

HP Installation Guide, AT118A HP Integrity NC552SFP 2P 10GbE Adapter

Abstract

This document is for the person who installs, administers, and troubleshoots servers and storage systems. HP assumes you are qualified in the servicing of computer equipment and trained in recognizing hazards in products with hazardous energy levels.

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1 Introduction

Overview

The HP Integrity NC552SFP 2P 10GbE adapter is a dual port 10GbE adapter for the HP Integrity rx2800 i2 and Superdome2 systems. The HP Product number is **AT118A**. These two descriptions refer to the same device and are used interchangeably throughout this document.

The AT118A adapter uses the BladeEngines 3 (BE3) Emulex chip and is an eight lane (x8) PCI Express (PCIe) 10 Gigabit network controller offering optimal throughput. This PCI Express Gen 2 adapter ships with two SFP+ (Small Form-factor Pluggable) cages suitable for connecting to Direct Attach Cable (DAC) or fiber optic modules supporting SR fiber optic cabling. The adapter ships with a standard height bracket installed by default. A low profile bracket is also available for use in a low profile PCIe slot.

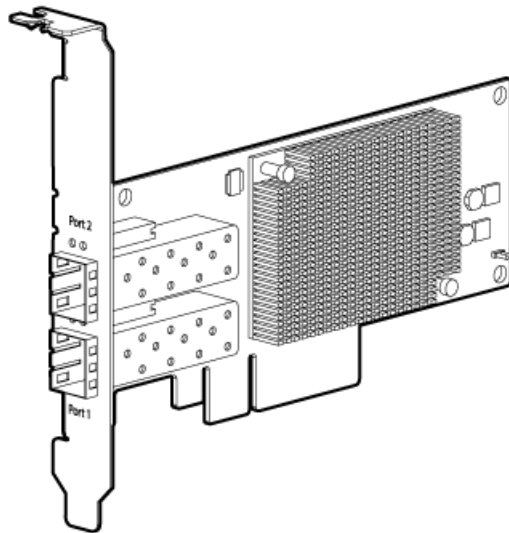
For more information about the AT118A adapter, see the following HP website:

<http://www.hp.com/go/hpux-11iv3-iocards-manuals>

LED indicators

The AT118A adapter has two ports with LED indicators for Link (L) and Activity (A) for each port. Standard-height bracket is shown below with the SFP+ ports and LED indicators.

Figure 1 The AT118A adapter



The operation of the AT118A adapter LED indicators are explained in the following table: [Table 1](#)

Table 1 AT118A LED Indicators

LED Indicator	Status	Description
Activity (A)	Off	Indicates no network activity on the link.
	Flashing (Green)	Indicates network activity on the link. The adapter is sending or receiving network data at up to 10 Gbps.
Link (L)	Off	No link to the adapter is established. The adapter is not receiving power or the cable connection is faulty.
	On (Yellow)	Link to the adapter is established. The adapter is receiving power and the cable connection is good.

Network management

Management support

The AT118A adapter ships with agents that can be managed from HP Systems Insight Manager or other management application that support SNMP.

Server integration

- The AT118A adapter is a validated, tested and qualified solution that is optimized for HP Integrity rx2800 i2 and Superdome2 servers.

PXE (LAN boot)

- Support for pre-boot execution environment (PXE) enables automatic deployment of computing resources remotely from anywhere.
- Allows a new or existing server to boot over the network and download software, including the operating system, from a management/ deployment server at another location on the network.

2 Installing an adapter

- ❗ **IMPORTANT:** See the following chapter before installing the AT118A adapter: “Installing the HP-UX operating system components” (page 8)
-

Preventing electrostatic discharge

To prevent damaging the system, be aware of the precautions you need to follow when setting up the system or handling parts. A discharge of static electricity from a finger or other conductor may damage system boards or other static-sensitive devices. This type of damage may reduce the life expectancy of the device.

To prevent electrostatic damage:

- Avoid hand contact by transporting and storing products in static-safe containers.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free workstations.
- Place parts on a grounded surface before removing them from their containers.
- Avoid touching pins, leads, or circuitry.
- Always be properly grounded when touching a static-sensitive component or assembly.

