

HP D6000 Disk Enclosure Maintenance and Service Guide

Abstract

This guide describes identification and maintenance procedures, diagnostic tools, specifications, and requirements for hardware components and software. This guide is for an experienced service technician. HP assumes you are qualified in the servicing of computer equipment, trained in recognizing hazards in products, and are familiar with weight and stability precautions.



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Customer self repair

HP products are designed with many Customer Self Repair (CSR) parts to minimize repair time and allow for greater flexibility in performing defective parts replacement. If during the diagnosis period HP (or HP service providers or service partners) identifies that the repair can be accomplished by the use of a CSR part, HP will ship that part directly to you for replacement. There are two categories of CSR parts:

- **Mandatory**—Parts for which customer self repair is mandatory. If you request HP to replace these parts, you will be charged for the travel and labor costs of this service.
- **Optional**—Parts for which customer self repair is optional. These parts are also designed for customer self repair. If, however, you require that HP replace them for you, there may or may not be additional charges, depending on the type of warranty service designated for your product.

NOTE: Some HP parts are not designed for customer self repair. In order to satisfy the customer warranty, HP requires that an authorized service provider replace the part. These parts are identified as "No" in the Illustrated Parts Catalog.

Based on availability and where geography permits, CSR parts will be shipped for next business day delivery. Same day or four-hour delivery may be offered at an additional charge where geography permits. If assistance is required, you can call the HP Technical Support Center and a technician will help you over the telephone. HP specifies in the materials shipped with a replacement CSR part whether a defective part must be returned to HP. In cases where it is required to return the defective part to HP, you must ship the defective part back to HP within a defined period of time, normally five (5) business days. The defective part must be returned with the associated documentation in the provided shipping material. Failure to return the defective part may result in HP billing you for the replacement. With a customer self repair, HP will pay all shipping and part return costs and determine the courier/carrier to be used.

For more information about HP's Customer Self Repair program, contact your local service provider. For the North American program, refer to the HP website (<http://www.hp.com/go/selfrepair>).

Parts only warranty service

Your HP Limited Warranty may include a parts only warranty service. Under the terms of parts only warranty service, HP will provide replacement parts free of charge.

For parts only warranty service, CSR part replacement is mandatory. If you request HP to replace these parts, you will be charged for the travel and labor costs of this service.

Réparation par le client (CSR)

Les produits HP comportent de nombreuses pièces CSR (Customer Self Repair = réparation par le client) afin de minimiser les délais de réparation et faciliter le remplacement des pièces défectueuses. Si pendant la période de diagnostic, HP (ou ses partenaires ou mainteneurs agréés) détermine que la réparation peut être effectuée à l'aide d'une pièce CSR, HP vous l'envoie directement. Il existe deux catégories de pièces CSR:

Obligatoire - Pièces pour lesquelles la réparation par le client est obligatoire. Si vous demandez à HP de remplacer ces pièces, les coûts de déplacement et main d'œuvre du service vous seront facturés.

Facultatif - Pièces pour lesquelles la réparation par le client est facultative. Ces pièces sont également conçues pour permettre au client d'effectuer lui-même la réparation. Toutefois, si vous demandez à HP de remplacer ces pièces, l'intervention peut ou non vous être facturée, selon le type de garantie applicable à votre produit.

REMARQUE: Certaines pièces HP ne sont pas conçues pour permettre au client d'effectuer lui-même la réparation. Pour que la garantie puisse s'appliquer, HP exige que le remplacement de la pièce soit effectué par un Mainteneur Agréé. Ces pièces sont identifiées par la mention "Non" dans le Catalogue illustré.

Les pièces CSR sont livrées le jour ouvré suivant, dans la limite des stocks disponibles et selon votre situation géographique. Si votre situation géographique le permet et que vous demandez une livraison le jour même ou dans les 4 heures, celle-ci vous sera facturée. Pour bénéficier d'une assistance téléphonique, appelez le Centre d'assistance technique HP. Dans les documents envoyés avec la pièce de rechange CSR, HP précise s'il est nécessaire de lui retourner la pièce défectueuse. Si c'est le cas, vous devez le faire dans le délai indiqué, généralement cinq (5) jours ouvrés. La pièce et sa documentation doivent être retournées dans l'emballage fourni. Si vous ne retournez pas la pièce défectueuse, HP se réserve le droit de vous facturer les coûts de remplacement. Dans le cas d'une pièce CSR, HP supporte l'ensemble des frais d'expédition et de retour, et détermine la société de courses ou le transporteur à utiliser.

Pour plus d'informations sur le programme CSR de HP, contactez votre Mainteneur Agréé local. Pour plus d'informations sur ce programme en Amérique du Nord, consultez le site Web HP (<http://www.hp.com/go/selfrepair>).

Service de garantie "pièces seules"

Votre garantie limitée HP peut inclure un service de garantie "pièces seules". Dans ce cas, les pièces de rechange fournies par HP ne sont pas facturées.

Dans le cadre de ce service, la réparation des pièces CSR par le client est obligatoire. Si vous demandez à HP de remplacer ces pièces, les coûts de déplacement et main d'œuvre du service vous seront facturés.

Riparazione da parte del cliente

Per abbreviare i tempi di riparazione e garantire una maggiore flessibilità nella sostituzione di parti difettose, i prodotti HP sono realizzati con numerosi componenti che possono essere riparati direttamente dal cliente (CSR, Customer Self Repair). Se in fase di diagnostica HP (o un centro di servizi o di assistenza HP) identifica il guasto come riparabile mediante un ricambio CSR, HP lo spedisce direttamente al cliente per la sostituzione. Vi sono due categorie di parti CSR:

Obbligatorie – Parti che devono essere necessariamente riparate dal cliente. Se il cliente ne affida la riparazione ad HP, deve sostenere le spese di spedizione e di manodopera per il servizio.

Opzionali – Parti la cui riparazione da parte del cliente è facoltativa. Si tratta comunque di componenti progettati per questo scopo. Se tuttavia il cliente ne richiede la sostituzione ad HP, potrebbe dover sostenere spese aggiuntive a seconda del tipo di garanzia previsto per il prodotto.

NOTA: alcuni componenti HP non sono progettati per la riparazione da parte del cliente. Per rispettare la garanzia, HP richiede che queste parti siano sostituite da un centro di assistenza autorizzato. Tali parti sono identificate da un "No" nel Catalogo illustrato dei componenti.

In base alla disponibilità e alla località geografica, le parti CSR vengono spedite con consegna entro il giorno lavorativo seguente. La consegna nel giorno stesso o entro quattro ore è offerta con un supplemento di costo solo in alcune zone. In caso di necessità si può richiedere l'assistenza telefonica di un addetto del centro di supporto tecnico HP. Nel materiale fornito con una parte di ricambio CSR, HP specifica se il cliente deve restituire dei componenti. Qualora sia richiesta la resa ad HP del componente difettoso, lo si deve spedire ad HP entro un determinato periodo di tempo, generalmente cinque (5) giorni lavorativi. Il componente difettoso deve essere restituito con la documentazione associata nell'imballo di spedizione fornito. La mancata restituzione del componente può comportare la fatturazione del ricambio da parte di HP. Nel caso di riparazione da parte del cliente, HP sostiene tutte le spese di spedizione e resa e sceglie il corriere/vettore da utilizzare.

Per ulteriori informazioni sul programma CSR di HP contattare il centro di assistenza di zona. Per il programma in Nord America fare riferimento al sito Web HP (<http://www.hp.com/go/selfrepair>).

Servizio di garanzia per i soli componenti

La garanzia limitata HP può includere un servizio di garanzia per i soli componenti. Nei termini di garanzia del servizio per i soli componenti, HP fornirà gratuitamente le parti di ricambio.

Per il servizio di garanzia per i soli componenti è obbligatoria la formula CSR che prevede la riparazione da parte del cliente. Se il cliente invece richiede la sostituzione ad HP, dovrà sostenere le spese di spedizione e di manodopera per il servizio.

Customer Self Repair

HP Produkte enthalten viele CSR-Teile (Customer Self Repair), um Reparaturzeiten zu minimieren und höhere Flexibilität beim Austausch defekter Bauteile zu ermöglichen. Wenn HP (oder ein HP Servicepartner) bei der Diagnose feststellt, dass das Produkt mithilfe eines CSR-Teils repariert werden kann, sendet Ihnen HP dieses Bauteil zum Austausch direkt zu. CSR-Teile werden in zwei Kategorien unterteilt:

Zwingend – Teile, für die das Customer Self Repair-Verfahren zwingend vorgegeben ist. Wenn Sie den Austausch dieser Teile von HP vornehmen lassen, werden Ihnen die Anfahrt- und Arbeitskosten für diesen Service berechnet.

Optional – Teile, für die das Customer Self Repair-Verfahren optional ist. Diese Teile sind auch für Customer Self Repair ausgelegt. Wenn Sie jedoch den Austausch dieser Teile von HP vornehmen lassen möchten, können bei diesem Service je nach den für Ihr Produkt vorgesehenen Garantiebedingungen zusätzliche Kosten anfallen.

HINWEIS: Einige Teile sind nicht für Customer Self Repair ausgelegt. Um den Garantieanspruch des Kunden zu erfüllen, muss das Teil von einem HP Servicepartner ersetzt werden. Im illustrierten Teilekatalog sind diese Teile mit „No“ bzw. „Nein“ gekennzeichnet.

CSR-Teile werden abhängig von der Verfügbarkeit und vom Lieferziel am folgenden Geschäftstag geliefert. Für bestimmte Standorte ist eine Lieferung am selben Tag oder innerhalb von vier Stunden gegen einen Aufpreis verfügbar. Wenn Sie Hilfe benötigen, können Sie das HP technische Support Center anrufen und sich von einem Mitarbeiter per Telefon helfen lassen. Den Materialien, die mit einem CSR-Ersatzteil geliefert werden, können Sie entnehmen, ob das defekte Teil an HP zurückgeschickt werden muss. Wenn es erforderlich ist, das defekte Teil an HP zurückzuschicken, müssen Sie dies innerhalb eines vorgegebenen Zeitraums tun, in der Regel innerhalb von fünf (5) Geschäftstagen. Das defekte Teil muss mit der zugehörigen Dokumentation in der Verpackung zurückgeschickt werden, die im Lieferumfang enthalten ist. Wenn Sie das

defekte Teil nicht zurückschicken, kann HP Ihnen das Ersatzteil in Rechnung stellen. Im Falle von Customer Self Repair kommt HP für alle Kosten für die Lieferung und Rücksendung auf und bestimmt den Kurier-/Frachtdienst.

Weitere Informationen über das HP Customer Self Repair Programm erhalten Sie von Ihrem Servicepartner vor Ort. Informationen über das CSR-Programm in Nordamerika finden Sie auf der HP Website unter (<http://www.hp.com/go/selfrepair>).

Parts-only Warranty Service (Garantieservice ausschließlich für Teile)

Ihre HP Garantie umfasst möglicherweise einen Parts-only Warranty Service (Garantieservice ausschließlich für Teile). Gemäß den Bestimmungen des Parts-only Warranty Service stellt HP Ersatzteile kostenlos zur Verfügung.

Für den Parts-only Warranty Service ist das CSR-Verfahren zwingend vorgegeben. Wenn Sie den Austausch dieser Teile von HP vornehmen lassen, werden Ihnen die Anfahrt- und Arbeitskosten für diesen Service berechnet.

Reparaciones del propio cliente

Los productos de HP incluyen muchos componentes que el propio usuario puede reemplazar (*Customer Self Repair*, CSR) para minimizar el tiempo de reparación y ofrecer una mayor flexibilidad a la hora de realizar sustituciones de componentes defectuosos. Si, durante la fase de diagnóstico, HP (o los proveedores o socios de servicio de HP) identifica que una reparación puede llevarse a cabo mediante el uso de un componente CSR, HP le enviará dicho componente directamente para que realice su sustitución. Los componentes CSR se clasifican en dos categorías:

- **Obligatorio:** componentes para los que la reparación por parte del usuario es obligatoria. Si solicita a HP que realice la sustitución de estos componentes, tendrá que hacerse cargo de los gastos de desplazamiento y de mano de obra de dicho servicio.
- **Opcional:** componentes para los que la reparación por parte del usuario es opcional. Estos componentes también están diseñados para que puedan ser reparados por el usuario. Sin embargo, si precisa que HP realice su sustitución, puede o no conllevar costes adicionales, dependiendo del tipo de servicio de garantía correspondiente al producto.

NOTA: Algunos componentes no están diseñados para que puedan ser reparados por el usuario. Para que el usuario haga valer su garantía, HP pone como condición que un proveedor de servicios autorizado realice la sustitución de estos componentes. Dichos componentes se identifican con la palabra "No" en el catálogo ilustrado de componentes.

Según la disponibilidad y la situación geográfica, los componentes CSR se enviarán para que lleguen a su destino al siguiente día laborable. Si la situación geográfica lo permite, se puede solicitar la entrega en el mismo día o en cuatro horas con un coste adicional. Si precisa asistencia técnica, puede llamar al Centro de asistencia técnica de HP y recibirá ayuda telefónica por parte de un técnico. Con el envío de materiales para la sustitución de componentes CSR, HP especificará si los componentes defectuosos deberán devolverse a HP. En aquellos casos en los que sea necesario devolver algún componente a HP, deberá hacerlo en el periodo de tiempo especificado, normalmente cinco días laborables. Los componentes defectuosos deberán devolverse con toda la documentación relacionada y con el embalaje de envío. Si no

enviara el componente defectuoso requerido, HP podrá cobrarle por el de sustitución. En el caso de todas sustituciones que lleve a cabo el cliente, HP se hará cargo de todos los gastos de envío y devolución de componentes y escogerá la empresa de transporte que se utilice para dicho servicio.

Para obtener más información acerca del programa de Reparaciones del propio cliente de HP, póngase en contacto con su proveedor de servicios local. Si está interesado en el programa para Norteamérica, visite la página web de HP siguiente (<http://www.hp.com/go/selfrepair>).

Servicio de garantía exclusivo de componentes

La garantía limitada de HP puede que incluya un servicio de garantía exclusivo de componentes. Según las condiciones de este servicio exclusivo de componentes, HP le facilitará los componentes de repuesto sin cargo adicional alguno.

Para este servicio de garantía exclusivo de componentes, es obligatoria la sustitución de componentes por parte del usuario (CSR). Si solicita a HP que realice la sustitución de estos componentes, tendrá que hacerse cargo de los gastos de desplazamiento y de mano de obra de dicho servicio.

Customer Self Repair

Veel onderdelen in HP producten zijn door de klant zelf te repareren, waardoor de reparatieduur tot een minimum beperkt kan blijven en de flexibiliteit in het vervangen van defecte onderdelen groter is. Deze onderdelen worden CSR-onderdelen (Customer Self Repair) genoemd. Als HP (of een HP Service Partner) bij de diagnose vaststelt dat de reparatie kan worden uitgevoerd met een CSR-onderdeel, verzendt HP dat onderdeel rechtstreeks naar u, zodat u het defecte onderdeel daarmee kunt vervangen. Er zijn twee categorieën CSR-onderdelen:

Verplicht: Onderdelen waarvoor reparatie door de klant verplicht is. Als u HP verzoekt deze onderdelen voor u te vervangen, worden u voor deze service reiskosten en arbeidsloon in rekening gebracht.

