install core license file guided procedure by launching the action of the same name, located under the System object in the OSM Service Connection.
 4. Ensure that **Enable license file after transfer** is checked in the OSM Service Connection.
 5. Verify the core license file by using the OSM Read Core License action.
- To migrate a core license file for NB50000c/NB50000c-cg to NB56000c/NB56000c-cg:
 1. Obtain the license file and the CLICVAL tool.
 2. Do one of the following:
 - a. Before migrating to J06.13 or later RVUs, request that your service provider use the migration service procedure available in the *Migrating a NonStop i BladeSystem NB50000c or NB50000c-cg to an NB56000c or NB56000c-cg Guide*. This step-by-step procedure describes when to use the CLICVAL tool to verify that the core license file is valid, as well as performing other required migration tasks.
 - b. After migrating to J06.13 or later RVUs, HPE recommends that you use the OSM Read Core License action to verify that the core license is valid.
- To migrate a core license file for NB54000c/NB54000c-cg to NB56000c/NB56000c-cg:
 1. Obtain the license file and the CLICVAL tool.
 2. Do one of the following:
 - a. Request that your service provider use the migration service procedure available in the *Migrating a NonStop i BladeSystem NB54000c or NB54000c-cg to a NonStop i BladeSystem NB56000c or NB56000c-cg*. This step-by-step procedure describes when to use the CLICVAL tool to verify that the core license file is valid on pre-J06.13 RVUs as well as performing other required migration tasks.
 - b. If migrating to J06.13 or later RVUs, HPE recommends that after migrating to the new RVU, you use the OSM Read Core License action to verify that the core license is valid.



Determining the number of cores enabled and available

Procedure

To programmatically obtain the number of cores enabled and available on your system, see Attributes 74 and 81 in the `PROCESSOR_GETINFOLIST__` procedure in the *Guardian Procedure Calls Reference Manual*.

Displaying information on the cores present and enabled

Procedure

1. Access, and log in to the OSM Service Connection.
2. Locate, and select a **Logical Processor** object.
3. In the **Attributes** tab, under the **Logical** heading, locate the following attributes, which are only displayed for systems that support core licensing:
 - a. **Physical Cores**
 - Displays the number of cores physically available for this Logical Processor
 - b. **Number of Enabled Cores**
 - Displays the number of cores currently enabled for this Logical Processor. This is always the base number of cores if neither NSDC licensing nor Flexible Core licensing is enabled. If NSDC licensing is enabled, this will be the base number of cores if NSDC is not active, and the higher number of cores if NSDC is active. If Flexible Core licensing is enabled this is the current number of IPUs enabled via IPUCOM under the Flexible Core license.

More information

For more information on displaying attributes using OSM, see the online help within the OSM Service Connection.

Scenarios that require a new core license

You must order a new core license file before:

- Upgrading your system to increase the base number of cores per processor.
- Adding new processors that are not covered by your current core license file.
- Migrating a:
 - NB54000c to NB56000c or NB54000c-cg to NB56000c-cg
 - NB50000c to NB56000c or NB50000c-cg to NB56000c-cg
- Enabling NSADI functionality.
- Enabling NonStop X Cluster Solution functionality on L17.02 or later RVUs.
- Adding new vCLIMs or vNSCs to a Virtualized NonStop system that are not covered by your current core license file.
- Your current Core License expires (vNS only).
- Enabling NonStop Dynamic Capacity (NSDC).
- Enabling NonStop Metered Licensing.



NOTE:

- If your system is a NonStop i BladeSystem running a pre-J06.13 RVU, ordering a new core license file for the system is not required, but is recommended and is required before upgrading the system to J06.13 or a later RVU.
 - You cannot downgrade the base number of enabled cores or processors.
-

Ordering the core license file

About this task

To order a new license file, do one of the following:

Procedure

- Order the license file from your sales representative.
- Request it yourself by sending an email request to license.manager@hpe.com. For verification purposes, provide the following information in the email:
 - Subject line: Request for new core license file for <customer-name>
 - Content:
 - System serial number
 - Base number of cores to be enabled per processor (example, four cores)
 - Total number of processors on the system
 - System type

On L-Series, if applicable to your system:

- NSADI enablement
- Clustering enablement
- Metered Licensing enablement

On Virtualized NonStop:

- Number of Storage, IP, and Open vCLIMs to be enabled
- Number of vNSCs to be enabled
- License term

If NSDC is enabled:

- Number of days that are licensed for NSDC use (NSDC capacity)

A new license file is returned by email along with instructions on how to install the file, depending on system type. Allow 3 business days for a response from license.manager@hpe.com.



