

GE Healthcare

**BrightSpeed Elite**  
**16 FPS Option Installation**  
Service Documentation



5322976-1EN

Rev 2

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# **LEGAL NOTES**

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# IMPORTANT PRECAUTIONS

## LANGUAGE

<b>ПРЕДУПРЕЖДЕНИЕ</b> (BG)	<ul style="list-style-type: none"><li>• Това упътване за работа е налично само на английски език.</li><li>• Ако доставчикът на услугата на клиента изиска друг език, задължение на клиента е да осигури превод.</li><li>• Не използвайте оборудването, преди да сте се консултирали и разбрали упътването за работа.</li><li>• Неспазването на това предупреждение може да доведе до нараняване на доставчика на услугата, оператора или пациент в резултат на токов удар или механична или друга опасност.</li></ul>
<b>警告</b> (ZH-CN)	<ul style="list-style-type: none"><li>• 本维修手册仅提供英文版本。</li><li>• 如果维修服务提供商需要非英文版本，客户需自行提供翻译服务。</li><li>• 未详细阅读和完全理解本维修手册之前，不得进行维修。</li><li>• 忽略本警告可能对维修人员，操作员或患者造成触电、机械伤害或其他形式的伤害。</li></ul>
<b>VÝSTRAHA</b> (CS)	<ul style="list-style-type: none"><li>• Tento provozní návod existuje pouze v anglickém jazyce.</li><li>• V případě, že externí služba zákazníkům potřebuje návod v jiném jazyce, je zajištění překladu do odpovídajícího jazyka úkolem zákazníka.</li><li>• Nesnažte se o údržbu tohoto zařízení, aniž byste si přečetli tento provozní návod a pochopili jeho obsah.</li><li>• V případě nedodržování této výstrahy může dojít k poranění pracovníka prodejního servisu, obslužného personálu nebo pacientů vlivem elektrického proudu, respektive vlivem mechanických či jiných rizik.</li></ul>
<b>ADVARSEL</b> (DA)	<ul style="list-style-type: none"><li>• Denne servicemanual findes kun på engelsk.</li><li>• Hvis en kundes tekniker har brug for et andet sprog end engelsk, er det kundens ansvar at sørge for oversættelse.</li><li>• Forsøg ikke at servicere udstyret medmindre denne servicemanual har været konsulteret og er forstået.</li><li>• Manglende overholdelse af denne advarsel kan medføre skade på grund af elektrisk, mekanisk eller anden fare for teknikeren, operatøren eller patienten.</li></ul>
<b>WAARSCHUWING</b> (NL)	<ul style="list-style-type: none"><li>• Deze onderhoudshandleiding is enkel in het Engels verkrijgbaar.</li><li>• Als het onderhoudspersoneel een andere taal vereist, dan is de klant verantwoordelijk voor de vertaling ervan.</li><li>• Probeer de apparatuur niet te onderhouden voordat deze onderhoudshandleiding werd geraadpleegd en begrepen is.</li><li>• Indien deze waarschuwing niet wordt opgevolgd, zou het onderhoudspersoneel, de operator of een patiënt gewond kunnen raken als gevolg van een elektrische schok, mechanische of andere gevaren.</li></ul>

<b>WARNING</b> (EN)	<ul style="list-style-type: none"><li>• This Service Manual is available in English only.</li><li>• If a customer's service provider requires a language other than English, it is the customer's responsibility to provide translation services.</li><li>• Do not attempt to service the equipment unless this service manual has been consulted and is understood.</li><li>• Failure to heed this warning may result in injury to the service provider, operator, or patient, from electric shock or from mechanical or other hazards.</li></ul>
<b>HOIATUS</b> (ET)	<ul style="list-style-type: none"><li>• Käesolev teenindusjuhend on saadaval ainult inglise keeles.</li><li>• Kui klienditeeninduse osutaja nõuab juhendit inglise keelest erinevas keeles, vastutab klient tõlketeenuse osutamise eest.</li><li>• Ärge üritage seadmeid teenindada enne eelnevalt käesoleva teenindusjuhendiga tutvumist ja sellest aru saamist.</li><li>• Käesoleva hoiatuse eiramine võib põhjustada teenuseosutaja, operaatori või patsiendi vigastamist elektrilöögi, mehaanilise või muu ohu tagajärjel.</li></ul>
<b>VAROITUS</b> (FI)	<ul style="list-style-type: none"><li>• Tämä huolto-ohje on saatavilla vain englanniksi.</li><li>• Jos asiakkaan huoltohenkilöstö vaatii muuta kuin englanninkielistä materiaalia, tarvittavan käännöksen hankkiminen on asiakkaan vastuulla.</li><li>• Älä yritä korjata laitteistoa ennen kuin olet varmasti lukenut ja ymmärtänyt tämän huolto-ohjeen.</li><li>• Mikäli tätä varoitusta ei noudateta, seurauksena voi olla huoltohenkilöstön, laitteiston käyttäjän tai potilaan vahingoittuminen sähköiskun, mekaanisen vian tai muun vaaratilanteen vuoksi.</li></ul>
<b>ATTENTION</b> (FR)	<ul style="list-style-type: none"><li>• Ce manuel de service n'est disponible qu'en anglais.</li><li>• Si le technicien du client a besoin de ce manuel dans une autre langue que l'anglais, c'est au client qu'il incombe de le faire traduire.</li><li>• Ne pas tenter d'intervenir sur les équipements tant que le manuel service n'a pas été consulté et compris</li><li>• Le non-respect de cet avertissement peut entraîner chez le technicien, l'opérateur ou le patient des blessures dues à des dangers électriques, mécaniques ou autres.</li></ul>
<b>WARNUNG</b> (DE)	<ul style="list-style-type: none"><li>• Diese Serviceanleitung existiert nur in Englischer Sprache.</li><li>• Falls ein fremder Kundendienst eine andere Sprache benötigt, ist es aufgabe des Kunden für eine Entsprechende Übersetzung zu sorgen.</li><li>• Versuchen Sie nicht diese Anlage zu warten, ohne diese Serviceanleitung gelesen und verstanden zu haben.</li><li>• Wird diese Warnung nicht beachtet, so kann es zu Verletzungen des Kundendiensttechnikers, des Bedieners oder des Patienten durch Stromschläge, Mechanische oder Sonstige gefahren kommen.</li></ul>