Optioneel: Onderdelen waarvoor reparatie door de klant optioneel is. Ook deze onderdelen zijn ontworpen voor reparatie door de klant. Als u echter HP verzoekt deze onderdelen voor u te vervangen, kunnen daarvoor extra kosten in rekening worden gebracht, afhankelijk van het type garantieservice voor het product.

OPMERKING: Sommige HP onderdelen zijn niet ontwikkeld voor reparatie door de klant. In verband met de garantievoorwaarden moet het onderdeel door een geautoriseerde Service Partner worden vervangen. Deze onderdelen worden in de geïllustreerde onderdelencatalogus aangemerkt met "Nee".

Afhankelijk van de leverbaarheid en de locatie worden CSR-onderdelen verzonden voor levering op de eerstvolgende werkdag. Levering op dezelfde dag of binnen vier uur kan tegen meerkosten worden aangeboden, indien dit mogelijk is gezien de locatie. Indien assistentie gewenst is, belt u een HP Service Partner om via de telefoon technische ondersteuning te ontvangen. HP vermeldt in de documentatie bij het vervangende CSR-onderdeel of het defecte onderdeel aan HP moet worden geretourneerd. Als het defecte onderdeel aan HP moet worden teruggezonden, moet u het defecte onderdeel binnen een bepaalde periode, gewoonlijk vijf (5) werkdagen, retourneren aan HP. Het defecte onderdeel moet met de bijbehorende documentatie worden geretourneerd in het meegeleverde verpakkingsmateriaal. Als u het defecte onderdeel niet terugzendt, kan HP u voor het vervangende onderdeel kosten in rekening brengen. Bij reparatie door de klant betaalt HP alle verzendkosten voor het vervangende en geretourneerde onderdeel en kiest HP zelf welke koerier/transportonderneming hiervoor wordt gebruikt.

Neem contact op met een Service Partner voor meer informatie over het Customer Self Repair programma van HP. Informatie over Service Partners vindt u op de HP website (<http://www.hp.com/go/selfrepair>).

Garantieservice "Parts Only"

Het is mogelijk dat de HP garantie alleen de garantieservice "Parts Only" omvat. Volgens de bepalingen van de Parts Only garantieservice zal HP kosteloos vervangende onderdelen ter beschikking stellen.

Voor de Parts Only garantieservice is vervanging door CSR-onderdelen verplicht. Als u HP verzoekt deze onderdelen voor u te vervangen, worden u voor deze service reiskosten en arbeidsloon in rekening gebracht.

Reparo feito pelo cliente

Os produtos da HP são projetados com muitas peças para reparo feito pelo cliente (CSR) de modo a minimizar o tempo de reparo e permitir maior flexibilidade na substituição de peças com defeito. Se, durante o período de diagnóstico, a HP (ou fornecedores/parceiros de serviço da HP) concluir que o reparo pode ser efetuado pelo uso de uma peça CSR, a peça de reposição será enviada diretamente ao cliente. Existem duas categorias de peças CSR:

Obrigatória – Peças cujo reparo feito pelo cliente é obrigatório. Se desejar que a HP substitua essas peças, serão cobradas as despesas de transporte e mão-de-obra do serviço.

Opcional – Peças cujo reparo feito pelo cliente é opcional. Essas peças também são projetadas para o reparo feito pelo cliente. No entanto, se desejar que a HP as substitua, pode haver ou não a cobrança de taxa adicional, dependendo do tipo de serviço de garantia destinado ao produto.

OBSERVAÇÃO: Algumas peças da HP não são projetadas para o reparo feito pelo cliente. A fim de cumprir a garantia do cliente, a HP exige que um técnico autorizado substitua a peça. Essas peças estão identificadas com a marca "No" (Não), no catálogo de peças ilustrado.

Conforme a disponibilidade e o local geográfico, as peças CSR serão enviadas no primeiro dia útil após o pedido. Onde as condições geográficas permitirem, a entrega no mesmo dia ou em quatro horas pode ser feita mediante uma taxa adicional. Se precisar de auxílio, entre em contato com o Centro de suporte técnico da HP para que um técnico o ajude por telefone. A HP especifica nos materiais fornecidos com a peça CSR de reposição se a peça com defeito deve ser devolvida à HP. Nos casos em que isso for necessário, é preciso enviar a peça com defeito à HP dentro do período determinado, normalmente cinco (5) dias úteis. A peça com defeito deve ser enviada com a documentação correspondente no material de transporte fornecido. Caso não o faça, a HP poderá cobrar a reposição. Para as peças de reparo feito pelo cliente, a HP paga todas as despesas de transporte e de devolução da peça e determina a transportadora/serviço postal a ser utilizado.

Para obter mais informações sobre o programa de reparo feito pelo cliente da HP, entre em contato com o fornecedor de serviços local. Para o programa norte-americano, visite o site da HP (<http://www.hp.com/go/selfrepair>).

Serviço de garantia apenas para peças

A garantia limitada da HP pode incluir um serviço de garantia apenas para peças. Segundo os termos do serviço de garantia apenas para peças, a HP fornece as peças de reposição sem cobrar nenhuma taxa.

No caso desse serviço, a substituição de peças CSR é obrigatória. Se desejar que a HP substitua essas peças, serão cobradas as despesas de transporte e mão-de-obra do serviço.

カスタマーセルフリペア

修理時間を短縮し、故障部品の交換における高い柔軟性を確保するために、HP製品には多数のCSR部品があります。診断の際に、CSR部品を使用すれば修理ができるとHP（HPまたはHP正規保守代理店）が判断した場合、HPはその部品を直接、お客様に発送し、お客様に交換していただきます。CSR部品には以下の2通りがあります。

- **必須** - カスタマーセルフリペアが必須の部品。当該部品について、もしもお客様がHPに交換作業を依頼される場合には、その修理サービスに関する交通費および人件費がお客様に請求されます。
- **任意** - カスタマーセルフリペアが任意である部品。この部品もカスタマーセルフリペア用です。当該部品について、もしもお客様がHPに交換作業を依頼される場合には、お買い上げの製品に適用される保証サービス内容の範囲内においては、別途費用を負担していただくことなく保証サービスを受けることができます。

注： HP製品の一部の部品は、カスタマーセルフリペア用ではありません。製品の保証を継続するためには、HPまたはHP正規保守代理店による交換作業が必須となります。部品カタログには、当該部品がカスタマーセルフリペア除外品である旨が記載されています。

部品供給が可能な場合、地域によっては、CSR部品を翌営業日に届くように発送します。また、地域によっては、追加費用を負担いただくことにより同日または4時間以内に届くように発送することも可能な場合があります。サポートが必要なときは、HPの修理受付窓口へ電話していただければ、技術者が電話でアドバイスします。交換用のCSR部品または同梱物には、故障部品をHPに返送する必要があるかどうかが表示されています。故障部品をHPに返送する必要がある場合は、指定期限内（通常は5営業日以内）に故障部品をHPに返送してください。故障部品を返送する場合は、届いた時の梱包箱に関連書類とともに入れてください。故障部品を返送しない場合、HPから部品費用が請求されます。カスタマーセルフリペアの際には、HPは送料および部品返送費を全額負担し、使用する宅配便会社や運送会社を指定します。

部品のみ保証サービス

HP保証サービスには、部品のみ保証サービスが適用される場合があります。このサービスでは、交換部品は無償で提供されます。

部品のみ保証サービスにおいては、CSR部品をお客様により交換作業していただくことが必須となります。当該部品について、もしもお客様がHPに交換作業を依頼される場合には、その修理サービスに関する交通費および人件費はお客様の負担となります。

客户自行维修

HP 产品提供许多客户自行维修 (CSR) 部件，以尽可能缩短维修时间和在更换缺陷部件方面提供更大的灵活性。如果在诊断期间 HP（或 HP 服务提供商或服务合作伙伴）确定可以通过使用 CSR 部件完成维修，HP 将直接把该部件发送给您进行更换。有两类 CSR 部件：

- **强制性的** — 要求客户必须自行维修的部件。如果您请求 HP 更换这些部件，则必须为该服务支付差旅费和人工费用。
- **可选的** — 客户可以选择是否自行维修的部件。这些部件也是为客户自行维修设计的。不过，如果您要求 HP 为您更换这些部件，则根据为您的产品指定的保修服务类型，HP 可能收取或不再收取任何附加费用。

注：某些 HP 部件的设计并未考虑客户自行维修。为了满足客户保修的需要，HP 要求授权服务提供商更换相关部件。这些部件在部件图解目录中标记为“否”。

CSR 部件将在下一个工作日发运（取决于备货情况和允许的地理范围）。在允许的地理范围内，可在当天或四小时内发运，但要收取额外费用。如果需要帮助，您可以致电 HP 技术支持中心，将会有技术人员通过电话为您提供帮助。HP 会在随更换的 CSR 部件发运的材料中指明是否必须将有缺陷的部件返还给 HP。如果要求您将有缺陷的部件返还给 HP，那么您必须在规定期限内（通常是五 (5) 个工作日）将缺陷部件发给 HP。有缺陷的部件必须随所提供的发运材料中的相关文件一起返还。如果未能送还缺陷的部件，HP 可能会要求您支付更换费用。客户自行维修时，HP 将承担所有相关运输和部件返回费用，并指定快递商/承运商。

有关 HP 客户自行维修计划的详细信息，请与您当地的服务提供商联系。有关北美地区的计划，请访问 HP 网站 (<http://www.hp.com/go/selfrepair>)。

仅部件保修服务

您的 HP 有限保修服务可能涉及仅部件保修服务。根据仅部件保修服务条款的规定，HP 将免费提供更换的部件。

仅部件保修服务要求进行 CSR 部件更换。如果您请求 HP 更换这些部件，则必须为该服务支付差旅费和人工费用。

客戶自行維修

HP 產品設計了許多「客戶自行維修」(CSR) 的零件以減少維修時間，並且使得更換瑕疵零件時能有更大的彈性。如果在診斷期間 HP (或 HP 服務供應商或維修夥伴) 辨認出此項維修工作可以藉由使用 CSR 零件來完成，則 HP 將直接寄送該零件給您作更換。CSR 零件分為兩種類別：

- **強制的** — 客戶自行維修所使用的零件是強制性的。如果您要求 HP 更換這些零件，HP 將會向您收取此服務所需的外出費用與勞動成本。
- **選購的** — 客戶自行維修所使用的零件是選購的。這些零件也設計用於客戶自行維修之用。不過，如果您要求 HP 為您更換，則可能需要也可能不需要負擔額外的費用，端視針對此產品指定的保固服務類型而定。

備註：某些 HP 零件沒有消費者可自行維修的設計。為符合客戶保固，HP 需要授權的服務供應商更換零件。這些零件在圖示的零件目錄中，被標示為「否」。

基於材料取得及環境允許的情況下，CSR 零件將於下一個工作日以快遞寄送。在環境的允許下當天或四小時內送達，則可能需要額外的費用。若您需要協助，可致電「HP 技術支援中心」，會有一位技術人員透過電話來協助您。不論損壞的零件是否必須退回，HP 皆會在與 CSR 替換零件一起運送的材料中註明。若要將損壞的零件退回 HP，您必須在指定的一段時間內（通常為五 (5) 個工作天），將損壞的零件寄回 HP。損壞的零件必須與寄送資料中隨附的相關技術文件一併退還。如果無法退還損壞的零件，HP 可能要向您收取替換費用。針對客戶自行維修情形，HP 將負責所有運費及零件退還費用並指定使用何家快遞/貨運公司。

如需 HP 的「客戶自行維修」方案詳細資訊，請連絡您當地的服務供應商。至於北美方案，請參閱 HP 網站 (<http://www.hp.com/go/selfrepair>)。

僅限零件的保固服務

您的「HP 有限保固」可能包含僅限零件的保固服務。在僅限零件的保固服務情況下，HP 將免費提供替換零件。

針對僅限零件的保固服務，CSR 零件替換是強制性的。如果您要求 HP 更換這些零件，HP 將會向您收取此服務所需的外出費用與勞動成本。

고객 셀프 수리

HP 제품은 수리 시간을 최소화하고 결함이 있는 부품 교체 시 더욱 용통성을 발휘할 수 있도록 하기 위해 고객 셀프 수리(CSR) 부품을 다량 사용하여 설계되었습니다. 진단 기간 동안 HP(또는 HP 서비스 공급업체 또는 서비스 협력업체)에서 CSR 부품을 사용하여 수리가 가능하다고 판단되면 HP는 해당 부품을 바로 사용자에게 보내어 사용자가 교체할 수 있도록 합니다. CSR 부품에는 두 가지 종류가 있습니다.

- **고객 셀프 수리가 의무 사항인 필수 부품.** 사용자가 HP에 이 부품의 교체를 요청할 경우 이 서비스에 대한 출장비 및 작업비가 청구됩니다.
- **고객 셀프 수리가 선택 사항인 부품.** 이 부품들도 고객 셀프 수리가 가능하도록 설계되었습니다. 하지만 사용자가 HP에 이 부품의 교체를 요청할 경우 사용자가 구입한 제품에 해당하는 보증 서비스 유형에 따라 추가 비용 없이 교체가 가능할 수 있습니다.

참고: 일부 HP 부품은 고객 셀프 수리가 불가능하도록 설계되었습니다. HP는 만족스러운 고객 보증을 위해 공인 서비스 제공업체를 통해 부품을 교체하도록 하고 있습니다. 이러한 부품들은 Illustrated Parts Catalog에 "No"라고 표시되어 있습니다.

CSR 부품은 재고 상태와 지리적 조건이 허용하는 경우 다음 영업일 납품이 가능하도록 배송이 이루어집니다. 지리적 조건이 허용하는 경우 추가 비용이 청구되는 조건으로 당일 또는 4시간 배송이 가능할 수도 있습니다. 도움이 필요하시면 HP 기술 지원 센터로 전화하십시오. 전문 기술자가 전화로 도움을 줄 것입니다. HP는 결함이 발생한 부품을 HP로 반환해야 하는지 여부를 CSR 교체 부품과 함께 배송된 자료에 지정합니다. 결함이 발생한 부품을 HP로 반환해야 하는 경우에는 지정된 기간 내(통상 영업일 기준 5일)에 HP로 반환해야 합니다. 이 때 결함이 발생한 부품은 제공된 포장 재료에 넣어 관련 설명서와 함께 반환해야 합니다. 결함이 발생한 부품을 반환하지 않는 경우 HP가 교체 부품에 대해 비용을 청구할 수 있습니다. 고객 셀프 수리의 경우, HP는 모든 운송 및 부품 반환 비용을 부담하며 이용할 운송업체 및 택배 서비스를 결정합니다.

HP 고객 셀프 수리 프로그램에 대한 자세한 내용은 가까운 서비스 제공업체에 문의하십시오. 북미 지역의 프로그램에 대해서는 HP 웹 사이트(<http://www.hp.com/go/selfrepair>)를 참조하십시오.