Troubleshooting

Scenarios in these sub-sections are core licensing symptoms that require troubleshooting, or OSM alarms, etc.

Core license file is missing or invalid at coldload

Symptom

The core license is missing, invalid, or otherwise unusable at coldload, resulting in one of the following:

- The system starts up and defaults to running the number of cores that are physically available on a NonStop i BladeSystem or NonStop X system (for example, six cores on NonStop X NS7), and allows all processors to load.
 - On Virtualized NonStop, the system comes up with two cores on a high-end system and one core on an entry-class system.
 - On NS2, the system comes up with one core.
- EMS event 302 with an associated OSM alarm is emitted during coldload. EMS event 303 is emitted once an hour thereafter until a valid license file is installed. For details of these events, see the *Operator Messages Manual*.

Cause

The core license is missing, invalid, or otherwise unusable at coldload.

Action

1. Order a new license file (see [Ordering the core license file](#)), or retrieve the correct file from backup. Then,
2. Enable the license through the OSM Install Core License File guided procedure (see [OSM Service Connection Tool](#)).

Core license file was inadvertently purged or renamed

If the core license was correctly installed and valid at the last coldload or online enablement, the system will continue to operate with the previously-enabled values until the next time you coldload regardless of what happens to the license file. If, as a result, the license file is considered missing or no longer valid on the next coldload, see [Core license file is missing or invalid at coldload](#).

Server Connection is disallowed when NSADI is enabled

Symptom

The number of external servers in use with NSADI exceeds the system's NSADI connection limit. (The NSADI connection limit is 2 on an entry-class system and 8 on a high-end system.)



Action

Either disconnect or power off excess external servers or over-provisioned systems that are attached through NSADI to your system.

EMS event has occurred

For information about EMS events related to Core Licensing or NSDC, see Chapter 64 NSK (NonStop Kernel) Messages in the *Operator Messages Manual*.

Halt code in %1700 range has occurred

Halt codes related to Core Licensing or NSDC occur in the %1700 range. For more information, see the *Processor Halt Codes Manual*.



NonStop core license validation and management tools

Core License Validation (CLICVAL) tool

CLICVAL is a core licensing software verification tool shipped as part of the T9050 product starting in J06.13. The CLICVAL tool is supported on J06.13 and later J-series RVUs and all L-series RVUs. It is used to:

- Verify whether your core license file is correct before performing core licensing migration functions on J-series RVUs prior to J06.13. This tool is not shipped in RVUs prior to J06.13, but the J06.13 or later J-series versions of the tool are designed to work on RVUs prior to J06.13.
- Verify your core license prior to migrating a dual-core NonStop system to a quad-core NonStop system; for example, migrating an NB50000c to an NB56000c.
- Verify your core license prior to upgrading a quad-core BladeSystem to J06.13 or later RVUs.
- Obtain additional information about licensing errors.

Acquiring CLICVAL for your NonStop environment

About this task

The CLICVAL tool is available in the T9050 product in the J06.13 and later RVUs and in all L-series RVUs. CLICVAL is documented in the *TACL User Guide*. To obtain the CLICVAL tool and instructions for its use on RVUs prior to J06.13, email license.manager@hpe.com.

Procedure

1. To facilitate processing, enter `Request for CLICVAL` in the subject line of your email, and include in the email:
 - a. Your name and phone number
 - b. Email address where you want HPE to email the CLICVAL tool
 - c. System serial number and the current RVU running on the system

The license manager help desk emails the CLICVAL tool. Allow 3 business days for a response from license.manager@hpe.com.

Validating a core license file with CLICVAL

Procedure

Run the `CLICVAL` command at a TACL prompt.