Installing an adapter in a server

See the HP Integrity rx2800 i2 and Superdome server documentation for additional information on how to safely install a PCI Express card in the server.

NOTE: A minimum of two Gigabytes (2 GB) of server memory is required per each adapter.

NOTE: Direct Attach Cable (DAC) for copper environments or fiber transceivers and cables for fiber-optic environments must be purchased separately.

The Online Addition and Replacement feature, OL* for the HP-UX 11i v3 release, enables PCI host bus adapters to be added or replaced without shutting down and rebooting the system, and without adversely affecting other system components. The system hardware uses slot-specific power control, combined with HP-UX operating system support, to enable these features.

Confirm whether OL* is supported on the system in which you plan to install an Ethernet adapter. See the *HP Ethernet System-Driver Support Matrix*, at the following website:

<http://www.hp.com/go/hpux-11iv3-iocards-manuals>

- ❗ **IMPORTANT:** Superdome systems are not intended to be maintained by customers. HP recommends that Superdome systems only be opened by a qualified HP service engineer. Failure to observe this recommendation can invalidate any support agreement or warranty to which you may be entitled.
-

NOTE: The optical port protector is used only to protect the adapter port when it is not in use. Do not use the protector as a diagnostic tool.

Install all driver software and dependent patches before you install the adapter. For more information, see “Prerequisites” (page 8)

1. Install all driver software and dependent patches.
 2. Shut down the system.
 3. If a low profile option slot is to be used, install the low profile bracket onto the adapter.
-

NOTE: See the following procedure “Installing a low profile bracket” (page 7).

4. Insert the card into the highest-performance PCIe slot available.
5. Attach all the cables to the adapter.
6. Do not power on the system until the following section is complete: [“Connecting other devices”](#) (page 7)

Installing a low profile bracket

You may have to install a low profile bracket prior to the product installation. The low profile bracket replaces the existing standard profile bracket shipped on the product.

1. Using a correctly sized Phillips head screwdriver, carefully remove the two board lock screws located above and below the SFP+ connectors.
2. Remove the standard profile bracket and place the low profile bracket over the connectors. Be careful not to damage the connectors or bend the low profile bracket.
3. Reinstall the two Phillips screws.

Connecting other devices

Connecting the network cable

The AT118A has two SFP+ ports. These ports support either of the following:

- Direct Attached Copper (DAC) cables
- Optical Modules to be used with fiber optic cables

See Cable specifications for the maximum cable length supported.

To connect the AT118A to the network, complete the following steps:

1. Orient the SFP+ optical module or DAC cable so that the Gold Fingers on the edge of the circuit board is located closest to the option card circuit board.
2. Install the SFP+ optical module or DAC cable all the way into the SFP+ socket until it clicks into place and is securely latched.
3. If an optical module is used, remove the protective cover and connect the fiber optic cable.

3 Installing the HP-UX operating system components

HP-UX operating system

The HP Integrity NC552SFP 2P 10GbE adapter is supported through the HP-UX 11i v3 operating system.

Prerequisites

Before installing the adapter, follow these steps:

1. The adapter card is supported through the HP Integrity rx2800 i2 and Superdome2 server platforms. Verify compliance with supported configurations using the *HP Ethernet System-Driver Support Matrix* at the following website:

<http://www.hp.com/go/hpux-iocards-docs>

2. Ensure that your system meets the following minimum software and firmware requirements:
 - HP Integrity rx2800 i2 — Recipe S26.21, HP-UX B.11.31.1109 or later
 - HP Superdome2 — Minimum Firmware Bundle Required 2.51.102, HP-UX B.11.31.1109 or later

Information for HP Integrity servers is available at the following website:

<http://welcome.hp.com/country/us/en/prodserv/servers.html>

-
- ① **IMPORTANT:** This document contains minimum firmware requirements; HP strongly advises that you check for the latest versions of firmware that are available for your systems.