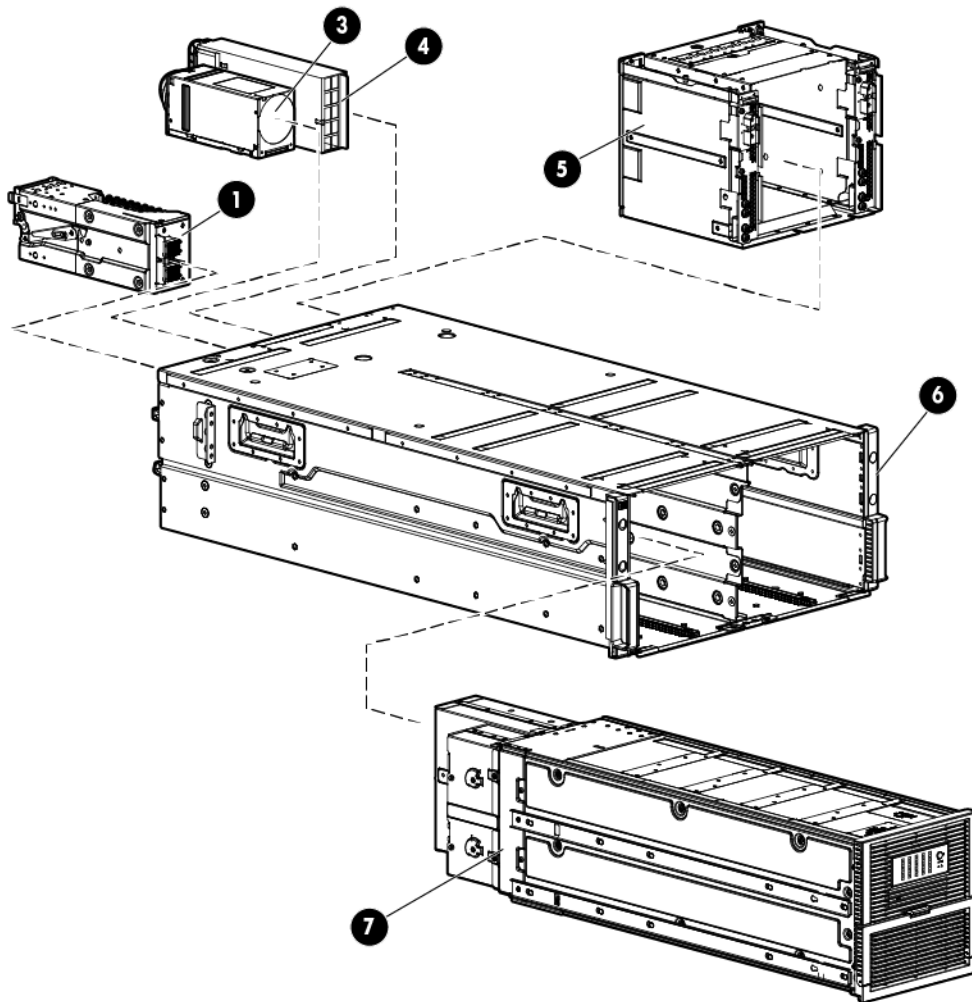
부품 제공 보증 서비스

HP 제한 보증에는 부품 제공 보증 서비스가 포함될 수 있습니다. 이러한 경우 HP는 부품 제공 보증 서비스의 조건에 따라 교체 부품만을 무료로 제공합니다.

부품 제공 보증 서비스 제공 시 CSR 부품 교체는 의무 사항입니다. 사용자가 HP에 이 부품의 교체를 요청할 경우 이 서비스에 대한 출장비 및 작업비가 청구됩니다.

Illustrated parts catalog

System components



Item	Description	Spare part number	Customer self repair (on page 5)
1	SAS I/O module	663679-001	Mandatory ¹
2	I/O module blank*	463756-001	Mandatory ¹
3	Fan	413996-001	Mandatory ¹
4	Power supply	579229-001	Mandatory ¹
5	Power block assembly	689128-001	Optional ²
6	Ear bezel	663681-001	Mandatory ¹
7	Hard drive drawer with hard drive backplane and cables	663680-001	Optional

Item	Description	Spare part number	Customer self repair (on page 5)
8	Rackmount kit*	432461-001	Mandatory ¹
9	Hard drive blank*	389015-001	Mandatory ¹
10	Hard drive*	—	—
	a) 300GB, 6G dual-port enterprise SAS, 15,200-rpm	517350-001	Mandatory ¹
	b) 450GB, 6G dual-port enterprise SAS, 15,200-rpm	517352-001	Mandatory ¹
	c) 600GB, 6G dual-port enterprise SAS, 15,200-rpm	517354-001	Mandatory ¹
	d) 1TB, 6G dual-port midline SAS, 7,200-rpm	508011-001	Mandatory ¹
	e) 2TB, 6G dual-port midline SAS, 7,200-rpm	508010-001	Mandatory ¹
	f) 3TB, 6G dual-port midline SAS, 7,200-rpm	625140-001	Mandatory ¹

* Not shown

¹Mandatory—Parts for which customer self repair is mandatory. If you request HP to replace these parts, you will be charged for the travel and labor costs of this service.

²Optional—Parts for which customer self repair is optional. These parts are also designed for customer self repair. If, however, you require that HP replace them for you, there may or may not be additional charges, depending on the type of warranty service designated for your product.

³No—Some HP parts are not designed for customer self repair. In order to satisfy the customer warranty, HP requires that an authorized service provider replace the part. These parts are identified as "No" in the Illustrated Parts Catalog.

¹Mandatory: Obligatoire—Pièces pour lesquelles la réparation par le client est obligatoire. Si vous demandez à HP de remplacer ces pièces, les coûts de déplacement et main d'œuvre du service vous seront facturés.

²Optional: Facultatif—Pièces pour lesquelles la réparation par le client est facultative. Ces pièces sont également conçues pour permettre au client d'effectuer lui-même la réparation. Toutefois, si vous demandez à HP de remplacer ces pièces, l'intervention peut ou non vous être facturée, selon le type de garantie applicable à votre produit.

³No: Non—Certaines pièces HP ne sont pas conçues pour permettre au client d'effectuer lui-même la réparation. Pour que la garantie puisse s'appliquer, HP exige que le remplacement de la pièce soit effectué par un Mainteneur Agréé. Ces pièces sont identifiées par la mention "Non" dans le Catalogue illustré.

¹Mandatory: Obbligatorie—Parti che devono essere necessariamente riparate dal cliente. Se il cliente ne affida la riparazione ad HP, deve sostenere le spese di spedizione e di manodopera per il servizio.

²Optional: Opzionali—Parti la cui riparazione da parte del cliente è facoltativa. Si tratta comunque di componenti progettati per questo scopo. Se tuttavia il cliente ne richiede la sostituzione ad HP, potrebbe dover sostenere spese addizionali a seconda del tipo di garanzia previsto per il prodotto.

³No: Non CSR—Alcuni componenti HP non sono progettati per la riparazione da parte del cliente. Per rispettare la garanzia, HP richiede che queste parti siano sostituite da un centro di assistenza autorizzato. Tali parti sono identificate da un "No" nel Catalogo illustrato dei componenti.

¹Mandatory: Zwingend—Teile, die im Rahmen des Customer Self Repair Programms ersetzt werden müssen. Wenn Sie diese Teile von HP ersetzen lassen, werden Ihnen die Versand- und Arbeitskosten für diesen Service berechnet.

²Optional: Optional—Teile, für die das Customer Self Repair-Verfahren optional ist. Diese Teile sind auch für Customer Self Repair ausgelegt. Wenn Sie jedoch den Austausch dieser Teile von HP vornehmen lassen möchten, können bei diesem Service je nach den für Ihr Produkt vorgesehenen Garantiebedingungen zusätzliche Kosten anfallen.

³No: Kein—Einige Teile sind nicht für Customer Self Repair ausgelegt. Um den Garantieanspruch des Kunden zu erfüllen, muss das Teil von einem HP Servicepartner ersetzt werden. Im illustrierten Teilekatalog sind diese Teile mit „No“ bzw. „Nein“ gekennzeichnet.

¹Mandatory: Obligatorio—componentes para los que la reparación por parte del usuario es obligatoria. Si solicita a HP que realice la sustitución de estos componentes, tendrá que hacerse cargo de los gastos de desplazamiento y de mano de obra de dicho servicio.

²Optional: Opcional— componentes para los que la reparación por parte del usuario es opcional. Estos componentes también están diseñados para que puedan ser reparados por el usuario. Sin embargo, si precisa que HP realice su sustitución, puede o no conllevar costes adicionales, dependiendo del tipo de servicio de garantía correspondiente al producto.

³No: No—Algunos componentes no están diseñados para que puedan ser reparados por el usuario. Para que el usuario haga valer su garantía, HP pone como condición que un proveedor de servicios autorizado realice la sustitución de estos componentes. Dichos componentes se identifican con la palabra “No” en el catálogo ilustrado de componentes.

¹Mandatory: Verplicht—Onderdelen waarvoor Customer Self Repair verplicht is. Als u HP verzoekt deze onderdelen te vervangen, komen de reiskosten en het arbeidsloon voor uw rekening.

²Optional: Optioneel—Onderdelen waarvoor reparatie door de klant optioneel is. Ook deze onderdelen zijn ontworpen voor reparatie door de klant. Als u echter HP verzoekt deze onderdelen voor u te vervangen, kunnen daarvoor extra kosten in rekening worden gebracht, afhankelijk van het type garantieservice voor het product.

³No: Nee—Sommige HP onderdelen zijn niet ontwikkeld voor reparatie door de klant. In verband met de garantievooraardelen moet het onderdeel door een geautoriseerde Service Partner worden vervangen. Deze onderdelen worden in de geïllustreerde onderdelencatalogus aangemerkt met "Nee".

¹Mandatory: Obrigatória—Peças cujo reparo feito pelo cliente é obrigatório. Se desejar que a HP substitua essas peças, serão cobradas as despesas de transporte e mão-de-obra do serviço.

²Optional: Opcional—Peças cujo reparo feito pelo cliente é opcional. Essas peças também são projetadas para o reparo feito pelo cliente. No entanto, se desejar que a HP as substitua, pode haver ou não a cobrança de taxa adicional, dependendo do tipo de serviço de garantia destinado ao produto.

³No: Nenhuma—Algumas peças da HP não são projetadas para o reparo feito pelo cliente. A fim de cumprir a garantia do cliente, a HP exige que um técnico autorizado substitua a peça. Essas peças estão identificadas com a marca “No” (Não), no catálogo de peças ilustrado.

¹Mandatory : 必須 - 顧客自己修理が必須の部品。当該部品について、もしもお客様がHPに交換作業を依頼される場合には、その修理サービスに関する交通費および人件費がお客様に請求されます。

²Optional : 任意 - 顧客自己修理が任意である部品。この部品も顧客自己修理用です。当該部品について、もしもお客様がHPに交換作業を依頼される場合には、お買い上げの製品に適用される保証サービス内容の範囲内においては、費用を負担していただくことなく保証サービスを受けることができます。

³No : 除外 - HP製品の一部の部品は、顧客自己修理用ではありません。製品の保証を継続するためには、HPまたはHP正規保守代理店による交換作業が必須となります。部品カタログには、当該部品が顧客自己修理除外品である旨が記載されています。

¹Mandatory: 强制性的 — 要求客户必须自行维修的部件。如果您请求 HP 更换这些部件，则必须为该服务支付差旅费和人工费用。

²Optional: 可选的 — 客户可以选择是否自行维修的部件。这些部件也是为客户自行维修设计的。不过，如果您要求 HP 为您更换这些部件，则根据您的产品指定的保修服务类型，HP 可能收取或不再收取任何附加费用。

³No: 否 — 某些 HP 部件的设计并未考虑客户自行维修。为了满足客户保修的需要，HP 要求授权服务提供商更换相关部件。这些部件在部件图解目录中标记为“否”。

¹Mandatory: 強制的 — 客戶自行維修所使用的零件是強制性的。如果您要求 HP 更換這些零件，HP 將會向您收取此服務所需的外出費用與勞動成本。

²Optional: 選購的 — 客戶自行維修所使用的零件是選購的。這些零件也設計用於客戶自行維修之用。不過，如果您要求 HP 為您更換，則可能需要也可能不需要負擔額外的費用，端視針對此產品指定的保固服務類型而定。

³No: 否 — 某些 HP 零件沒有消費者可自行維修的設計。為符合客戶保固，HP 需要授權的服務供應商更換零件。這些零件在圖示的零件目錄中，被標示為「否」。

¹ Mandatory: 필수 — 고객 셀프 수리가 의무 사항인 필수 부품. 사용자가 HP에 이 부품의 교체를 요청할 경우 이 서비스에 대한 출장비 및 작업비가 청구됩니다.

² Optional: 옵션 — 고객 셀프 수리가 선택 사항인 부품. 이 부품들도 고객 셀프 수리가 가능하도록 설계되었습니다. 하지만 사용자가 HP에 이 부품의 교체를 요청할 경우 사용자가 구입한 제품에 해당하는 보증 서비스 유형에 따라 추가 비용 없이 교체가 가능할 수 있습니다.

³ No: No — 고객 셀프 수리가 불가능하도록 설계된 HP 부품. 이 부품들은 고객 셀프 수리가 불가능하도록 설계되었습니다. HP는 고객 보증을 만족시키기 위해 공인 서비스 제공업체를 통해 부품을 교체하도록 하고 있습니다.

Removal and replacement procedures

Required tools

The following items are required for some procedures:

- T-8 Torx screwdriver
- T-10 Torx screwdriver
- T-15 Torx screwdriver
- Phillips screwdriver

Safety considerations

Before performing service procedures, review all the safety information.

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.

Warning and caution messages





WARNING: To reduce the risk of personal injury or damage to equipment, heed all warnings and cautions throughout the installation instructions.





WARNING: To reduce the risk of personal injury or damage to the equipment, be sure that:


- The leveling jacks are extended to the floor.
 - The full weight of the rack rests on the leveling jacks.
 - The stabilizing feet are attached to the rack if it is a single-rack installation.
 - The racks are coupled together in multiple-rack installations.
 - Only one component is extended at a time. A rack may become unstable if more than one component is extended for any reason.
-

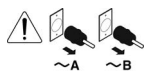
-
-  **WARNING:** To reduce the risk of personal injury or equipment damage when unloading a rack:
- At least two people are needed to safely unload the rack from the pallet. An empty 42U rack can weigh as much as 115 kg (253 lb), can stand more than 2.1 m (7 ft) tall, and might become unstable when being moved on its casters.
 - Never stand in front of the rack when it is rolling down the ramp from the pallet. Always handle the rack from both sides.
-

-  **WARNING:** The enclosure is very heavy. To reduce the risk of personal injury or damage to the equipment:
- Observe local occupational health and safety requirements and guidelines for manual material handling.
 - Remove all hard drives before installing or moving the enclosures.
 - Use caution and get help to lift and stabilize enclosures during installation or removal, especially when the enclosure is not fastened to the rack.
 - Never stack an enclosure on top of another enclosure.
 - Never place equipment on top of an enclosure.
 - Never place an enclosure on a surface that cannot support up to 163.3 kg (360.0 lb).
-

-  **WARNING:** To reduce the risk of personal injury or damage to the equipment, you must adequately support enclosures during installation and removal.
-

-  **WARNING:** Always use at least two people to lift an enclosure into the rack. If the enclosure is being loaded into the rack above chest level, a third person must assist with aligning the enclosure with the rails while the other two people support the weight of the enclosure.
-


-  **WARNING:** Be sure to install enclosures starting from the bottom of the rack and work your way up the rack.
-





These symbols, on power supplies or systems, indicate that the equipment is supplied by multiple sources of power.