<p><b>ΠΡΟΕΙΔΟΠΟΙΗΣΗ</b> (EL)</p>	<ul style="list-style-type: none"> <li>• Το παρόν εγχειρίδιο σέρβις διατίθεται στα αγγλικά μόνο.</li> <li>• Εάν το άτομο παροχής σέρβις ενός πελάτη απαιτεί το παρόν εγχειρίδιο σε γλώσσα εκτός των αγγλικών, αποτελεί ευθύνη του πελάτη να παρέχει υπηρεσίες μετάφρασης.</li> <li>• Μην επιχειρήσετε την εκτέλεση εργασιών σέρβις στον εξοπλισμό εκτός εάν έχετε συμβουλευτεί και έχετε κατανοήσει το παρόν εγχειρίδιο σέρβις.</li> <li>• Εάν δε λάβετε υπόψη την προειδοποίηση αυτή, ενδέχεται να προκληθεί τραυματισμός στο άτομο παροχής σέρβις, στο χειριστή ή στον ασθενή από ηλεκτροπληξία, μηχανικούς ή άλλους κινδύνους.</li> </ul>
<p><b>FIGYELMEZTETÉS</b> (HU)</p>	<ul style="list-style-type: none"> <li>• Ezen karbantartási kézikönyv kizárólag angol nyelven érhető el.</li> <li>• Ha a vevő szolgáltatója angoltól eltérő nyelvre tart igényt, akkor a vevő felelőssége a fordítás elkészítése.</li> <li>• Ne próbálja elkezdni használni a berendezést, amíg a karbantartási kézikönyvben leírtakat nem értelmezték.</li> <li>• Ezen figyelmeztetés figyelmen kívül hagyása a szolgáltató, működtető vagy a beteg áramütés, mechanikai vagy egyéb veszélyhelyzet miatti sérülését eredményezheti.</li> </ul>
<p><b>AÐVÖRUN</b> (IS)</p>	<ul style="list-style-type: none"> <li>• Þessi þjónustuhandbók er eingöngu fánleg á ensku.</li> <li>• Ef að þjónustuveitandi viðskiptamanns þarfnast annas tungumáls en ensku, er það skylda viðskiptamanns að skaffa tungumálapjónustu.</li> <li>• Reynið ekki að afgreiða tækið nema að þessi þjónustuhandbók hefur verið skoðuð og skilin.</li> <li>• Brot á sinna þessari aðvörun getur leitt til meiðsla á þjónustuveitanda, stjórnanda eða sjúklings frá raflosti, vélrænu eða öðrum áhættum.</li> </ul>
<p><b>AVVERTENZA</b> (IT)</p>	<ul style="list-style-type: none"> <li>• Il presente manuale di manutenzione è disponibile soltanto in inglese.</li> <li>• Se un addetto alla manutenzione richiede il manuale in una lingua diversa, il cliente è tenuto a provvedere direttamente alla traduzione.</li> <li>• Si proceda alla manutenzione dell'apparecchiatura solo dopo aver consultato il presente manuale ed averne compreso il contenuto.</li> <li>• Il non rispetto della presente avvertenza potrebbe far compiere operazioni da cui derivino lesioni all'addetto, alla manutenzione, all'utilizzatore ed al paziente per folgorazione elettrica, per urti meccanici od altri rischi.</li> </ul>
<p><b>警告</b> (JA)</p>	<ul style="list-style-type: none"> <li>• このサービスマニュアルには英語版しかありません。</li> <li>• サービスを担当される業者が英語以外の言語を要求される場合、翻訳作業はその業者の責任で行うものとさせていただきます。</li> <li>• このサービスマニュアルを熟読し理解せずに、装置のサービスを行わないでください。</li> <li>• この警告に従わない場合、サービスを担当される方、操作員あるいは患者さんが、感電や機械的又はその他の危険により負傷する可能性があります。</li> </ul>
<p><b>경고</b> (KO)</p>	<ul style="list-style-type: none"> <li>• 본 서비스 지침서는 영어로만 이용하실 수 있습니다 .</li> <li>• 고객의 서비스 제공자가 영어 이외의 언어를 요구할 경우 , 번역 서비스를 제공하는 것은 고객의 책임입니다 .</li> <li>• 본 서비스 지침서를 참고했고 이해하지 않는 한은 해당 장비를 수리하려고 시도하지 마십시오 .</li> <li>• 이 경고에 유의하지 않으면 전기 쇼크 , 기계상의 혹은 다른 위험으로부터 서비스 제공자 , 운영자 혹은 환자에게 위해를 가할 수 있습니다 .</li> </ul>