OSM Service Connection Tool

With OSM T0682 H02 ACV and later, OSM Service Connection provides a guided procedure along with other actions for installing, verifying, and updating the core license file. These actions are on the System object in OSM.



OSM Install Core License File action

If you are a super group user, use the **Install Core License File** action to launch a guided procedure to guide you through the installation of a core license file.

OSM Read Core License action

To read and verify the contents of the core license file, use the **Read Core License** action.

After migrating to J06.13, it is recommended that you use the OSM action, **Read Core License**, to verify that the core license is valid.

OSM Copy Core License to Alternate System Disk action

To copy the core license file from `$SYSTEM` to a specified alternate system disk, use the **Copy Core License to Alternate System Disk** action.

OSM Update Running Core License action

To instruct the system software to read the new core license file and update the core-enablement state, use the **Update Running Core License** action. This action:

- Upgrades the number of cores
- Increases the number of licensed processors on a system, or
- Corrects the contents of the license if they are incorrect for the system (for example, System Class or System Serial Number)

More information

For more information about those OSM actions, see the *OSM Service Connection* online help. Additional online help is available within the guided procedure.



Frequently asked questions

1. What is HPE NonStop Dynamic Capacity (NSDC)?

NSDC is a licensing program available for the HPE Virtualized NonStop (vNS) and NonStop X high-end platforms that allow for temporary system capacity increase through core scale-up.

2. What are the elements of NSDC?

NSDC provides for a temporary increase in a system's Processor core count. A 2-core system can be temporarily increased to 4-core, or a 4-core system can be temporarily increased to a 6-core system. All Processors in the system must be enabled through NSDC licensing. NSDC is a prepaid capacity purchased in multiples of 30 day increments. NSDC purchase allows activation of the increased core count for a duration measured in days. The days do not have to be consecutive and each day of activation consumes the NSDC capacity enabled in the system. The NSDC activation days expire after 12 months, whether partially or not used at all. A new NSDC purchase is required at term expiration to continue having NSDC activation days available on the system.

3. What licensing options are available for NSDC?

NSDC is a "one-time" license (OTC) and supports purchase option (MSC) that allows for increased core activation during a 12-month term. The capacity purchased is in multiples of 30-day activation increments.

4. How do I order NSDC?

NSDC ordering mirrors the NonStop product set installed on the system, with unique SKUs and pricing. Not all products require an NSDC license. Your HPE sales specialist will lead you through this process.

5. What do I get with NSDC purchase?

NSDC purchase will result in a new System License File with NSDC activation features.

6. When does the NSDC term begin? When does the NSDC term end?

The NSDC term begins on the purchase date. The NSDC term ends on the first of the month following purchase, plus 12 months. For example, if NSDC is purchased on March 14, the term starts immediately. The term will expire on April 1 of the following year.

7. What is an NSDC activation day?

This is defined as any NSDC activation (2-core to 4-core or 4-core to 6-core) during a calendar day (defined by the System clock; midnight of one day to midnight of the next), regardless of how long during that calendar day the activation is used.

For example, activation of 24 hours plus 1 minute would be counted as two activation days consumed. Partial days are rounded up to a 1-day unit. If the activation happens over several time instances during a day, such activations sum up to 1 day unit. For example, if NSDC is activated from 10:30 am to 10:45 am and again from 4:00 pm to 11:45 pm during the same calendar day, it is considered as 1 day of total usage.

8. When can I begin using my NSDC activation days?

NSDC activation days can be used immediately upon installation of the new System License File with NSDC activation features.

9. When can I no longer use my NSDC activation days?

NSDC activation days are no longer available after the available utilization days are fully consumed, or at the expiration of the 12-month term, whichever occurs first.

10. How do I purchase an NSDC?

NSDC purchase is a one-time license and support charge for each licensed product on the system where it will be installed.



NOTE: Not all SW products will carry an NSDC charge, for example “media only” products, or any product that does not carry a different core license charge, such as some workstation products.

11. What is the price of NSDC?

The NSDC price is dependent on the specific software product set installed on the system. There is no difference in NSDC price whether it is used on 2-core to enable 4-core, or on 4-core to enable 6-core. Please contact your HPE sales representative for the most accurate up to date pricing.