WARNING: To reduce the risk of injury from electric shock, remove all power cords to completely disconnect power from the system.

- Each enclosure has two or more power supply cords. A single rack or cabinet may contain more than one enclosure. Power may be supplied in a redundant fashion. Removing any single source of power does not necessarily remove power from any portion of the system. When performing any service other than hot-plug module replacement, you must completely disconnect all power to that portion of the system.
 - When performing service procedures on enclosures, shut off the circuit breakers to both A and B AC power feeds and then disconnect all power cords from the outlets before servicing.
-

-  **WARNING:** To reduce the risk of personal injury from hot surfaces, allow the drives and the internal system components to cool before touching them.
-

-  **WARNING:** To reduce the risk of electric shock or damage to the equipment:
- Never reach inside the chassis while the system is powered up.
 - Perform service on system components only as instructed in the user documentation.
-

-  **WARNING:** A risk of electric shock from high leakage current exists. Before connecting the AC supply to the power enclosures, be sure that the electrical outlets are properly grounded (earthed).
-

-
- ⚠ **CAUTION:** Always be sure that equipment is properly grounded and that you follow proper grounding procedures before beginning any installation procedure. Improper grounding can result in ESD damage to electronic components. For more information, see "Preventing electrostatic discharge (on page 19)."
-
- ⚠ **CAUTION:** When performing non-hot-plug operations, you must power down the server blade and/or the system. Use caution when performing other operations, such as hot-plug installations or troubleshooting.
-
- ⚠ **CAUTION:** Protect the equipment from AC power fluctuations and temporary interruptions with a regulating facility UPS device. This device protects the hardware from damage caused by power surges and voltage spikes and keeps the system in operation during a power failure.
-

Power down

Be sure that the partner servers are the first units to be powered down and the last to be powered back up. Taking this precaution ensures that the system and the OS are shut down in an orderly manner.



IMPORTANT: If installing a hot-plug device, it is not necessary to power down the D6000.

To power down the D6000:

1. Power down the partner servers. See the server documentation.
2. Press and hold the Power On/Standby button for approximately 4 seconds. This action powers down both hard drive drawers.

Powering up

Observe the following guidelines before powering up the D6000:

- Always install all components of the D6000.
- Install hard drives in the D6000 so the connected host controllers can identify and configure them at power up.
- Always power up the D6000 first, and then the server.

To power up the D6000:

1. Complete server hardware installation and cabling. For more information, see the server documentation.
2. Connect the SAS cables and power cords to the D6000.
3. Press and hold the Power On/Standby button.

Wait and observe the system power LED and system fans. When the D6000 powers up, the system power LED illuminates solid green and the system fans spin to a high speed, and then spin down to a low speed.

4. Power up the servers. For more information, see the server documentation.

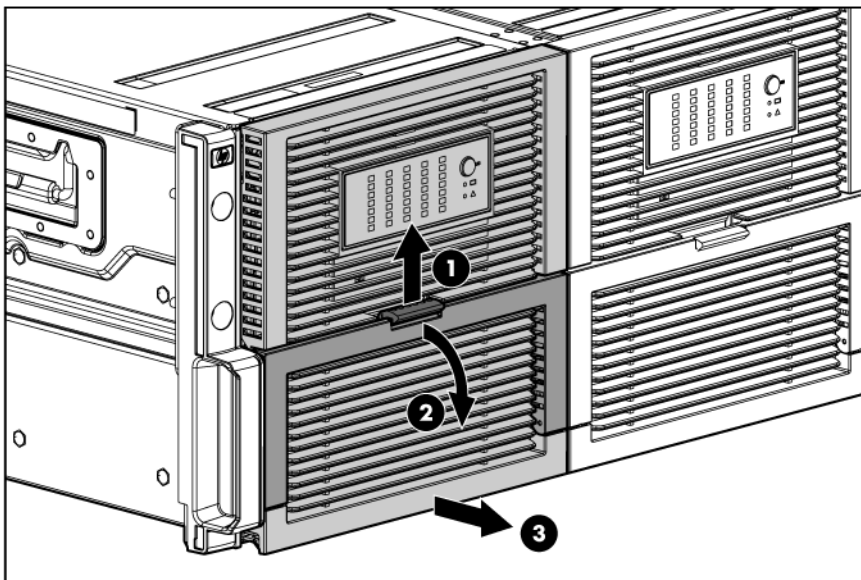
Extend the hard drive drawer

1. Be sure all I/O bays contain either an I/O module or an I/O blank. The hard drive drawer does not open if I/O bays are empty.
2. Be sure the I/O modules or I/O blanks are fully seated and their handles are in the locked position. The hard drive drawer does not open if I/O modules or I/O blanks are not fully seated with their handles in the locked position.

⚠ WARNING: TIP HAZARD! To reduce the risk of personal injury or damage to the equipment, do not extend the hard drive drawers beyond the supporting surface when the unit is not installed in a rack.

⚠ WARNING: To reduce the risk of personal injury or damage to the equipment, ensure that only one hard drive drawer is extended at a time.

3. Extend the hard drive drawer.



⚠ WARNING: Pinch hazard—Keep hands out of front and rear of chassis when closing hard drive drawers.

⚠ CAUTION: To prevent improper cooling and thermal damage, do not operate the D6000 for an extended period of time with the drawer open.

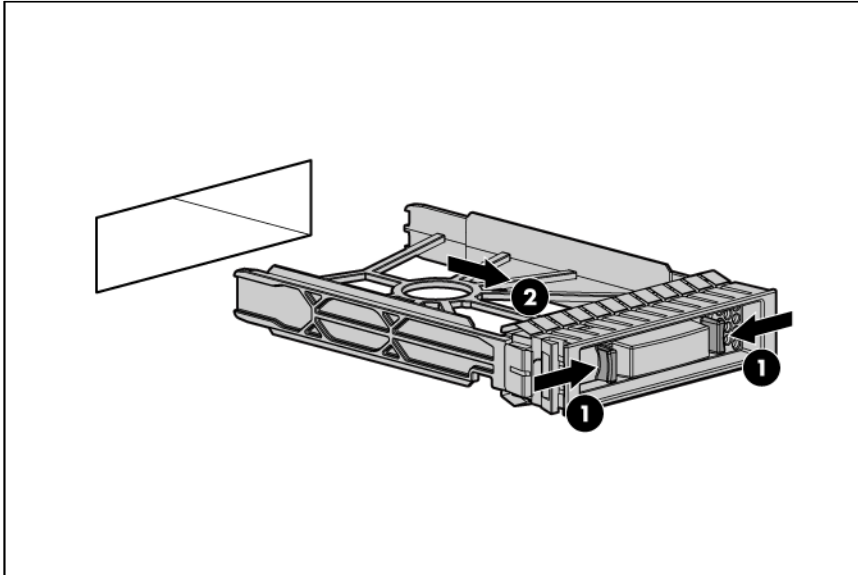
Hard drive blank

⚠ CAUTION: To prevent improper cooling and thermal damage, do not operate the D6000 unless all bays are populated with either a component or a blank. Remove a blank only when there is a drive ready to install or the D6000 is powered down.

To remove the component:

1. Extend the hard drive drawer (on page 22).

2. Remove the hard drive blank.



To replace the blank, slide the blank into the bay until it locks into place.

Hard drive

-
- △ **CAUTION:** To prevent improper cooling and thermal damage, do not operate the D6000 unless all bays are populated with either a component or a blank. Remove a drive only when there is another drive ready to install or the D6000 is powered down.
-

Before replacing a hard drive, do the following:

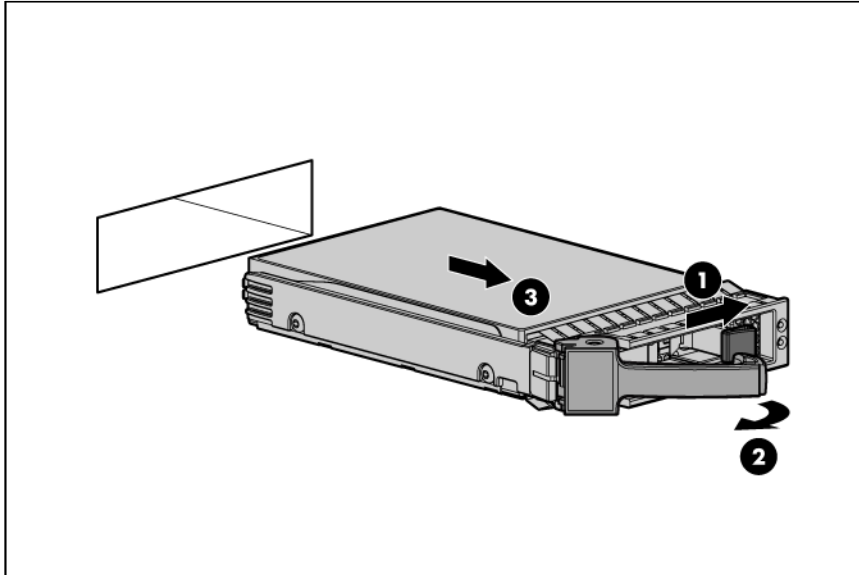
- Verify the status of the drive to be replaced by reviewing the hard drive LEDs (on page 48) and hard drive LED combinations (on page 49).
- Check the RAID status and configuration to be sure data loss will not occur if the drive is removed. For more information, see the *HP Array Configuration Utility User Guide* on the HP website (<http://www.hp.com>).
- Be sure that the replacement hard drive is the same interface and the same or larger capacity.

To remove the component:

1. Extend the hard drive drawer (on page 22).

-
- △ **CAUTION:** To avoid data loss, be sure that the drives are labeled and returned to the same bays they were removed from.
-

2. Remove the hard drive.



To replace the component:

1. Fully extend the hard drive lever.
2. Push the hard drive all the way into the drive bay, and then close the lever.

Fan



IMPORTANT: Configurations using power cord part number 142263-004, located on the power cord label, require that the power cord be removed before removing a fan.

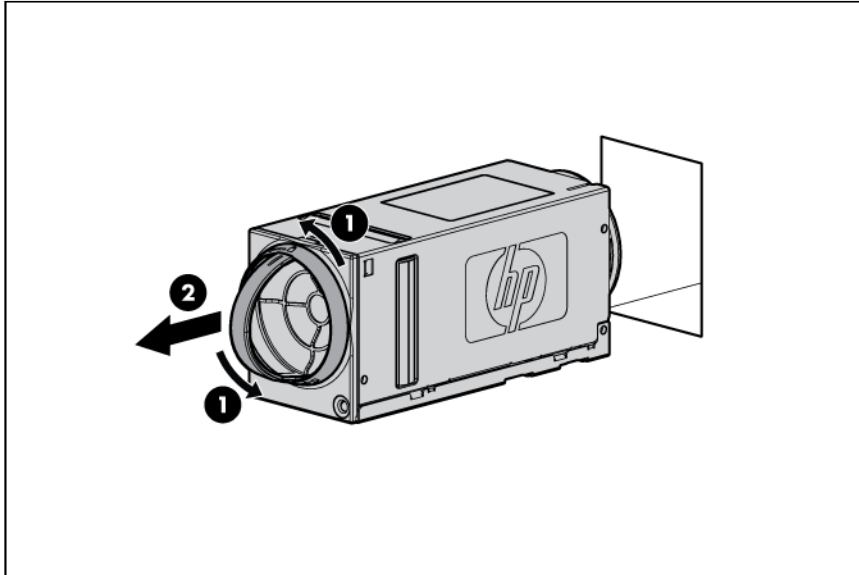
Before removing a fan, do the following:

- Verify the status of the fan to be replaced by reviewing rear panel LEDs and buttons (on page 46).
- Be sure that your configuration can support your actions. If the proper redundancy is not in place, power down the D6000 before beginning this procedure.

To remove the component:

1. Be sure that the hard drive drawer is closed.

2. Remove the fan.



CAUTION: For best cooling practices, do not operate the enclosure for extended periods with more than one component or blank removed. When removing an active component permanently, replace it with a blank.

To replace the fan, install it into the fan bay and push until it locks into place.

Hot-plug I/O module

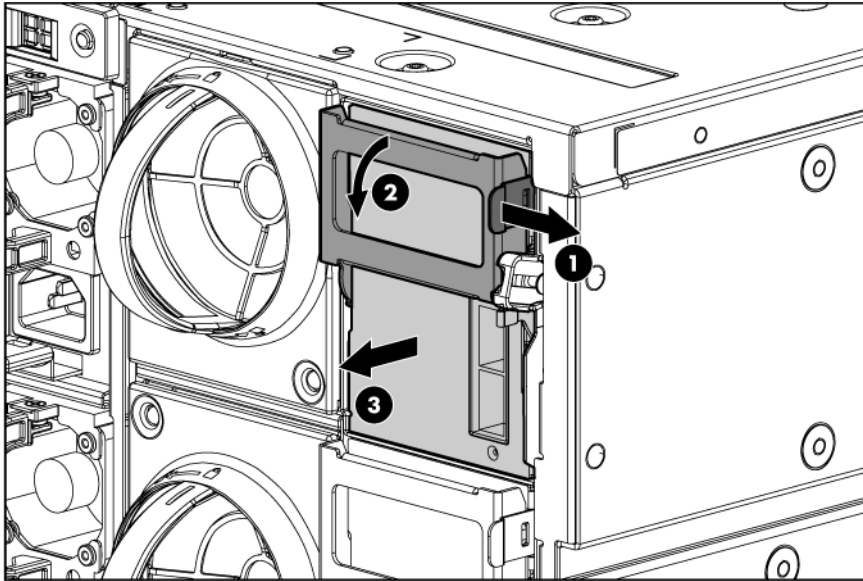
Before removing the component, be sure to do the following:

- Verify the status of the I/O module to be replaced by reviewing rear panel LEDs and buttons (on page 46).
- Be sure that your configuration can support your actions. If the proper redundancy is not in place, power down the D6000 before beginning this procedure.

To remove the component:

1. Be sure the hard drive drawer is closed all the way.
2. Disconnect the SAS cables.

3. Release the I/O handle, push the I/O handle down until it ejects the I/O module, and then remove the I/O module.



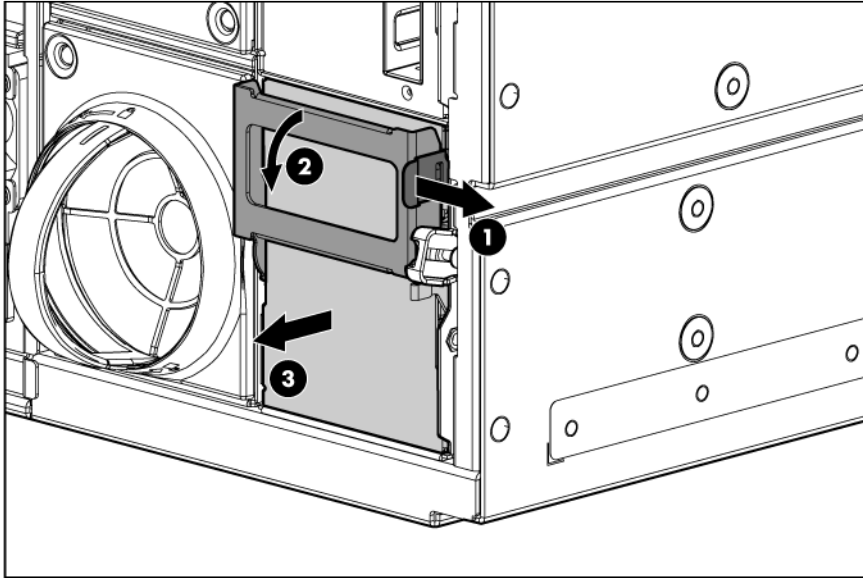
CAUTION: For best cooling practices, do not operate the enclosure for extended periods with more than one component or blank removed. When removing an active component permanently, replace it with a blank.