1. Go to <http://www.hp.com>.
2. Locate and click the Support & Drivers link on the main page.
3. Click the button next to Download drivers and software (and firmware).
4. Enter your product name (for example, Superdome 2) or number and click >>.
5. After selecting the correct product, choose the OS or Cross operating system (BIOS, Firmware, Diagnostics, etc.)
6. Refer to the Release Notes or Installation Instructions to verify the firmware version.

-
3. Confirm that the server model and operating system are supported with the AT118A adapter. Also, determine the required versions for the system firmware, adapter firmware, and UEFI driver.

For more information, see the *HP-UX Ethernet Card Support Matrix* at:

www.hp.com/go/integrity-iocards-docs

Support Matrix documents are listed alphabetically in the “General reference” section.

4. Check the following conditions:
 - Verify that the `/usr/bin`, `/usr/sbin`, and `/sbin` directories are in the `PATH` by entering the following command:

```
echo $PATH
```
 - Verify you have the Ethernet driver software (included with the OS or application CD or downloaded).
 - Ensure that cable connections follow these procedures: “[Connecting other devices](#)” (page 7)
 - Cable map (optional)

Important Ethernet patches and updates

Review the *10GigEthr-03 (iocxgbe) Ethernet Driver for HP-UX Release Notes* located at: <http://www.hp.com/go/hpux-11iv3-iocards-manuals> . Search for the latest patch and dependency requirements.

Install all driver software and dependency patches before you install the adapter.

NOTE: Patches are available from the Software Depot website:

<https://h20392.www2.hp.com/portal/swdepot/index.do>

Update the adapter firmware

- △ **CAUTION:** Updating the adapter firmware is **REQUIRED**. Ensure that you follow the instructions detailed in the *README.TXT* file included with the update package. If you do not update the adapter firmware, hardware failure will result.
-

To obtain and install the latest firmware for the adapter, follow these steps:

1. See the following website:
<http://www.hp.com/products1/serverconnectivity/adapters/index.html>
2. Using the HP adapter model # as your guide, select your NIC.
3. In the support section, select the **Software & Drivers** link.
4. Select **Cross operating system (BIOS, Firmware, Diagnostics, etc.)**.
5. Select **EFI and FWs for use on Integrity**.
6. Review the installation instructions and release notes on the download page.
7. Download the firmware.
8. Follow the procedures supplied with the update package to install the firmware update.

Installing driver software

Use the following instructions if the driver is provided on a CD-ROM. If the driver software is downloaded, follow the instructions provided with that file.

Ethernet

NOTE: The initial release of the *10GigEthr-03* bundle is available by restricted download only; please contact your account manager or HP-UX Ambassador for instructions on how to obtain this bundle.

Future releases of the HP-UX v3 Operating Environment media or Application Release media will include the bundle, and the bundle will also be made available for unrestricted download on the Software Depot website.

Install all driver software and dependency patches before you install the adapter. See the *10GigEthr-03 (iocxgbe) Ethernet Driver for HP-UX Release Notes* for further details, available at: <http://www.hp.com/go/hpux-11iv3-iocards-manuals>

Installing the driver from CD-ROM

Use the following procedure to load the driver from a CD-ROM:

1. Log in to the system as `root`.
2. Insert the CD into the CD drive.
3. Mount the CD using the following command:

```
mount /dev/dsk/<cd_rom_dev_file> /<tmp_mnt>
```

4. Run `swinstall` to install the software. Enter the following command:
`/usr/sbin/swinstall`
 The **Software Selection** window and the **Specify Source** window open.
5. In the **Specify Source** window, change the **Source Host Name** if necessary. Enter the mount point of the drive in the **Source Depot Path** field and click **OK** to return to the **Software Selection Window**.
 Click **Help** to get more information.
6. Select the appropriate software bundle for your adapter.
7. Select **Mark for Install** from the **Actions** menu.
8. Select **Install** from the **Actions** menu. Installation begins and the **Install Analysis** window opens.
9. Click **OK** in the **Install Analysis** window to confirm that you want to install the software. The **Install** window opens.
 View the **Install** window to read processing data while the software installs. When the **Status** field indicates **Ready**, the **Confirmation** window opens
10. Click **OK**. A second **Confirmation** window opens.
11. Click **OK** again. The **Install** window opens.
12. Click **Done**. The **Note** window opens.
13. Click **OK** in the **Note** window to reboot. The user interface disappears and the system reboots.
14. Once the system returns to a login, log in as `root` and open the following files to see any error or warning messages that may have occurred during the installation:
`/var/adm/sw/swagent.log`
`/var/adm/sw/swinstall.log`
15. Proceed to [“Installing OnlineDiag” \(page 10\)](#)