<b>BRDINJUMS</b> (LV)	<ul style="list-style-type: none"><li>• Šī apkalpes rokasgrāmata ir pieejama tikai angļu valodā.</li><li>• Ja klienta apkalpes sniedzējam nepieciešama informācija citā valodā, nevis angļu, klienta pienākums ir nodrošināt tulkošanu.</li><li>• Neveiciet aprīkojuma apkalpi bez apkalpes rokasgrāmatas izlasīšanas un saprašanas.</li><li>• Šī brīdinājuma neievērošana var radīt elektriskās strāvas trieciena, mehānisku vai citu risku izraisītu traumu apkalpes sniedzējam, operatoram vai pacientam.</li></ul>
<b>ĮSPĖJIMAS</b> (LT)	<ul style="list-style-type: none"><li>• Šis eksploatavimo vadovas yra prieinamas tik anglų kalba.</li><li>• Jei kliento paslaugų tiekėjas reikalauja vadovo kita kalba – ne anglų, numatyti vertimo paslaugas yra kliento atsakomybė.</li><li>• Nemėginkite atlikti įrangos techninės priežiūros, nebent atsižvelgėte į šį eksploatavimo vadovą ir jį supratote.</li><li>• Jei neatkreipsite dėmesio į šį perspėjimą, galimi sužalojimai dėl elektros šoko, mechaninių ar kitų pavojų paslaugų tiekėjui, operatoriui ar pacientui.</li></ul>
<b>ADVARSEL</b> (NO)	<ul style="list-style-type: none"><li>• Denne servicehåndboken finnes bare på engelsk.</li><li>• Hvis kundens serviceleverandør trenger et annet språk, er det kundens ansvar å sørge for oversettelse.</li><li>• Ikke forsøk å reparere utstyret uten at denne servicehåndboken er lest og forstått.</li><li>• Manglende hensyn til denne advarselen kan føre til at serviceleverandøren, operatøren eller pasienten skades på grunn av elektrisk støt, mekaniske eller andre farer.</li></ul>
<b>OSTRZEŻENIE</b> (PL)	<ul style="list-style-type: none"><li>• Niniejszy podręcznik serwisowy dostępny jest jedynie w języku angielskim.</li><li>• Jeśli dostawca usług klienta wymaga języka innego niż angielski, zapewnienie usługi tłumaczenia jest obowiązkiem klienta.</li><li>• Nie próbować serwisować wyposażenia bez zapoznania się i zrozumienia niniejszego podręcznika serwisowego.</li><li>• Niezastosowanie się do tego ostrzeżenia może spowodować urazy dostawcy usług, operatora lub pacjenta w wyniku porażenia elektrycznego, zagrożenia mechanicznego bądź innego.</li></ul>
<b>ATENÇÃO</b> (PT-BR)	<ul style="list-style-type: none"><li>• Este manual de assistência técnica só se encontra disponível em inglês.</li><li>• Se qualquer outro serviço de assistência técnica, que não a gems, solicitar estes manuais noutra idioma, é da responsabilidade do cliente fornecer os serviços de tradução.</li><li>• Não tente reparar o equipamento sem ter consultado e compreendido este manual de assistência técnica.</li><li>• O não cumprimento deste aviso pode por em perigo a segurança do técnico, operador ou paciente devido a choques elétricos, mecânicos ou outros.</li></ul>