To replace the component, reverse the removal procedure. Be sure the I/O module is fully seated and the I/O module handle is in the locked position.

I/O module blank

CAUTION: For best cooling practices, do not operate the enclosure for extended periods with more than one component or blank removed. When removing an active component permanently, replace it with a blank.

Remove the component as indicated.



To replace the component, reverse the removal procedure. Be sure the I/O module blank is fully seated and the I/O module blank handle is in the locked position.

Power supply

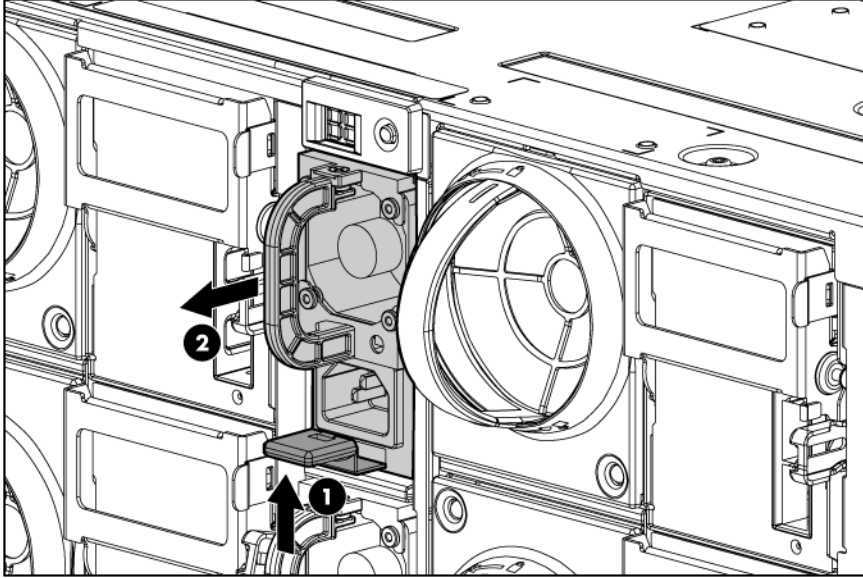
Before removing the component, be sure to do the following:

- Verify the status of the power supply to be replaced by reviewing rear panel LEDs and buttons (on page 46).
- Be sure that your configuration can support your actions. If the proper redundancy is not in place, power down the D6000 before beginning this procedure.

To remove the component:

1. Disconnect the AC power cord.

2. Remove the component as indicated.



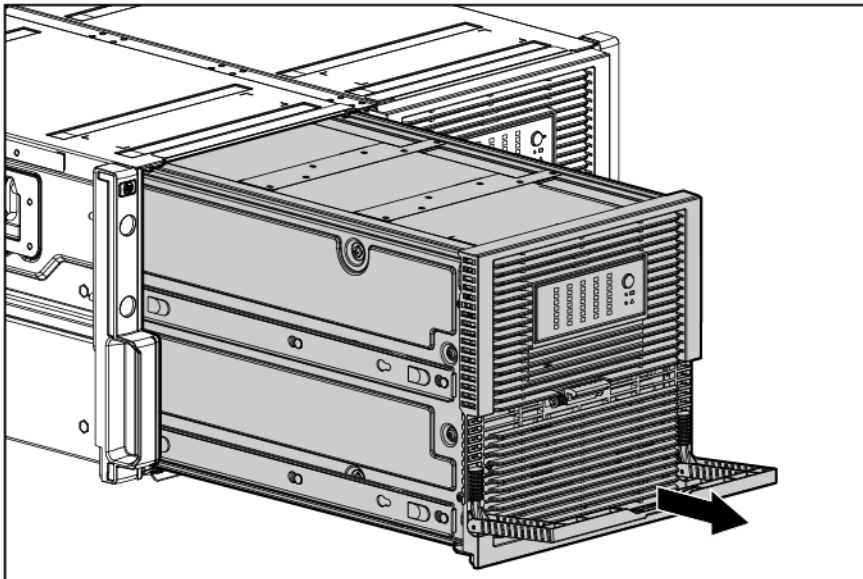
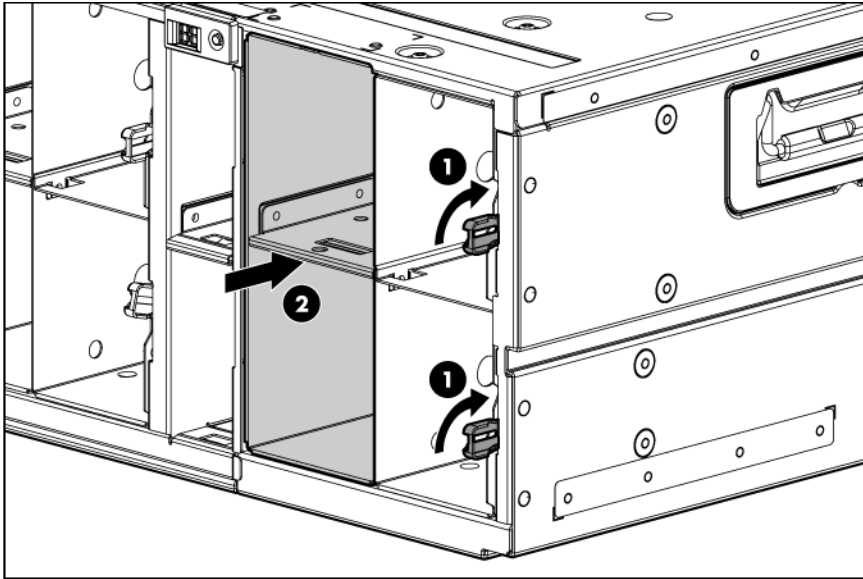
To replace the component, reverse the removal procedure.

Power block

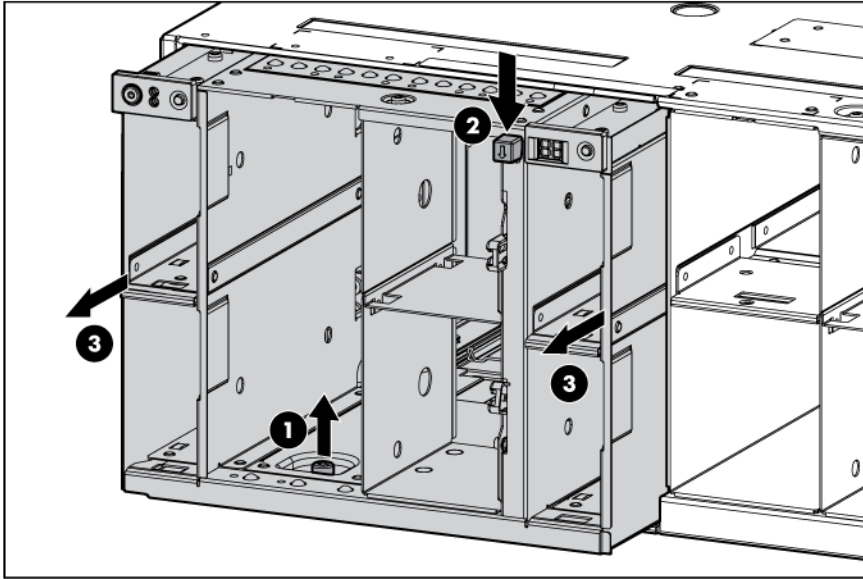
To remove the component:

1. Power down the D6000 ("[Power down](#)" on page 21).
2. Disconnect all cables.
3. Remove all power supplies ("[Power supply](#)" on page 27).
4. Remove all fan modules ("[Fan](#)" on page 24).
5. Remove all I/O modules ("[Hot-plug I/O module](#)" on page 25).
6. Release the hard drive drawers:
 - a. Pull down the handle on the front of the drawer, but do not extend the drawer.

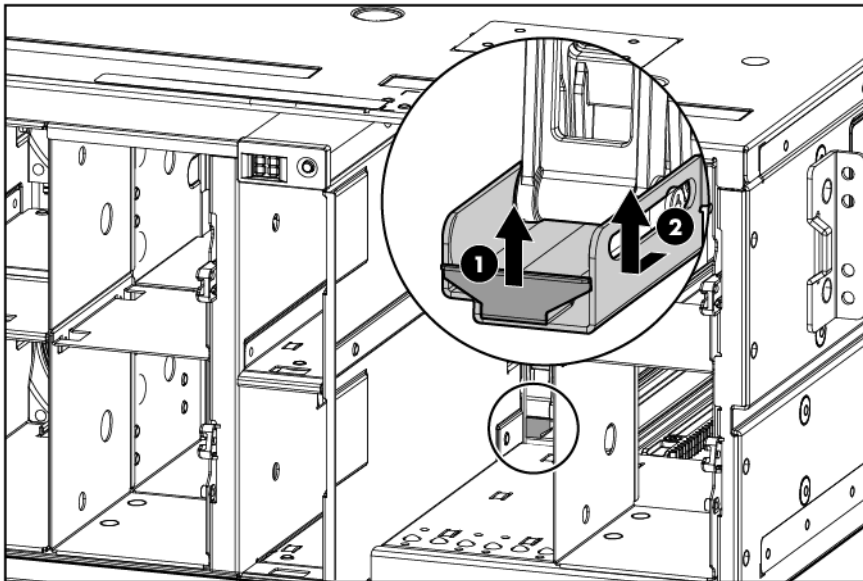
- b. Push up and hold the two release mechanisms on the I/O bays, and then move the drawer forward about 15 cm (6 in).



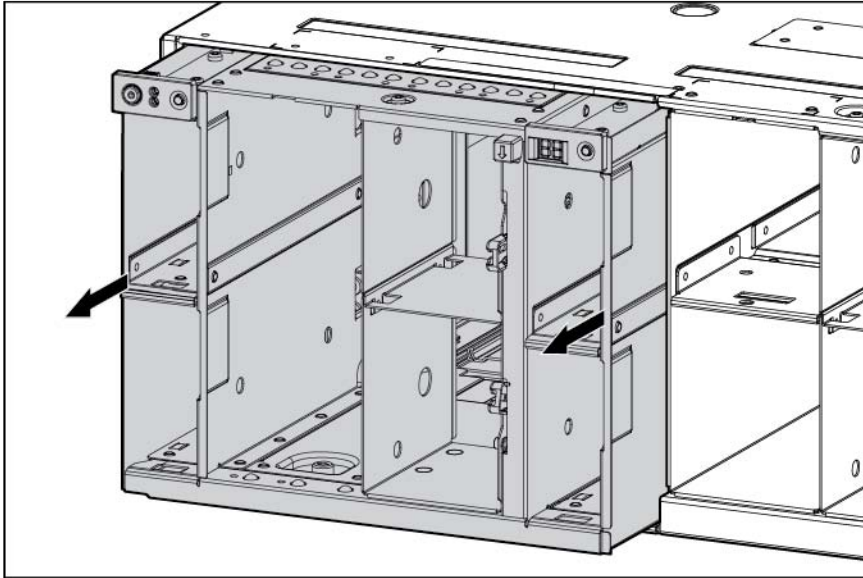
7. Loosen the screw securing the power block to the chassis, press down on the release lever, and then slowly pull the power block out 2.54 to 5.08 cm (1 to 2 in). Do not remove the power block any further because the cable management arm is still attached.



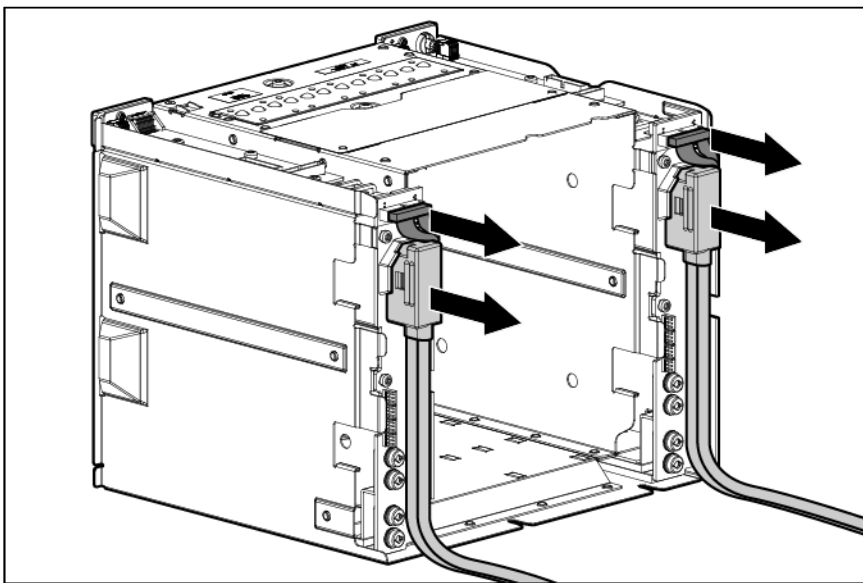
8. Disengage the cable management arm lock from each hard drive drawer:
 - a. Pull the mechanism up and then toward the rear of the chassis to disengage it from the locking plate.
 - b. Slide the cable management arm off both locking plates.



9. Slowly remove the power block. The signal and power cables are still attached.



10. While supporting the power block, disconnect the signal and power cables on each side of the power block.



To replace the component, reverse the removal procedure.

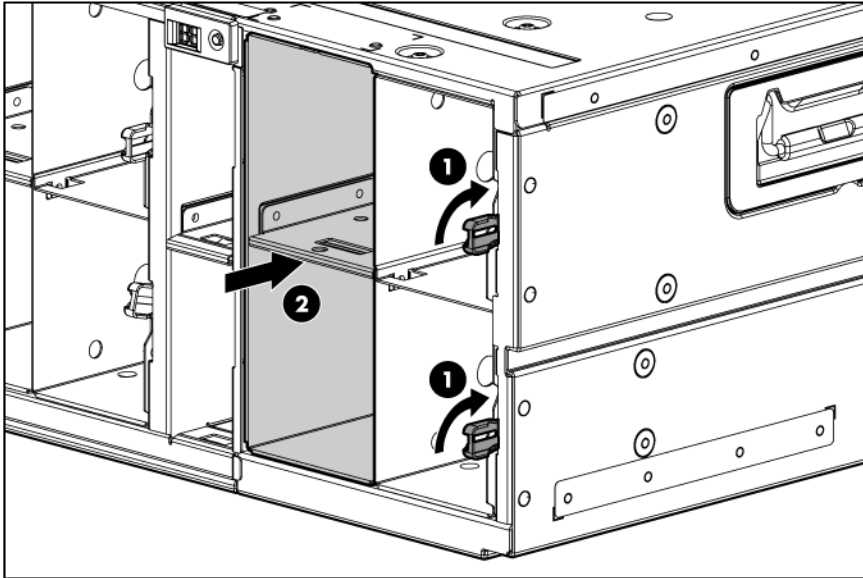
Hard drive drawer

To remove the component:

1. Power down the D6000 ("[Power down](#)" on page 21).
2. Disconnect all cables.
3. Remove all power supplies ("[Power supply](#)" on page 27).
4. Remove all fan modules ("[Fan](#)" on page 24).
5. Remove all hard drives ("[Hard drive](#)" on page 23).