12. What if I need more than 30 days of NSDC activation during a 12 month period?

Customers may purchase multiple NSDC instances at any time. Each NSDC instance will allow for 30 days of activation. The purchase date will drive the term expiration date. The System License File with NSDC features installation date and does drive the NSDC term start or end dates. Therefore, customers must carefully plan when to purchase NSDC to meet their capacity needs over time.

13. How do multiple NSDC files work?

You may install multiple System License Files representing multiple NSDC instances, and the system will recognize them in a “first in, first out” basis. That is, the file with the earlier expiration date will consume activation days first, and when fully consumed, the next NSDC instance will be cued up and ready for consumption. Three System License files may be pre-provisioned, along with the active system license file. Therefore, a maximum of four NSDC terms could be assigned to a system.

14. Who monitors NSDC?

It is the customer’s responsibility to monitor the NSDC activation days used/available and the term expiration date. HPE does not have a view into this as it is managed on the System. EMS event logs are generated in the System to alert the customer of NSDC capacity running low or if the validity is nearing expiry. TACL commands are available to enable users to query the available capacity and validity information. For more information see **NSDC activation and deactivation**.

15. What if I don’t use all my NSDC allotted activation days within 12 months?

Unused activation days expire at the end of the 12 month NSDC term.

16. What if I want to permanently increase my core count, while I have unused NSDC days remaining?

Please contact your HPE sales representative to re-license your system at the higher system core-count level. Your HPE sales representative is in the best position to provide you with any current incentive programs for license and support charges.

17. What if I run out of NSDC activation days before the 12 month term expiration?

After all of the activation days are consumed, the system will revert back to the originally licensed system core count level.

18. What if I need multiple NSDC periods during a 12 month term?

This option is available. NSDC can be purchased and added to a 2-core or 4-core system at any time.

19. What if my system software term license expires before my NSDC term expires?

To continue using your HPE system, you must have a valid system license. Therefore, you must renew your software term license prior to expiration. There is no grace period.

20. What if my NSDC term expires before my system software term license expires?

At the expiration of the NSDC term, a new NSDC instance must be licensed if you want to continue to have NSDC activation days available on the system.

21. What license types can I use with NSDC?

NSDC license is a one-time, 12-month term duration, independent from the system license.

22. What if I must add Processor licenses when I have NSDC licensed on the system?

You must purchase additional processor licenses to activate additional processors on the system. The NSDC license will remain valid for all processors licensed on the system. At the next NSDC licensing event, the higher processor count will be used for license and support.

23. What if I must add new Software licenses when I have NSDC licensed on the system?

You must purchase the new Software licenses in the Processor quantity and at the system type core level. At the next NSDC licensing event, the new Software products will be added.

24. Can I use NSDC to increase my vCLIM count to provide higher I/O capacity (vNS only)?

No. NSDC only supports vNS Processor core scale up. The vNS system should be configured to have adequate vCLIM licenses to handle both normal and peak load scenarios with NSDC.

25. Can I deploy NSDC on other NonStop platforms?

No. NSDC is only available on the high-end HPE vNS or NonStop X platforms.

26. Can I transfer NSDC between systems?

No. NonStop software, including NSDC is nontransferrable.

27. Can I cancel my NSDC purchase as I no longer need the activation days?

No. NonStop software is non-cancellable and non-refundable.

28. Is there an NSDC program for hardware?

No. NSDC is only available for the Software; you must pre-configure your hardware appropriately for any anticipated demands of NSDC activation.

29. How do I deploy NSDC with my third party applications?

All HPE offered license products (including products HPE resells from ISV partners) are enabled for NSDC. If you have purchased software directly from a third party ISV, you must contact them for guidance.

30. What other options are available for a variable capacity program?

HPE Greenlake for NonStop introduces a flexible core enabled solution. For the latest updates on this offer, please contact your HPE sales representative.

31. Who do I contact if I have more questions?

Your local HPE sales specialist can provide you with the most up-to-date information.