<b>ATENÇÃO</b> (PT-PT)	<ul style="list-style-type: none"><li>• Este manual de assistência técnica só se encontra disponível em inglês.</li><li>• Se qualquer outro serviço de assistência técnica, que não a gems, solicitar estes manuais noutra idioma, é da responsabilidade do cliente fornecer os serviços de tradução.</li><li>• Não tente reparar o equipamento sem ter consultado e compreendido este manual de assistência técnica.</li><li>• O não cumprimento deste aviso pode colocar em perigo a segurança do técnico, do operador ou do paciente devido a choques eléctricos, mecânicos ou outros.</li></ul>
<b>ATENȚIE</b> (RO)	<ul style="list-style-type: none"><li>• Acest manual de service este disponibil numai în limba engleză.</li><li>• Dacă un furnizor de servicii pentru clienți necesită o altă limbă decât cea engleză, este de datoria clientului să furnizeze o traducere.</li><li>• Nu încercați să reparați echipamentul decât ulterior consultării și înțelegerii acestui manual de service.</li><li>• Ignorarea acestui avertisment ar putea duce la rănirea depanatorului, operatorului sau pacientului în urma pericolelor de electrocutare, mecanice sau de altă natură.</li></ul>
<b>ОСТОРОЖНО!</b> (RU)	<ul style="list-style-type: none"><li>• Данное руководство по обслуживанию предлагается только на английском языке.</li><li>• Если сервисному персоналу клиента необходимо руководство не на английском, а на каком-то другом языке, клиенту следует самостоятельно обеспечить перевод.</li><li>• Перед обслуживанием оборудования обязательно обратитесь к данному руководству и поймите изложенные в нем сведения.</li><li>• Несоблюдение требований данного предупреждения может привести к тому, что специалист по обслуживанию, оператор или пациент получат удар электрическим током, механическую травму или другое повреждение.</li></ul>
<b>UPOZORENJE</b> (SR)	<ul style="list-style-type: none"><li>• Ovo servisno uputstvo je dostupno samo na engleskom jeziku.</li><li>• Ako klijentov serviser zahteva neki drugi jezik, klijent je dužan da obezbedi prevodilacke usluge.</li><li>• Ne pokušavajte da opravite uređaj ako niste pročitali i razumeli ovo servisno uputstvo.</li><li>• Zanemarivanje ovog upozorenja može dovesti do povređivanja serviser, rukovaoca ili pacijenta usled strujnog udara ili mehanickih i drugih opasnosti.</li></ul>
<b>UPOZORNENIE</b> (SK)	<ul style="list-style-type: none"><li>• Tento návod na obsluhu je k dispozícii len v angličtine.</li><li>• Ak zákazníkovi poskytovateľ služieb vyžaduje iný jazyk ako angličtinu, poskytnutie prekladateľských služieb je zodpovednosťou zákazníka.</li><li>• Nepokúšajte sa o obsluhu zariadenia skôr, ako si neprečítate návod na obsluhu a neporozumiete mu.</li><li>• Zanedbanie tohto upozornenia môže vyústiť do zranenia poskytovateľa služieb, obsluhujúcej osoby alebo pacienta elektrickým prúdom, do mechanického alebo iného nebezpečenstva.</li></ul>

<b>ATENCION</b> (ES)	<ul style="list-style-type: none"><li>• Este manual de servicio sólo existe en inglés.</li><li>• Si el encargado de mantenimiento de un cliente necesita un idioma que no sea el inglés, el cliente deberá encargarse de la traducción del manual.</li><li>• No se deberá dar servicio técnico al equipo, sin haber consultado y comprendido este manual de servicio.</li><li>• La no observancia del presente aviso puede dar lugar a que el proveedor de servicios, el operador o el paciente sufran lesiones provocadas por causas eléctricas, mecánicas o de otra naturaleza.</li></ul>
<b>VARNING</b> (SV)	<ul style="list-style-type: none"><li>• Den här servicehandboken finns bara tillgänglig på engelska.</li><li>• Om en kunds servicetekniker har behov av ett annat språk än engelska ansvarar kunden för att tillhandahålla översättningstjänster.</li><li>• Försök inte utföra service på utrustningen om du inte har läst och förstår den här servicehandboken.</li><li>• Om du inte tar hänsyn till den här varningen kan det resultera i skador på serviceteknikern, operatören eller patienten till följd av elektriska stötar, mekaniska faror eller andra faror.</li></ul>
<b>DIKKAT</b> (TR)	<ul style="list-style-type: none"><li>• Bu servis kilavuzunun sadece ingilizcesi mevcuttur.</li><li>• Eğer müşteri teknisyeni bu kilavuzu ingilizce dışında bir başka lisandan talep ederse, bunu tercüme ettirmek müşteriye düşer.</li><li>• Servis kilavuzunu okuyup anlamadan ekipmanlara müdahale etmeyiniz.</li><li>• Bu uyarıya uyulmaması, elektrik, mekanik veya diğer tehlikelerden dolayı teknisyen, operatör veya hastanın yaralanmasına yol açabilir.</li></ul>

## **DAMAGE IN TRANSPORTATION**

All packages should be closely examined at time of delivery. If damage is apparent, have notation "damage in shipment" written on all copies of the freight or express bill before delivery is accepted or "signed for" by a General Electric representative or a hospital receiving agent. Whether noted or concealed, damage MUST be reported to the carrier immediately upon discovery, or in any event, within 14 days after receipt, and the contents and containers held for inspection by the carrier. A transportation company will not pay a claim for damage if an inspection is not requested within this 14 day period.

To file a report:

- Call 1-800-548-3366 and use option 8.
- Fill out a report on <http://egems.med.ge.com/edq/home.jsp>
- Contact your local service coordinator for more information on this process.