⚠ CAUTION: To avoid data loss, be sure that the drives are labeled and returned to the same bays they were removed from.

6. Be sure the hard drive drawer is closed completely.
7. Remove all I/O modules ("[Hot-plug I/O module](#)" on page 25).
8. Pull down the handle on the front of the drawer, but do not extend the drawer.
9. Push up and hold the two release mechanisms on the I/O bays, and then move the drawer forward about 15 cm (6 in).



⚠ WARNING: TIP HAZARD! To reduce the risk of personal injury or damage to the equipment, do not extend the hard drive drawers beyond the supporting surface when the unit is not installed in a rack.

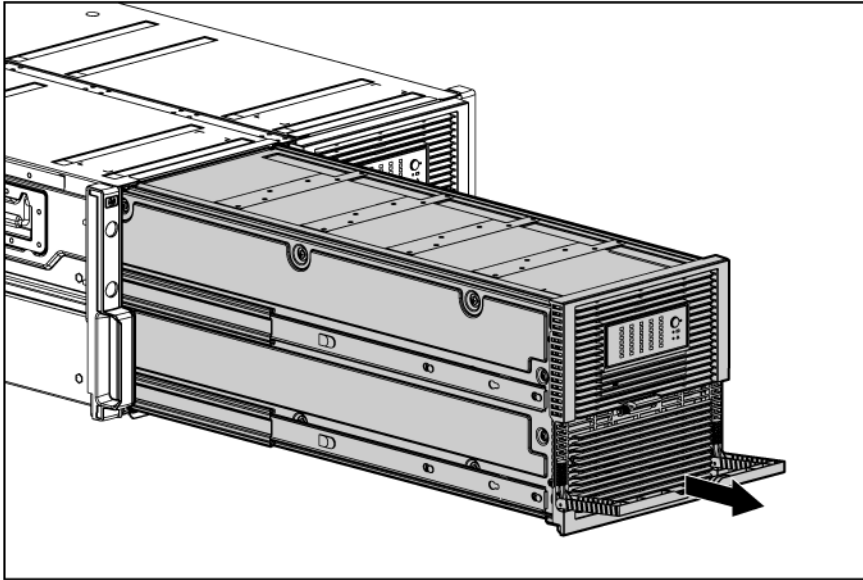
⚠ WARNING: To reduce the risk of personal injury or damage to the equipment, ensure that only one hard drive drawer is extended at a time.

⚠ WARNING: To reduce the risk of electric shock or damage to the equipment:

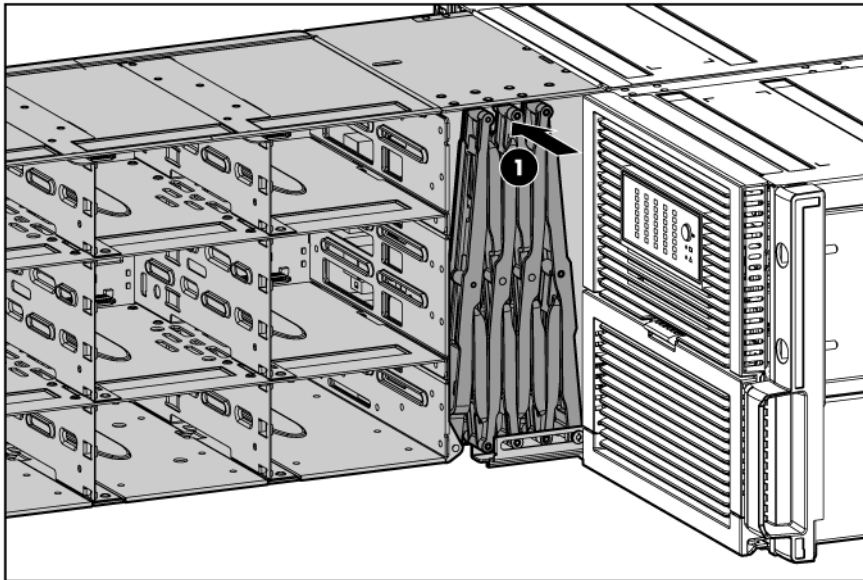
- Never reach inside the chassis while the system is powered up.
- Perform service on system components only as instructed in the user documentation.

10. Remove the power block ("[Power block](#)" on page 28).

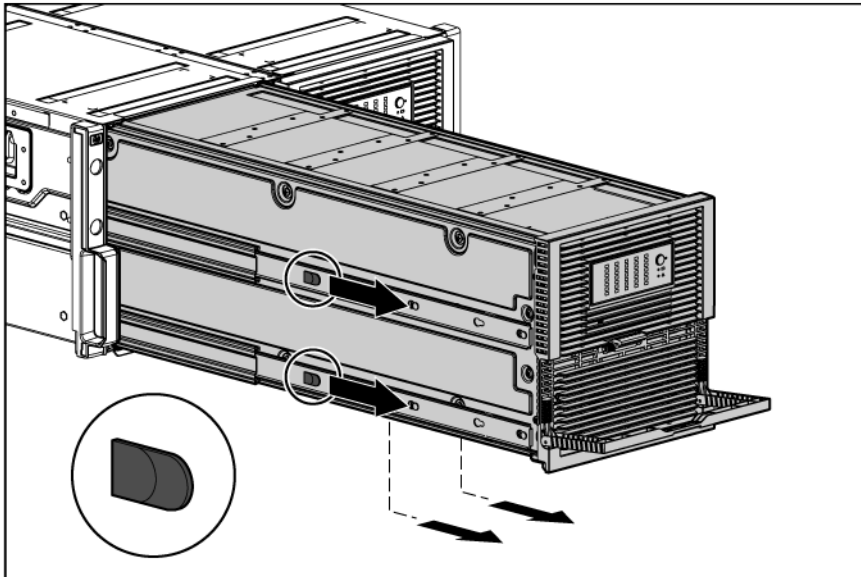
11. Extend the hard drive drawer until it clicks.



12. Compress the cable management arm and push toward the drawer to lock it into place.



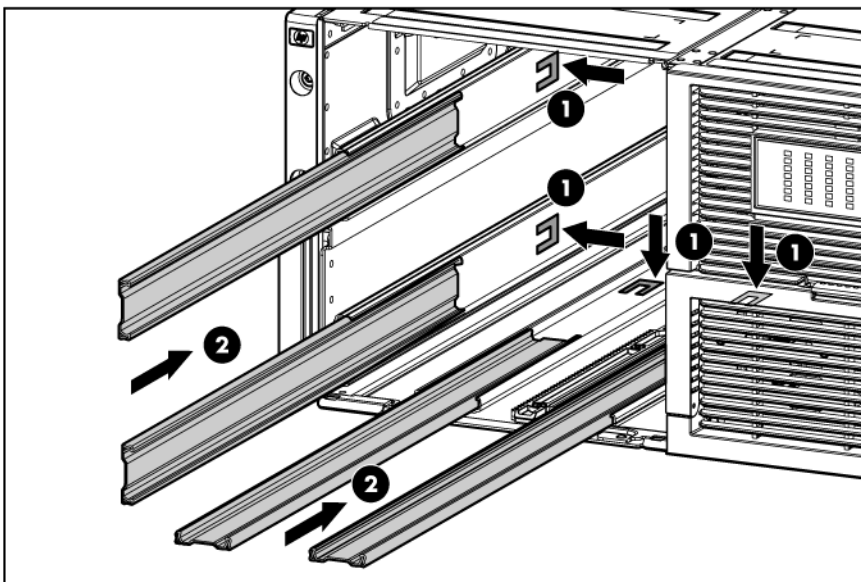
13. Push in to release the four locking mechanisms on the rails located on the side and bottom of the drawer.



14. Remove the hard drive drawer.

To replace the component:

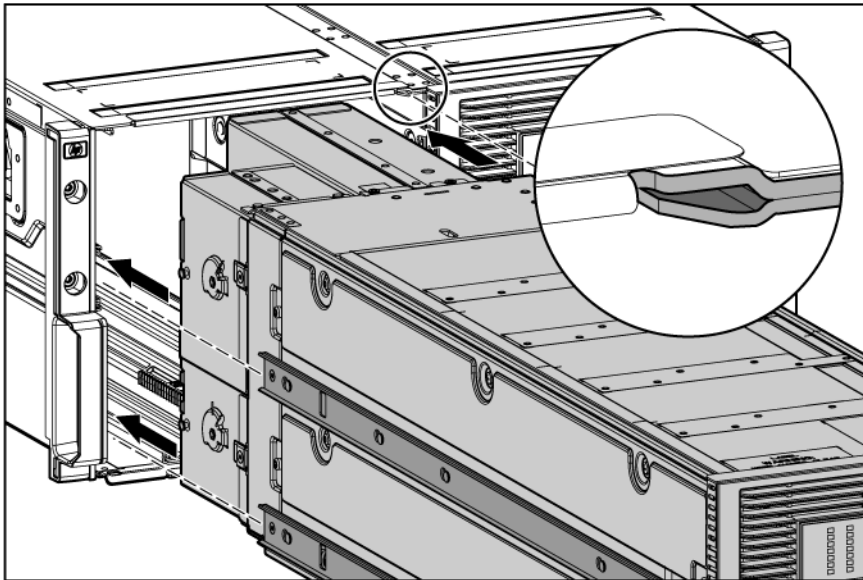
1. Slide the rails back into the chassis.



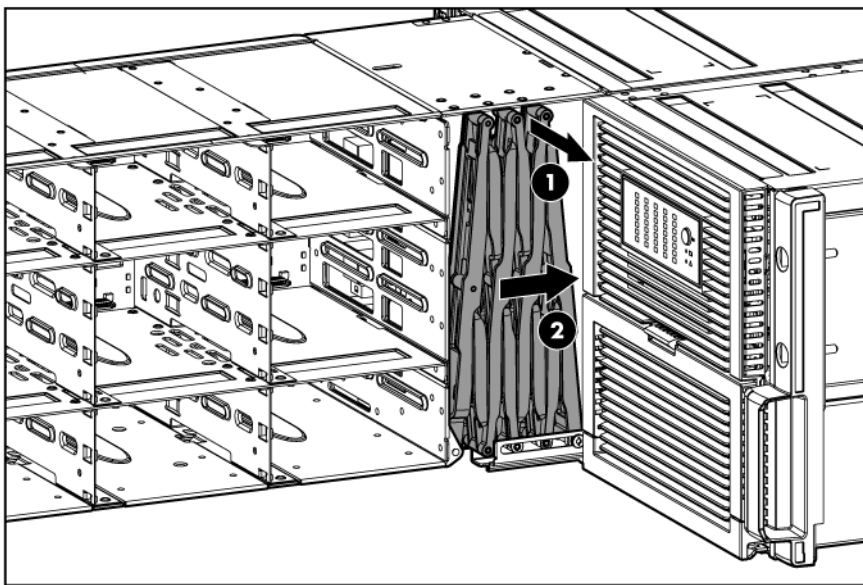
2. Align the top right edge of the drawer with the flange at the top of the chassis and align the four rails on the left side and bottom of the drawer bay.



CAUTION: To avoid damage to the equipment, HP recommends using two people to perform this step.



3. Push the drawer in about 25 cm (10 in).
4. Release the cable management arm and expand to the rear of the chassis.



5. Push the drawer in another 25 cm (10 in).
6. Install the power block ("[Power block](#)" on page 28).

⚠ WARNING: Pinch hazard—Keep hands out of front and rear of chassis when closing hard drive drawers.

7. Install the hard drives.
Be sure that the drives are returned to the drive bays they were removed from.
8. Close the drawer.
9. Install all rear panel components.
10. Connect the cables.

Troubleshooting

When the D6000 does not power up

If the D6000 does not power up:

1. Ensure that the D6000 is connected to a working AC source.
2. Ensure that the power source is working properly:
 - o Check the status using the system power LED on the rear panel ("[Rear panel LEDs and buttons](#)" on page 46).
 - o Be sure that the Power On/Standby button was pressed firmly and held for approximately 3 seconds.
3. Ensure that the power supplies are working properly.
Check the status using the power supply LEDs ("[Rear panel LEDs and buttons](#)" on page 46).
4. Remove all AC power cords from enclosure power supplies and reinsert them.
5. Restart the system ("[Power down](#)" on page 21).
6. Check the D6000 for the following normal power-up sequence to be sure that the system meets the minimal hardware requirements and is powered up during normal operations:
 - a. The rear panel power LED turns from standby (amber) to on (solid green).
 - b. The system fans spin up to a high speed, and then spin down to a normal operating speed.

LED behavior

Issue	Possible reasons	Possible solutions
Power supply LED is off	<ul style="list-style-type: none">• The power cords are not connected or AC power is not available.• The power supply might not be inserted properly, it might have a damaged connector, or it might have failed.	<ul style="list-style-type: none">• Be sure that the power cord is connected to the power supply.• Be sure that the power supply is undamaged and is fully seated.• Be sure that all pins on the connectors and components are straight.• Contact an authorized service provider for assistance.
Fan LED is off	<ul style="list-style-type: none">• The fan might not be inserted properly, it might have a damaged connector, or it might have failed.	<ul style="list-style-type: none">• Be sure that the fan is undamaged and is fully seated.• Be sure that all pins on the connectors and components are straight.• Contact an authorized service provider for assistance.

Issue	Possible reasons	Possible solutions
I/O LED is amber	<ul style="list-style-type: none"> The I/O module might not be inserted properly, it might have a damaged connector, or it might have failed. 	<ul style="list-style-type: none"> Be sure that the I/O module is undamaged and is fully seated. Be sure that all pins on the connectors and components are straight. Contact an authorized service provider for assistance.
System power LED is off	<ul style="list-style-type: none"> The Power On/Standby button was not pressed firmly or held long enough. The power supply might not be inserted properly, it might have a damaged connector, or it might have failed. The system might have experienced a short. The controller firmware might be corrupted. The system power block might need to be replaced. 	<ul style="list-style-type: none"> Press the Power On/Standby button and hold for approximately 3 seconds. Be sure that the power supply is undamaged and is fully seated. Be sure that all pins on the connectors and components are straight. Be sure that all components are fully seated. Flash the controller firmware. Contact an authorized service provider for assistance.

7-segment display status codes and actions

When the GSI LED is amber, activate the associated drawer UID button to view any GSI error codes on the rear display. The two UID buttons are used to select which drawer is displayed. The display cycles a drawer pointer, "|-" points left and "-|" points right, followed by one or more GSI error codes.