Websites

General websites

Hewlett Packard Enterprise Support Center

<https://www.hpe.com/support/hpesc>

Contact Hewlett Packard Enterprise Worldwide

<https://www.hpe.com/assistance>

Subscription Service/Support Alerts

<https://www.hpe.com/support/e-updates>

Manuals for L-series

<https://www.hpe.com/info/nonstop-ldocs>

For additional websites, see **[Support and other resources](#)**.



Support and other resources

Accessing Hewlett Packard Enterprise Support

- For live assistance, go to the Contact Hewlett Packard Enterprise Worldwide website:
<https://www.hpe.com/info/assistance>
- To access documentation and support services, go to the Hewlett Packard Enterprise Support Center website:
<https://www.hpe.com/support/hpesc>

Information to collect

- Technical support registration number (if applicable)
- Product name, model or version, and serial number
- Operating system name and version
- Firmware version
- Error messages
- Product-specific reports and logs
- Add-on products or components
- Third-party products or components

HPE product registration

To gain the full benefits of the Hewlett Packard Enterprise Support Center and your purchased support services, add your contracts and products to your account on the HPESC.

- When you add your contracts and products, you receive enhanced personalization, workspace alerts, insights through the dashboards, and easier management of your environment.
- You will also receive recommendations and tailored product knowledge to self-solve any issues, as well as streamlined case creation for faster time to resolution when you must create a case.

To learn how to add your contracts and products, see <https://www.hpe.com/info/add-products-contracts>.

Accessing updates

- Some software products provide a mechanism for accessing software updates through the product interface. Review your product documentation to identify the recommended software update method.
- To download product updates:

Hewlett Packard Enterprise Support Center

<https://www.hpe.com/support/hpesc>



My HPE Software Center

<https://www.hpe.com/software/hpesoftwarecenter>

- To subscribe to eNewsletters and alerts:

<https://www.hpe.com/support/e-updates>

- To view and update your entitlements, and to link your contracts and warranties with your profile, go to the Hewlett Packard Enterprise Support Center **More Information on Access to Support Materials** page:

<https://www.hpe.com/support/AccessToSupportMaterials>



IMPORTANT: Access to some updates might require product entitlement when accessed through the Hewlett Packard Enterprise Support Center. You must have an HPE Account set up with relevant entitlements.

Remote support

Remote support is available with supported devices as part of your warranty or contractual support agreement. It provides intelligent event diagnosis, and automatic, secure submission of hardware event notifications to Hewlett Packard Enterprise, which initiates a fast and accurate resolution based on the service level of your product. Hewlett Packard Enterprise strongly recommends that you register your device for remote support.

If your product includes additional remote support details, use search to locate that information.

HPE Get Connected

<https://www.hpe.com/services/getconnected>

HPE Tech Care Service

<https://www.hpe.com/services/techcare>

HPE Complete Care Service

<https://www.hpe.com/services/completecure>

Warranty information

To view the warranty information for your product, see the [**warranty check tool**](#).

Regulatory information

To view the regulatory information for your product, view the *Safety and Compliance Information for Server, Storage, Power, Networking, and Rack Products*, available at the Hewlett Packard Enterprise Support Center:

<https://www.hpe.com/support/Safety-Compliance-EnterpriseProducts>

Additional regulatory information

Hewlett Packard Enterprise is committed to providing our customers with information about the chemical substances in our products as needed to comply with legal requirements such as REACH (Regulation EC No 1907/2006 of the European Parliament and the Council). A chemical information report for this product can be found at:

<https://www.hpe.com/info/reach>

For Hewlett Packard Enterprise product environmental and safety information and compliance data, including RoHS and REACH, see:

<https://www.hpe.com/info/ecodata>



For Hewlett Packard Enterprise environmental information, including company programs, product recycling, and energy efficiency, see:

<https://www.hpe.com/info/environment>

Documentation feedback

Hewlett Packard Enterprise is committed to providing documentation that meets your needs. To help us improve the documentation, use the **Feedback** button and icons (at the bottom of an opened document) on the Hewlett Packard Enterprise Support Center portal (**<https://www.hpe.com/support/hpesc>**) to send any errors, suggestions, or comments. This process captures all document information.