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## **CERTIFIED ELECTRICAL CONTRACTOR STATEMENT**

All electrical Installations that are preliminary to positioning of the equipment at the site prepared for the equipment shall be performed by licensed electrical contractors. In addition, electrical feeds into the Power Distribution Unit shall be performed by licensed electrical contractors. Other connections between pieces of electrical equipment, calibrations and testing shall be performed by qualified GE Medical personnel. The products involved (and the accompanying electrical installations) are highly sophisticated, and special engineering competence is required. In performing all electrical work on these products, GE will use its own specially trained field engineers. All of GE's electrical work on these products will comply with the requirements of the applicable electrical codes.

The purchaser of GE equipment shall only utilize qualified personnel (i.e., GE's field engineers, personnel of third-party service companies with equivalent training, or licensed electricians) to perform electrical servicing on the equipment.

## **IMPORTANT...X-RAY PROTECTION**

X-ray equipment if not properly used may cause injury. Accordingly, the instructions herein contained should be thoroughly read and understood by everyone who will use the equipment before you attempt to place this equipment in operation. The General Electric Company, Medical Systems Group, will be glad to assist and cooperate in placing this equipment in use.

Although this apparatus incorporates a high degree of protection against x-radiation other than the useful beam, no practical design of equipment can provide complete protection. Nor can any practical design compel the operator to take adequate precautions to prevent the possibility of any persons carelessly exposing themselves or others to radiation.

It is important that anyone having anything to do with x-radiation be properly trained and fully acquainted with the recommendations of the National Council on Radiation Protection and Measurements as published in NCRP Reports available from NCRP Publications, 7910 Woodmont Avenue, Room 1016, Bethesda, Maryland 20814, and of the International Commission on Radiation Protection, and take adequate steps to protect against injury.

The equipment is sold with the understanding that the General Electric Company, Medical Systems Group, its agents, and representatives have no responsibility for injury or damage which may result from improper use of the equipment.

Various protective materials and devices are available. It is urged that such materials or devices be used.

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## LITHIUM BATTERY CAUTIONARY STATEMENTS



**CAUTION**  
Risk of  
Explosion

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.



**ATTENTION**  
Danger  
d'Explosion

Il y a danger d'explosion s'il y a remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un type recommandé par le constructeur. Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

### OMISSIONS & ERRORS

Customers, please contact your GE Sales or Service representatives.

GE personnel, please use the GEMS CQA Process to report all omissions, errors, and defects in this publication.

# Revision History

Revision	Date	Reason for change
2	03/23/09	Updated Material List on Chapter 1, Section 2.0
1	10/28/08	Initial release.



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# Chapter 1

## Introduction

---

This option is only applied to BrightSpeed Elite system With All-In-One console.

By installing this option, DARC2 computer and 3 Image Generator (IG) becomes available for BrightSpeed Elite system. The image reconstruction speed will be increased. This manual describes the installation procedure.

### Section 1.0

#### Flowchart

This procedure describes the procedure in below sequence:

- Remove original Host Computer in the console
- Install new Host Computer, shipped in 16 FPS option package
- Install DARC Computer
- Install 3 IG Computer

After all the computer have been installed, several tests are required:

- Communication from Host Computer to DARC, and DARC to 3 IG Computer
- Testing of retro recon and online scan

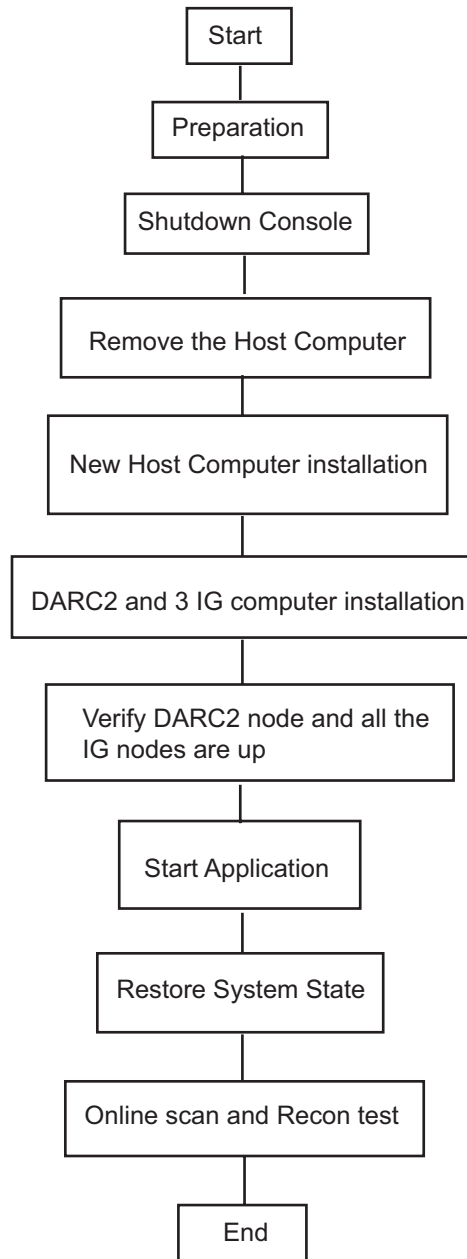


**NOTICE** Prevent permanent damage to the static-sensitive boards. Attach an anti-static wrist-strap to your wrist and to a bare metal grounding point.