Status code	Action
1 = SES overall warning	General internal component warning. No specific action. General troubleshooting required. May be seen with status codes 2, 3, and 4.
2 = Temperature sensor warning	Check for thermal issues within the D6000 drawer, for example, extremely hot drives, air blockages, or high ambient lab temperature.
3 = System Fan Warning	Replace any fan with an amber LED. If none of the fans have an amber LED, replace one fan, wait 30 seconds, and observe the GSI LED. AC power cycle the D6000. If the GSI LED remains illuminated, replace another fan. If the GSI LED remains illuminated, replace the D6000 drawer.
4 = Power Supply Warning	Verify that if a power supply does not have a green LED illuminated, that it is correctly cabled to a power source. This warning can also be caused by a failed power supply from either side of the D6000. If cabling was not the root cause, troubleshoot by replacing each power supply in turn.
5 = Host GSI Enabled	The host sent a command to turn the on the D6000 GSI LED. Not expected in the field.
6 = I/O PIC upgrade needed	Reflash both D6000 I/O modules. I/O module firmware upgrade needed.*
7 = Power supply PIC upgrade needed	Reflash both D6000 I/O modules. Power Block firmware upgrade needed.*
8 = CPLD upgrade needed	Replace the D6000 drawer.
9 = Standby heartbeat failure	Replace the I/O module that has an amber LED. If no I/O module has an amber LED, replace one I/O module, and then wait 30 seconds. If the GSI LED is still amber, replace the other I/O module. AC power cycle the D6000. If replacing the I/O modules does not resolve the issue, replace the drawer.

Status code	Action
10 = Remote I/O module heartbeat failure	Replace the I/O module that has an amber LED. If no I/O module has an amber LED, replace one I/O module, and then wait 30 seconds. If the GSI LED is still amber, replace the other I/O module. AC power cycle the D6000. If replacing the I/O modules does not resolve the issue, replace the drawer.
11 = Enclosure thermal shutdown imminent	Check for thermal issues within the D6000 drawer, such as extremely hot drives, air blockages, missing or failed fans, or high ambient temperature.
12 = Enclosure thermal shutdown occurred	Check for thermal issues within the D6000 drawer, such as extremely hot drives, air blockages, missing or failed fans, or high ambient temperature.
13 = Enclosure management bus failure; false fan failures may occur	Replace all I/O modules in the D6000 drawer. If replacing the I/O modules does not resolve the issue, replace the entire drawer.
14 = Signal integrity errors detected	Replace the SAS I/O cables. If replacing the cables does not resolve the issue, replace the I/O module showing the signal integrity issues. If replacing the I/O modules does not resolve the issue, replace the drawer.
15 = Power supply PIC communications error	Verify that, if a power supply does not have a green LED illuminated, that it is correctly cabled to a power source. This warning can also be caused by a failed power supply from either of the D6000 storage drawers. If the cabling and the power source are ok, troubleshoot by replacing each power supply in turn. If replacing the power supplies does not resolve the issue, power off the D6000 and remove all sources of AC power to ensure that all power is removed from the D6000. After the power/standby LED goes completely off, wait a few minutes and then power on the D6000. If power cycling does not resolve the issue, replace IO modules in the D6000 drawer. If the issue persists, replace the entire drawer.
16 = Unsupported backplane detected	The I/O module is not supported for use in the enclosure. Remove the installed I/O module and replace with the I/O modules designed for use with the D6000.

* I/O module firmware and power block firmware are delivered through the D6000 download process.

Recognizing hard drive failure

When troubleshooting drive problems, first confirm that the drives are supported for use in the D6000. For more information, see the QuickSpecs on the HP website (<http://www.hp.com/go/d6000/quickspecs>).

In an HP D6000, a steadily glowing Fault LED indicates that the drive has failed.

Other indications of failed hard drives:

- ACU represents failed drives with a distinctive icon.
- HP SIM can detect failed drives remotely across a network. (For more information about HP SIM, refer to the documentation on the Management CD.)
- ADU lists all failed drives.
- CPQONLIN identifies failed drives in a NetWare environment.

For additional information about diagnosing hard drive problems, see the *HP ProLiant Servers Troubleshooting Guide*.




CAUTION: Sometimes, a drive that has previously failed may seem to be operational after the system is power-cycled or (for a hot-pluggable drive) after the drive has been removed and reinserted. However, continued use of such marginal drives may eventually result in data loss. Replace the marginal drive as soon as possible.

Effects of a hard drive failure

When a hard drive fails, all logical drives that are in the same array are affected. Each logical drive in an array may be using a different fault-tolerance method, so each logical drive can be affected differently.

- RAID 0 configurations cannot tolerate drive failure. If any physical drive in the array fails, all non-fault-tolerant (RAID 0) logical drives in the same array will also fail.
- RAID 1+0 configurations can tolerate multiple drive failures as long as no failed drives are mirrored to one another (with no spares assigned).
- RAID 5 configurations can tolerate one drive failure (with no spares assigned).
- RAID 6 with ADG configurations can tolerate simultaneous failure of two drives (with no spares assigned).

Compromised fault tolerance

 **CAUTION:** When fault tolerance is compromised, data loss can occur. However, it may be possible to recover the data. For more information, see "Recovering from compromised fault tolerance (refer to "Powering up" on page 21)."

If more drives fail than the fault-tolerance method can manage, fault tolerance is compromised, and the logical drive fails. If this failure occurs, the operating system rejects all requests and indicates unrecoverable errors.

For example, fault tolerance might occur when a drive in an array fails while another drive in the array is being rebuilt.

Compromised fault tolerance can also be caused by problems unrelated to drives. In such cases, replacing the physical drives is not required.

Recovering from compromised fault tolerance

If fault tolerance is compromised, inserting replacement drives does not improve the condition of the logical volume. Perform the following procedure to recover data:

1. Check for loose, dirty, broken, or bent cabling and connectors on all devices.
2. Power down the D6000 ("Power down" on page 21).
3. Power up the D6000 ("Powering up" on page 21).

In some cases, a marginal drive is operational long enough to allow backup of important files.

4. Make copies of important data, if possible.
5. Replace any failed drives ("Hard drive" on page 23).

Factors to consider before replacing hard drives

You can replace hard drives without powering down the system. However, before replacing a degraded drive:

- Open HP SIM and inspect the Error Counter window for each physical drive in the same array to confirm that no other drives have any errors. (For details, refer to the HP SIM documentation on the Management CD.)
- Be sure that the array has a current, valid backup.
- Use replacement drives that have a capacity at least as great as that of the smallest drive in the array. The controller immediately fails drives that have insufficient capacity.

To minimize the likelihood of fatal system errors when removing failed drives, take the following precautions:

- Do not remove a degraded drive if any other drive in the array is offline (the online LED is off). In this situation, removing any other drive in the array causes data loss.

Exceptions:

- When RAID 1+0 is used, drives are mirrored in pairs. Several drives can be in a failed condition simultaneously (and they can all be replaced simultaneously) without data loss, if no two failed drives belong to the same mirrored pair.
- When RAID 6 with ADG is used, two drives can fail simultaneously (and be replaced simultaneously) without data loss.
- If the offline drive is a spare, the degraded drive can be replaced.
- Do not remove a second drive from an array until the first failed or missing drive has been replaced **and** the rebuild process is complete. (The rebuild is complete when the online LED on the front of the drive stops blinking.)

Exceptions:

- In RAID 1+0 configurations, any drives that are not mirrored to other removed or failed drives can be simultaneously replaced offline without data loss.
- In RAID 6 with ADG configurations, any two drives in the array can be replaced simultaneously.

Automatic data recovery (rebuild)

When you replace a hard drive in an array, the controller uses the fault-tolerance information on the remaining drives in the array to reconstruct the missing data (the data that was originally on the replaced drive) and write it to the replacement drive. This process is called automatic data recovery, or rebuild. If fault tolerance is compromised, this data cannot be reconstructed and is likely to be permanently lost.

If another drive in the array fails while fault tolerance is unavailable during rebuild, a fatal system error may occur, and all data on the array is then lost. In exceptional cases, however, failure of another drive need not lead to a fatal system error. These exceptions include:

- Failure after activation of a spare drive
- Failure of a drive that is not mirrored to any other failed drives (in a RAID 1+0 configuration)
- Failure of a second drive in a RAID 6 with ADG configuration

Time required for a rebuild

The time required for a rebuild varies considerably, depending on several factors:

- The priority that the rebuild is given over normal I/O operations (you can change the priority setting by using ACU)
- The amount of I/O activity during the rebuild operation

- The rotational speed of the hard drives
- The availability of drive cache
- The brand, model, and age of the drives
- The amount of unused capacity on the drives
- The number of drives in the array (for RAID 5 and RAID 6 with ADG)

Allow approximately 1 minute per gigabyte for the rebuild process to be completed.

System performance is affected during the rebuild, and the system is unprotected against further drive failure until the rebuild has finished. Therefore, replace drives during periods of low activity when possible.



CAUTION: If the Online LED of the replacement drive stops blinking and the amber Fault LED glows, or if other drive LEDs in the array go out, the replacement drive has failed and is producing unrecoverable disk errors. Remove and replace the failed replacement drive.

When automatic data recovery has finished, the Online LED of the replacement drive stops flashing and begins to glow steadily.

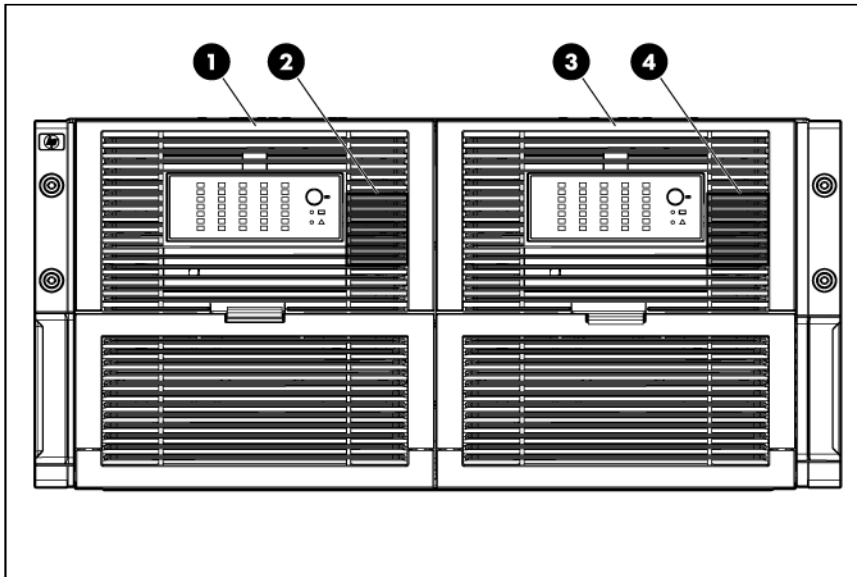
Failure of another drive during rebuild

If a non-correctable read error occurs on another physical drive in the array during the rebuild process, the Online LED of the replacement drive stops blinking and the rebuild abnormally terminates.

If this situation occurs, reboot the server. The system may temporarily become operational long enough to allow recovery of unsaved data. In any case, locate the faulty drive, replace it, and restore data from backup.

Component identification

Front panel components



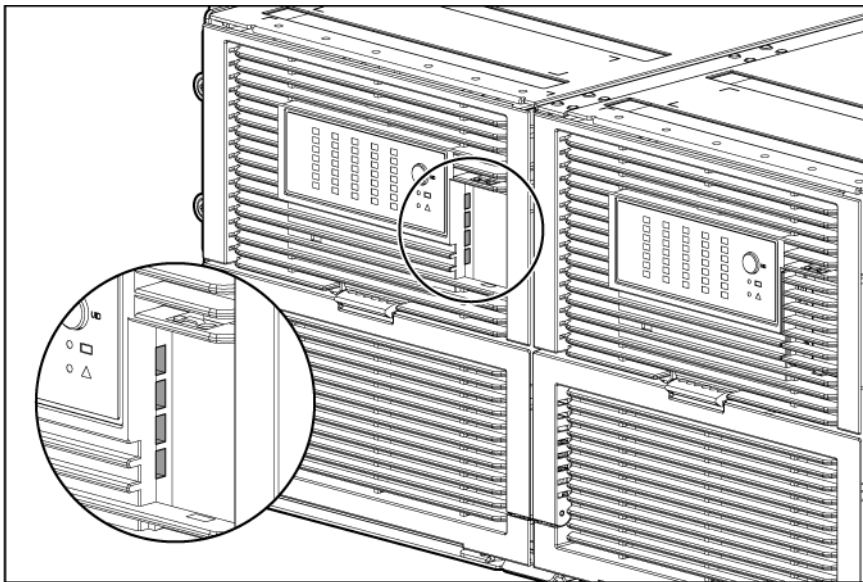
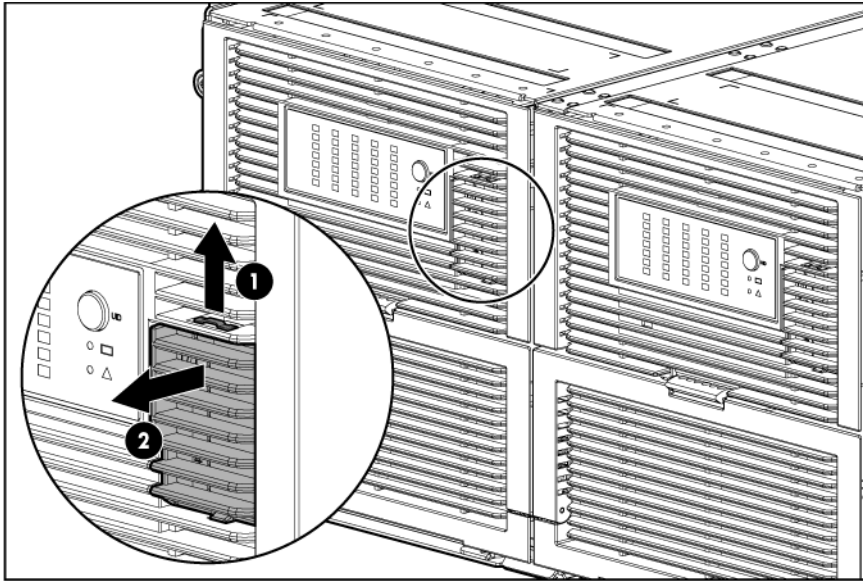
Item	Description
1	Drawer 1
2	Drawer 1 diagnostic cable access (For use by authorized HP personnel only)
3	Drawer 2
4	Drawer 2 diagnostic cable access (For use by authorized HP personnel only)

Diagnostic cable access

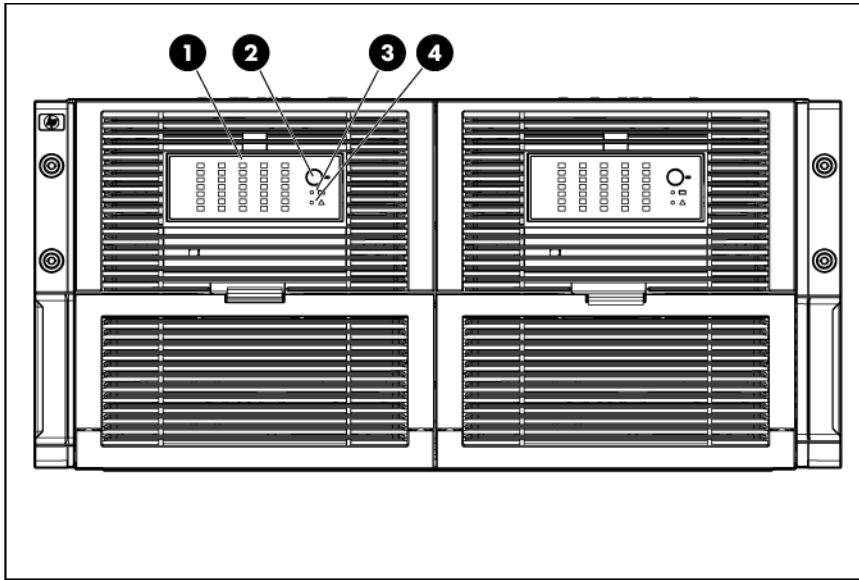


IMPORTANT: Use of the diagnostic cable connectors is reserved for authorized HP personnel only.