Installing OnlineDiag

Failure to properly complete the steps in this procedure may result in erratic system behavior or system failure and may void the warranty. For assistance with this procedure, contact your local HP Authorized Service Provider.

Install OnlineDiag, which is available at the Software Depot website:

<https://h20392.www2.hp.com/portal/swdepot/index.do>

OnlineDiag is also available from the IPF CD for Itanium®-based systems.

Verify the Ethernet adapter installation

1. To verify that the system recognizes the NIC, view the output listing from the following command:
`# ioscan -kfnC lan`
2. Verify the following drivers appear for each installed adapter. If all the drivers are listed, proceed to [“Verify Ethernet connectivity” \(page 11\)](#).

An output similar to the following will be displayed:

```
ioscan -kfnC lan
Class      I  H/W Path          Driver  S/W State  H/W Type  Description
-----
lan        4  40/0/0/0/0/0/0  iocxgbe CLAIMED    INTERFACE  HP AT118A 2p 10GbE PCIe Adapter
lan        5  40/0/0/0/0/0/1  iocxgbe CLAIMED    INTERFACE  HP AT118A 2p 10GbE PCIe Adapter
```

The third column represents the hardware path of the slot in which the adapter is installed. This path will be different for each installed adapter port.

3. Observe whether the `ioscan` output reports the following:
`lan 0/3/0/0/0/0 UNCLAIMED UNKNOWN`
If reported, HP-UX detected the adapter but the `iocxgbe` driver is not recognized.
4. If the correct driver is installed and the adapter is not listed in the `ioscan` output, contact HP for assistance.

Verify Ethernet connectivity

Once the HP Ethernet software and hardware are installed and running, use the following steps to verify connectivity:

1. Check the state of all Ethernet hardware and interfaces. Enter the `ioscan -kfnC lan` command and verify the *S/W State* is *CLAIMED*.

If the Ethernet device file has not been created, enter the following commands:

```
# insf -e
# ioscan -f
```

2. Verify linklevel connectivity with a remote system on the network you have attached to the Ethernet adapter by using the `nwmgr` command in the following format.

```
nwmgr --diag -A dest=destination_MAC_address -c lanppa
```

NOTE: When you use `nwmgr --diag` to check connectivity, ensure that the remote system is on the same subnet and is an HP-UX-based system.

Alternate website for downloading files

1. See the following HP website:
<http://www.hp.com/#Support>
2. You can click open the **Support & Drivers** link or enter your adapter product number in the **SEARCH HP.COM** field, then click **go**. For example, type AT094A.
3. At the next web page, either locate the **Software & driver downloads** link to continue search or view the returned listing for your selected product.
4. Download the drivers, firmware, or documentation as needed.

4 Specifications

Cable specifications

Table 2 Cable specifications

SFP+ module type	Cable connector type	Wavelength (nm), type of cable	Core size (microns μm)	Cable grade	Minimum modal bandwidth (MHz-km)	Maximum cable length (meters)
10GBASE-SR (short range) Optical Module	LC	850, Multi-Mode Fiber (MMF)	62.5	("FDDI")	160	26
			62.5	OM1	200	33
			50		400	66
			50	OM2	500	82
			50	OM3	2000	300
10GBASE-CR with Direct Attached Copper (DAC) cable	SFP+	N/A, Twin Axial Copper	24 to 28 AWG, depending on length and manufacturer	N/A	N/A	7