**NOTICE** The Operating software and application software has been loaded on Host Computer and DARC Computer by manufacturer.

Below illustration shows the main flow of the installation procedures of the option.



## Section 2.0 Material List

Verify that the contents of this option kit (5322976) are correct according to the Material List below.

ITEM	PART NO.	DESCRIPTION	QTY.
1	5183547-38	GEHC MI and CT Integrated Buy Level PC Workstation. HP8400 with 4GB Memory	1
2	5147442	Computer - Data Acquisition Recon Control, 2nd Generation	1
3	5147443-2	Jarrell GRE IG with RAC rev.D or Higher	3
4	5127222-2	Cable, Ethernet, 2ft Lg- CAT5e	4
5	2337414	DVD RAM MEDIA, 9.4 GB	1
6	5322976-1EN	16 FPS Option Installation Manual (This Manual)	1
7	46-303268P1	PRODUCT LOCATOR CARD FORM FOR RATING PLATES	1
8	5328866	BSD Delight and RT16 Xtra Vision Software Collector	1
9	5330693	Service pack 1.0-3 for BrightSpeed Delight	1



---

# **Chapter 2**

## **Installation Procedures**

---

### **Section 1.0 Remove the original Host Computer**

The original Host computer in console should be removed before 16 FPS option installation.

- 1.) If Applications are up, click on the [Shut Down] button.
- 2.) Power OFF the Operator Console front switch, when instructed to “Power Down”.
- 3.) Remove the rear Operator Console cover.
- 4.) Visually verify proper labeling of each cable and disconnect all HP Host Computer rear cables. Refer to below schematic for the cable connections.



- 5.) Remove the front Operator Console cover.
- 6.) Remove and retain the four (4) front mounting screws.

**CAUTION**



**Potential for injury.**

**The HP Computer module weighs approximately 20.5kg (45 lbs).  
Use care, when removing the HP module.**

- 7.) Slide out the HP Host Computer module.

## Section 2.0 Install new Host Computer

The new Host Computer, which is packed in 16 FPS option kit, should be installed in console.

**NOTICE:** If the option have already been loaded on original Host Computer, please perform NIC card exchange to avoid option key re-generation. Detailed procedure please refer to console/ replacement/ service manual.

- 1.) If present, remove the top and bottom covers from the new HP Host computer.  
The computer module will not install properly, with these covers attached.

**CAUTION**



**Potential for injury.**

**The HP Computer module weighs approximately 20.5kg (45 lbs).  
Use care, when removing the HP module.**

- 2.) Slide in the new HP Host Computer module.
- 3.) Replace the four (4) front mounting screws.
- 4.) Reconnect all HP Host Computer rear cables, which is removed in section 1.0.

**NOTICE:** Below three cables should NOT be connected to Host Computer at this time. They will be connected to DARC Computer in Section 4.0

- a.) Fiber cable
- b.) DIP X-ray abort cable (From ICOM)
- c.) RHART cable (From ICOM)

**NOTICE:** All cable connector screw-locks must be finger-tightened, only. Do NOT use any tool to tighten cable screw-locks.

- 5.) At the rear of the HP Host Computer, verify the power switch is in the ON position.

## Section 3.0 Install DARC Computer

- 1.) Remove all the metal plate which are installed at upper position of the Host Computer, and retain the front mounting screws.



**Figure 2-1 Metal plates installed at front of console**

- 2.) Slide the DARC Computer into the Operator Console from the front. The DARC Computer shall be at upper position next to the Host Computer.
- 3.) Install the four (4) front mounting screws on the front of the DARC Computer.
- 4.) Verify the DARC Computer is correct for the Site DAS Type. Refer to [Figure 2-2](#) for the color-coded sticker located on the front panel of the DARC Computer for DIP type information.
- 5.) Connect all rear DARC Computer cables. Refer to [Table 2-1](#) for cables to be connected. (Please see [Figure 2-2](#), for DARC Computer cable connection information.)

Reference Designator	DARC Connection	Connection
B or IG1	IG1 Ethernet port 1	IG 1 Node Ethernet port 0
A or IG2	IG2 Ethernet port 0	IG 2 Node Ethernet port 0
Network Sticker or IG3	IG3 Ethernet port 3	IG 3 Node Ethernet port 0
No sticker or Host	Host Ethernet port 2	Host Computer port C
DIP RX	DIP (verify not connected to TX)	Console Interface Bulkhead Assembly
DIP Scan Abort	J53 DIP Scan Abort	ICOM J53
RHARD	J54 RHARD	ICOM J54
Power	Power	Power Distribution Box