To access the connectors for diagnostic cables, use a small flat-head screwdriver to lift up and release the access tab.



Front panel LEDs and buttons

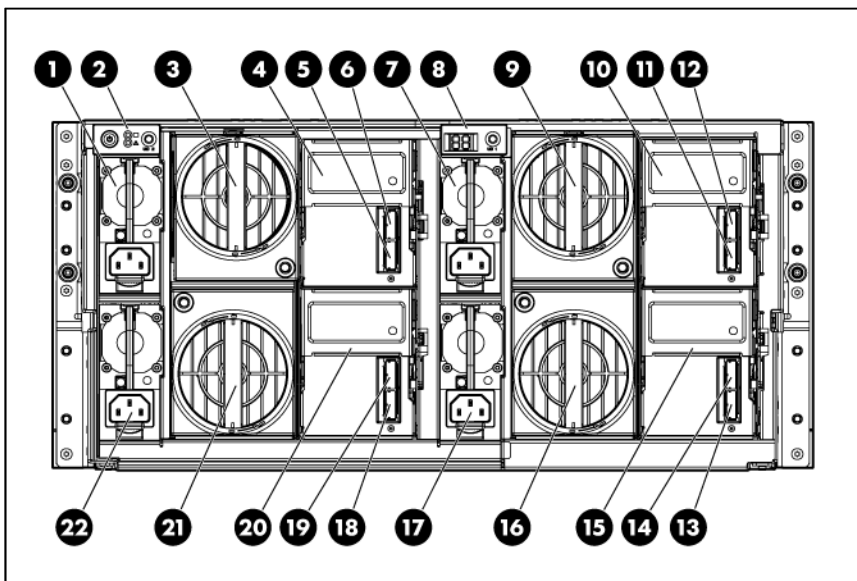


Item	Description	Status
1	Hard drive LEDs Normal mode (UID LED is solid)	<p>Green = The drive is online, but is not currently active.</p> <p>Flashing irregularly green = The drive is active and it is operating normally.</p> <p>Flashing green (1 Hz) = Do not remove the drive. Removing the drive may terminate the current operation and cause data loss. The drive is rebuilding, or it is part of an array that is undergoing expansion, logical drive extension, a stripe size migration, or RAID migration.</p> <p>Flashing amber/green = Drive is configured and indicating a predictive failure. The drive may also be undergoing a rebuild, expansion, extension, or migration.</p> <p>Flashing amber (1 Hz) = A predictive failure alert has been received for this drive. Replace the drive as soon as possible.</p> <p>Amber = Drive failure, link failure, or mismatched configuration.</p> <p>Off = The drive is offline, a spare, or not configured as part of an array.</p>

Item	Description	Status
1	Hard drive LEDs Drive locate mode (UID LED is flashing)	Green = The drive has been selected by a management application and it is operating normally. Flashing amber (1 Hz) = The drive is not selected and is indicating a predictive failure. Flashing amber/green = The drive has been selected by a management application and is indicating a predictive failure. Amber = The drive might or might not be selected and is indicating drive failure, link failure, or mismatched configuration. Off = The drive is not selected.
2	UID button/LED	Blue = UID LED is enabled from the UID button Blue flashing = Item 1 is in locate mode Off = UID LED is disabled
3	Internal Health LED	Green = System health is good Off = System is off
4	GSI LED	Amber = Enclosure requires service check: I/O, fan and power supply LEDs, and AC power cables to power supplies. Off = Enclosure is functioning normally.

Rear panel components

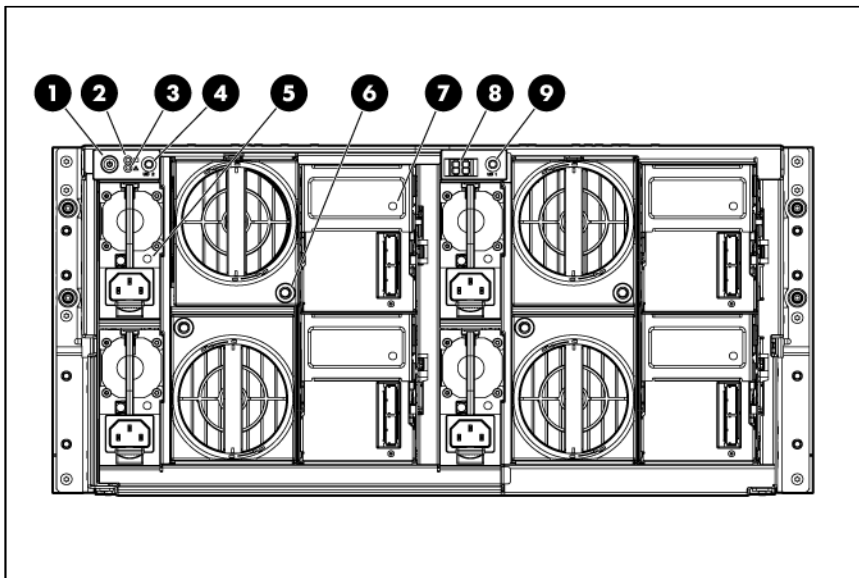
The figure shows a maximum configuration. Your enclosure might appear differently, for example, containing power supply or I/O module blanks, depending on the configuration that was ordered.



Item	Description
1	Power supply 1

Item	Description
2	Power On/UID 2 status panel
3	Fan module 1 (Drawer 2)
4	Primary I/O module (Drawer 2)
5	SAS port 1 connector
6	SAS port 2 connector
7	Power supply 3
8	UID 1 status panel
9	Fan module 1 (Drawer 1)
10	Primary I/O module (Drawer 1)
11	SAS port 1 connector
12	SAS port 2 connector
13	SAS port 1 connector
14	SAS port 2 connector
15	Secondary I/O module (Drawer 1)
16	Fan module 2 (Drawer 1)
17	Power supply 4
18	SAS port 1 connector
19	SAS port 2 connector
20	Secondary I/O module (Drawer 2)
21	Fan module 2 (Drawer 2)
22	Power supply 2

Rear panel LEDs and buttons



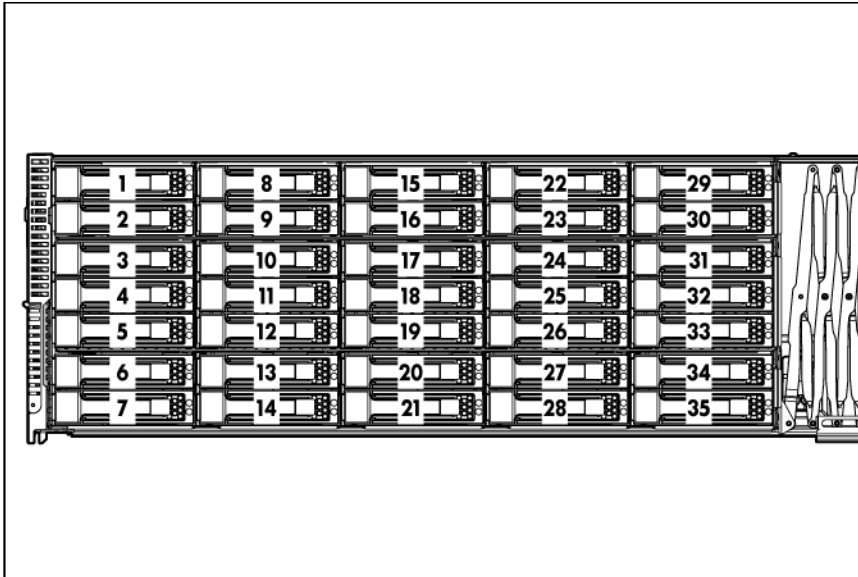
Item	Description	Status
1	Power On/Standby button and system power LED	Green = On Amber = Standby (auxiliary power present) Off = Off

Item	Description	Status
2	Internal Health LED	Green = System health is good. Off = System is off.
3	GSI LED*	Amber = Enclosure requires service check: I/O, fan and power supply LEDs, and AC power cables to power supplies. Off = Enclosure is functioning normally.
4	UID button/LED (Drawer 2)	Blue = UID LED is enabled from the UID button. Blue flashing = System is in hard drive locate mode or an enclosure firmware update is in progress. Off = UID LED is disabled.
5	Power supply LED	Green = Power on and power supply functioning properly Off = One or more of the following conditions exists: <ul style="list-style-type: none"> • System powered off • AC power unavailable • Power supply failed • Power supply exceeded current limit
6	System fan LED	Green = Normal operation Amber flashing = Fault Off = Fan unseated from connector or failed
7	I/O module LED	Green = System activity Amber = Fault Off = Enclosure is powered off.
8	7-segment display*	1 = SES overall warning 2 = Temperature sensor warning 3 = Cooling fan warning 4 = Power supply warning 5 = Host GSI enabled 6 = I/O PIC upgrade needed 7 = Power supply PIC upgrade needed 8 = CPLD upgrade needed 9 = Standby heartbeat failure 10 = Remote I/O module heartbeat failure 11 = Enclosure thermal shutdown imminent 12 = Enclosure thermal shutdown occurred 13 = Enclosure management bus failure, false fan failures may occur 14 = Signal integrity errors detected 15 = Power supply PIC communications error 16 = Unsupported backplane detected
9	UID button/LED (Drawer 1)	Blue = UID LED is enabled from the UID button. Blue flashing = System is in hard drive locate mode or an enclosure firmware update is in progress.

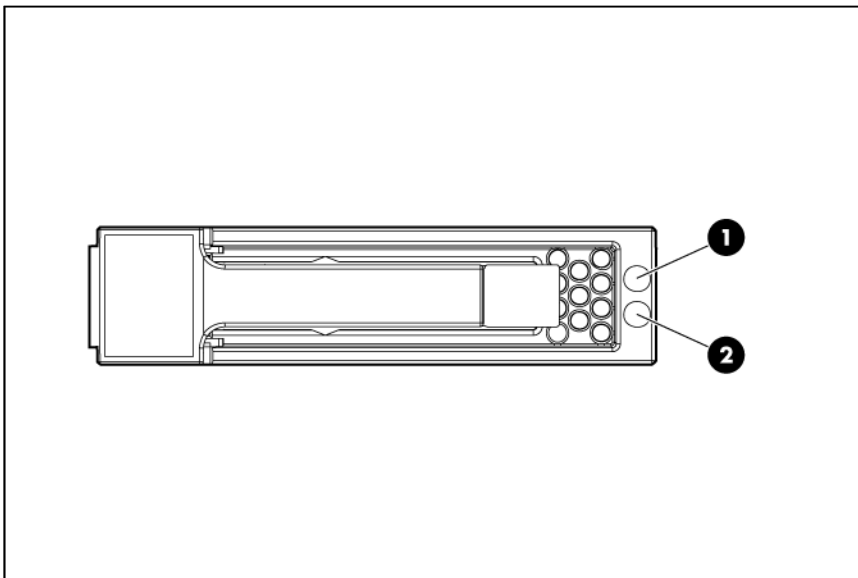
Item	Description	Status
		Off = UID LED is disabled.

* If the GSI is amber, the system needs service. Activate the associated drawer UID button to view any GSI error codes on the rear display.

Device bay ID numbers



Hard drive LEDs



Item	Description
1	Fault/UID LED (amber/blue)
2	Online LED (green)

Hard drive LED combinations

Online/activity LED (green)	Fault/UID LED (amber/blue)	Interpretation
On, off, or flashing	Alternating amber and blue	The drive has failed, or a predictive failure alert has been received for this drive; it also has been selected by a management application.
On, off, or flashing	Steadily blue	The drive is operating normally, and it has been selected by a management application.
On	Amber, flashing regularly (1 Hz)	A predictive failure alert has been received for this drive. Replace the drive as soon as possible.
On	Off	The drive is online, but it is not currently active.
Flashing regularly (1 Hz)	Amber, flashing regularly (1 Hz)	Do not remove the drive. Removing a drive may terminate the current operation and cause data loss. The drive is part of an array that is undergoing capacity expansion or a stripe size migration, but a predictive failure alert has been received for this drive. To minimize the risk of data loss, do not replace the drive until the expansion or migration is complete.
Flashing regularly (1 Hz)	Off	Do not remove the drive. Removing a drive may terminate the current operation and cause data loss. The drive is rebuilding, or it is part of an array that is undergoing array expansion, logical drive extension, a stripe size migration, or RAID migration.
Flashing irregularly	Amber, flashing regularly (1 Hz)	The drive is active, but a predictive failure alert has been received for this drive. Replace the drive as soon as possible.
Flashing irregularly	Off	The drive is active and it is operating normally.
Off	Steadily amber	A critical fault condition has been identified for this drive and the controller has placed it offline. Replace the drive as soon as possible.
Off	Amber, flashing regularly (1 Hz)	A predictive failure alert has been received for this drive. Replace the drive as soon as possible.
Off	Off	The drive is offline, a spare, or not configured as part of an array.

Specifications

Environmental specifications

Specification	Value
Temperature range*	
Operating	10°C to 35°C (50°F to 95°F) Maximum rate of change is 10° C/hr (50° F/hr)
Storage	-30°C to 60°C (-22°F to 140°F) Maximum rate of change is 20° C/hr (68° F/hr)
Relative humidity**	
Operating	10% to 90% relative humidity (Rh), 28° C (82.4° F) maximum wet bulb temperature, non-condensing
Storage	5% to 95% relative humidity (Rh), 38.7° C (101.66° F) maximum wet bulb temperature, non-condensing
Altitude ‡	
Operating	3048 m (10,000 ft) This value may be limited by the type and number of options installed.
Non-operating	9144 m (30,000 ft)

* Temperature ratings shown are for sea level. An altitude derating of 1°C per 300 m (1.8°F per 1,000 ft) to 3048 m (10,000 ft) is applicable. No direct sunlight allowed. The upper limit may be limited by the type and number of options installed.

** Storage maximum humidity of 95% is based on a maximum temperature of 45°C (113°F). Altitude maximum for storage corresponds to a pressure minimum of 70 KPa.

‡ Maximum allowable altitude change rate is 457 m/min (1500 ft/min).

Storage array specifications

Specification	Value
Height	22.10 cm (8.70 in)
Depth	89.12 cm (35.08 in)
Width	44.70 cm (17.60 in)
Weight (maximum)	145.15 kg (320.00 lb)
Weight (no drives installed)	72.58 kg (160.00 lb)

Acronyms and abbreviations

ACU

Array Configuration Utility

ADG

Advanced Data Guarding (also known as RAID 6)

ADU

Array Diagnostics Utility

CPLD

complex programmable logic device

GSI

global service indicator

IML

Integrated Management Log

PIC

peripheral interface controller

SAS

serial attached SCSI

SATA

serial ATA

SES

SCSI Enclosure Services

SIM

Systems Insight Manager

UID

unit identification

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