General specifications

Table 3 General specifications

General specifications	Value
Form factor	Low profile. Card is available with standard height and low profile brackets.
Dimensions (H x L x W) — standard height bracket	10.67 cm x 16.7 cm x 6.8 cm (4.2 in x 6.6 in x 2.7 in)
	low profile bracket
Weight	0.181 kg (0.4 lb)
Data rate	Two fully independent 2/4/8 Gbps FC links delivering up to 1600MB/s total bandwidth per channel
Max transfer rate	10000 Mbps

Compliance

Table 4 Compliance

Compliance	Standard
IEEE	IEEE802.3x, IEEE802.3ad, IEEE802.1p, IEEE802.1q, IEEE802.3az, IEEE802.3ae, IEEE802.3ap, IEEE802.1qau
Safety	UL Mark (US and Canada) EN 60950
Other	PCIe v2.0 RoHS 6 of 6 IPv4, IPv6 CE SFF-8431- 10 Gigabit Small Form Factor Pluggable Module "SFP+" SNMP

Table 4 Compliance *(continued)*

Compliance	Standard
	IPv4/IPv6 TCP, UDP checksum Offload IPv4/IPv6 TCP, Large Send Offload IPv4/IPv6 TCP, Large Receive Offload Jumbo Frames up to 9000 Bytes

Power and environmental specifications

Table 5 Power and environmental specifications

Power and environmental specifications	Value
Operating	Temperature 0° to 55° C (32° to 131° F) Humidity 15 to 80% relative humidity (RH), non-condensing
Non-operating	Temperature -40° to 70° C (-40° to 158° F) Humidity 10 to 90% relative humidity (RH), non-condensing
Power	9.4 Watts typical, 10.5 Watts maximum

5 Regulatory compliance notices

Regulatory compliance identification numbers

For the purpose of regulatory compliance certifications and identification, this product has been assigned a unique regulatory model number. The regulatory model number can be found on the product nameplate label, along with all required approval markings and information. When requesting compliance information for this product, always refer to this regulatory model number. The regulatory model number is not the marketing name or model number of the product.

Federal Communications Commission notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at personal expense.

Laser device

All HP systems equipped with a laser device comply with safety standards, including International Electrotechnical Commission (IEC) 825. With specific regard to the laser, the equipment complies with laser product performance standards set by government agencies as a Class 1 laser product. The product does not emit hazardous light.

Laser safety warning

-
- ⚠ WARNING!** To reduce the risk of exposure to hazardous radiation:
- Do not try to open the laser device enclosure. There are no user-serviceable components inside.
 - Do not operate controls, make adjustments, or perform procedures to the laser device other than those specified in this document.
 - Allow only HP-authorized service technicians to repair the laser device.
-

Certification and classification information

This product contains a laser internal to the fiber optic (FO) transceiver for connection to the Fibre Channel communications port.

In the USA, the FO transceiver is certified as a Class 1 laser product conforming to the requirements contained in the Department of Health and Human Services (DHHS) regulation 21 CFR, Subchapter J. A label on the plastic FO transceiver housing indicates the certification.

Outside the USA, the FO transceiver is certified as a Class 1 laser product conforming to the requirements contained in IEC 825-1:1993 and EN 60825-1:1994, including Amendment 11:1996 and Amendment 2:2001.

Laser product label

The optional label in [Figure 2 \(page 15\)](#) or equivalent may be located on the surface of the HP-supplied laser device.

Figure 2 Class 1 laser product label



This optional label indicates that the product is classified as a CLASS 1 LASER PRODUCT. This label may appear on the laser device installed in your product.

International notices and statements

Canadian notice (avis Canadien)

Class A equipment

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

European Union notice

Products bearing the CE marking comply with the EMC Directive (2004/108/EMC) and the Low Voltage Directive (2006/95/EC) issued by the Commission of the European Community and if this product has telecommunication functionality, the R&TTE Directive (1999/5/EC).