**Table 2-1 DARC Computer cable connection**

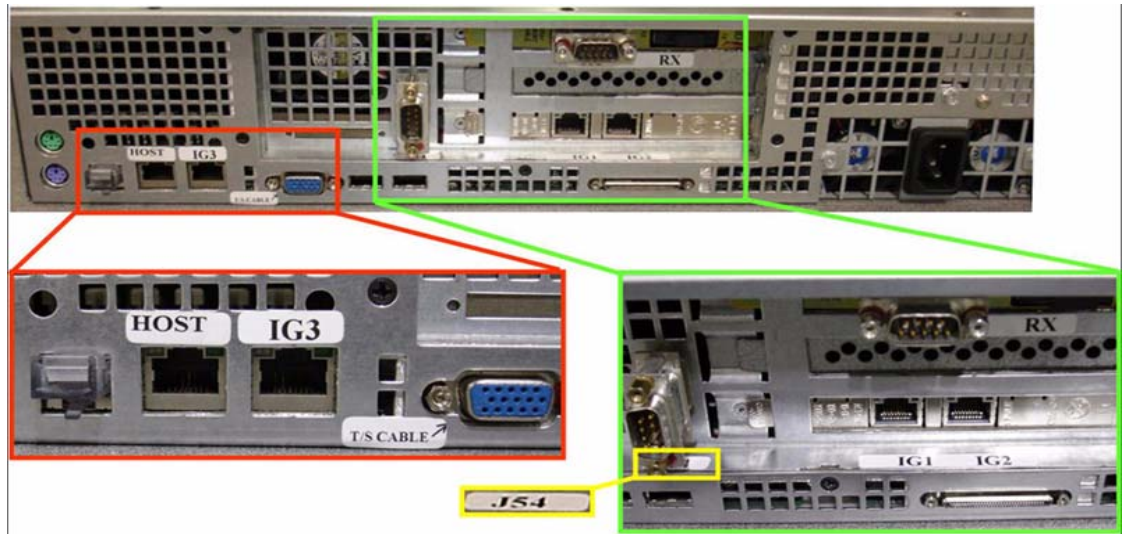
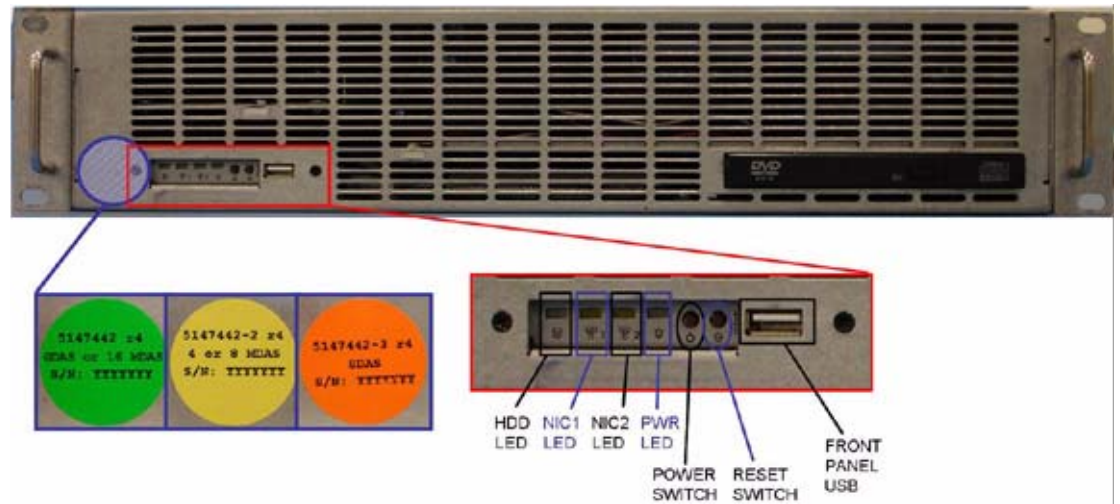


Figure 2-2 Jarrell DARC Computer

**NOTICE:** All cable connector screw-locks must be finger-tightened, only. Do NOT use any tool to tighten cable screw-locks.

- 6.) If present, verify the power switch located at the rear of the DARC Computer is in the ON position.

## Section 4.0 Install IG Computers

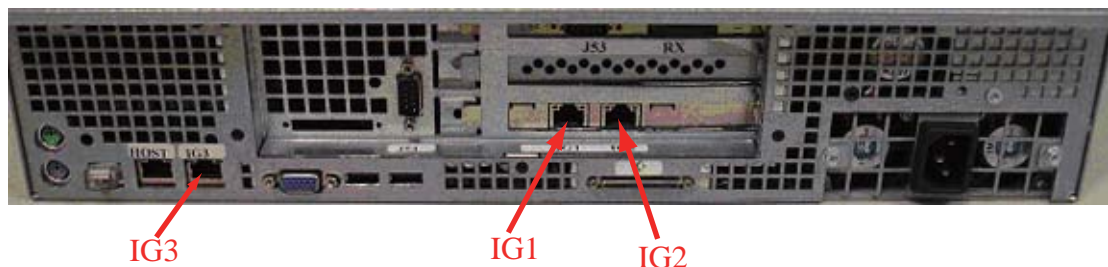
This section describes the procedure to install 3 IG computers in console.