Compliance with these directives implies conformity to the following European Norms (in parentheses are the equivalent international standards and regulations):

- EN55022 (CISPR 22)–Electromagnetic Interference
- EN55024 (IEC61000-4-2, IEC61000-4-3, IEC61000-4-4, IEC61000-4-5, IEC61000-4-6, IEC61000-4-8, IEC61000-4-11)–Electromagnetic Immunity
- Power Quality:
 - EN61000-3-2 (IEC61000-3-2)–Power Line Harmonics
 - EN61000-3-3 (IEC61000-3-3)–Power Line Flicker
- EN60950 (IEC60950)–Product Safety
- Also approved under UL 60950/CSA C22.2 No. 60950-00, Safety of Information Technology Equipment



BSMI notice

Figure 3 BSMI notice

警告使用者：
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

Japanese notice

Figure 4 Japanese notice

ご使用になっている装置にVCCIマークが付いていましたら、次の説明文をお読み下さい。

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。
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Korean notices

Figure 5 Korean notices

A급 기기 (업무용 정보통신기기)

이 기기는 업무용으로 전자파적합등록을 한 기기이오니 판매자 또는 사용자는 이 점을 주의하시기 바라며, 만약 잘못판매 또는 구입하였을 때에는 가정용으로 교환하시기 바랍니다.

B급 기기 (가정용 정보통신기기)

이 기기는 가정용으로 전자파적합등록을 한 기기로서 주거지역에서는 물론 모든지역에서 사용할 수 있습니다.

6 Electrostatic Discharge

Electrostatic Discharge

To prevent damage to the system, be aware of the precautions you need to follow when setting up the system or handling parts. A discharge of static electricity from a finger or other conductor may damage system boards or other static-sensitive devices. This type of damage may reduce the life expectancy of the device.

To prevent electrostatic damage, observe the following precautions:

- Avoid hand contact by transporting and storing products in static-safe containers.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free workstations.
- Place parts on a grounded surface before removing them from their containers.
- Avoid touching pins, leads, or circuitry.
- Always be properly grounded when touching a static-sensitive component or assembly (see the following section titled “Grounding Methods”).

Grounding Methods

There are several methods for grounding. Use one or more of the following methods when handling or installing electrostatic-sensitive parts:

- Use a wrist strap connected by a ground cord to a grounded workstation or computer chassis. Wrist straps are flexible straps with a minimum of 1 megohm (± 10 percent) resistance in the ground cords. To provide proper ground, wear the strap snug against the skin.
- Use heel straps, toe straps, or boot straps at standing workstations. Wear the straps on both feet when standing on conductive floors or dissipating floor mats.
- Use conductive field service tools.
- Use a portable field service kit with a folding static-dissipating work mat.

If you do not have any of the suggested equipment for proper grounding, have an HP-authorized reseller install the part.

NOTE: For more information on static electricity, or assistance with product installation, contact your HP-authorized reseller.

7 HP Contact information

HP contact information

For the name of the nearest HP authorized reseller:

- See the following Contact HP worldwide (in English) webpage:
http://welcome.hp.com/country/us/en/wwcontact_us.html

For HP technical support:

- In the United States, for contact options see the Contact HP United States webpage:
<http://welcome.hp.com/country/us/en/cs/home.html>. To contact HP by phone:
 - Call 1-800-HP-INVENT (1-800-474-6836). This service is available 24 hours a day, 7 days a week. For continuous quality improvement, calls may be recorded or monitored.
 - If you have purchased a Care Pack (service upgrade), call 1-800-633-3600. For more information about Care Packs, see the following HP website:
<http://www.hp.com/hps>
- In other locations, see the Contact HP worldwide (in English) webpage:
http://welcome.hp.com/country/us/en/wwcontact_us.html

HP welcomes your feedback. To make comments and suggestions about product documentation, send a message to

docsfeedback@hp.com

Include the document title and manufacturing part number. All submissions become the property of HP.

8 Acronyms and abbreviations

Acronyms and abbreviations

10GbE

10 Gigabit Ethernet

CSA

Canadian Standards Association

IEEE

Institute of Electrical and Electronics Engineers

LED

Light emitting diode

OS

Operating System

PCI Express

Peripheral Component Interconnect Express

RoHS

Restriction of Hazardous Substances

SFP

small form-factor pluggable

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