- 1.) Remove the all the covers at front of console and retain the six (6) front mounting screws from the console chassis.
- 2.) Slide the first IG Computer into the Operator Console.
- 3.) Replace the two (2) front mounting screws on the front of the IG Computer.
- 4.) Verify the power switch (located at the rear of the IG Computer, if present) is in the ON position.
- 5.) Connect the power cable to the rear of IG. The Power cable is already in the chassis.
- 6.) Connect the Ethernet cable between DARC Ethernet (IG1 (eth1)) and IG Ethernet (eth0).
- 7.) Repeat the above procedures from Step 2 to step 6 to install IG 2 and IG 3 computer.  
For IG 2: Connect the Ethernet cable between DARC Ethernet [ IG 2 (eth0) ] and IG 2 Ethernet (eth0).  
For IG 3: Connect the Ethernet cable between DARC Ethernet [ IG 3 (eth3) ] and IG 3 Ethernet (eth0).

Refer to [Figure 2-3](#) and [Figure 2-4](#) for Ethernet cable connection.



**Figure 2-3 Rear of Jarrell IG Computer**



**Figure 2-4 Rear of Jarrell DARC Computer**

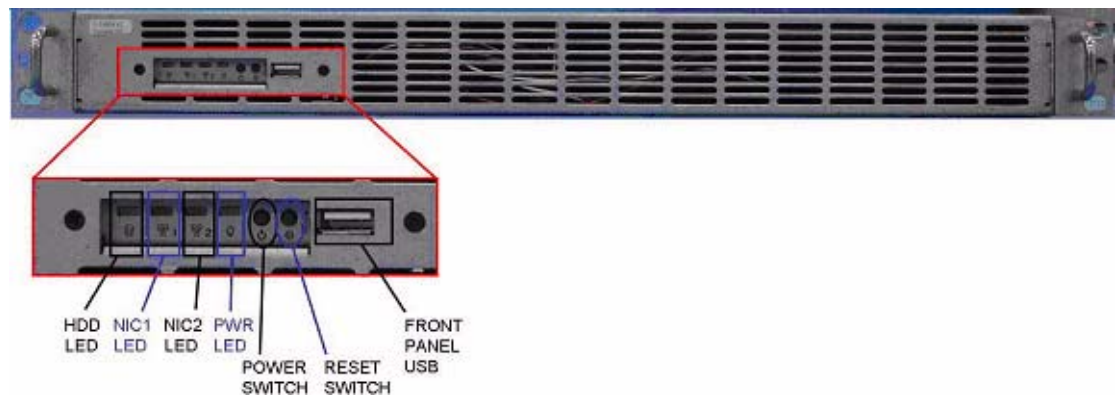
- 8.) After complete install 3 IG computers, please install the two metal plates to cover the blank slots at front of console.

## Section 5.0 Console Power on and verification

### 5.1 Power on Console

**NOTICE:** The Operating software and application software has been loaded on Host Computer and DARC Computer by manufacturer.

- 1.) Power ON the Operator Console at the front switch.
- 2.) At the Host Computer verify the front panel Power (PWR) LED is on. If not press the front panel power switch to apply power to the Host computer.
- 3.) At the DARC Computer verify the front panel Power (PWR) LED is on. If not press the front panel power switch (hold 3-10 seconds) to apply power to the DARC computer.
- 4.) At each IG Node, verify the front panel Power (PWR) LED is on. If not press the front panel power switch (hold 3-10 seconds) to apply power to each IG Node. Please refer to [Figure 2-5](#)



**Figure 2-5 Jarrell IG Computer**

- 5.) Stop Applications from auto-starting at the 5 second PINK Box.

### 5.2 DARC Computer verification

- 1.) At the Toolchest, with Application software down, open a Unix Shell.
- 2.) Ping the DARC Computer:  

```
{ctuser@hostname} ping darc
```

Verify ping is successful.  
Press <Ctrl+C> to stop ping process.  
Output similar to the following will appear:  

```
--- darc ping statistics ---  
4 packets transmitted, 4 received, 0% loss, time 3000ms  
rtt min/avg/max/mdev = 0.134/0.168/0.209/0.031 ms
```
- 3.) Remote Shell to the DARC Computer:  

```
{ctuser@hostname} rsh darc
```

Last login: Thu Oct 9 11:17:35 on ttyS1  

```
{ctuser@darc}
```

Verify `ctuser@darc` prompt is present.
- 4.) Verify the DARC Computer DAS Interface Processor Board (DIP) Diagnostics pass.

```
{ctuser@darc} DipDiag -x 1,2,3,4,5,6
```

**NOTICE:** Because tests 7 and 8 require the installation of a loopback cable, they are not being performed.

- 5.) Verify the scan data disks in DARC Computer:  
.  
{ctuser@darc} sudo gre-raid -z -c  
Verify the create partitions diagnostic passes and all output looks good.  
{ctuser@darc} sudo gre-raid -a  
Verify assemble diagnostic passes and all output looks good.  
{ctuser@darc} sudo gre-raid -q  
Verify query diagnostic passes and all output looks good.

### 5.3 IG Computers verification

- 1.) Open a Unix Shell  
{ctuser@hostname} rsh darc
- 2.) Ping IG Node #1:  
{ctuser@darc} ping ig1  
Verify ping is successful.  
Press <Ctrl+C> to stop ping process.
- 3.) Remote Shell to the IG Node #1:  
{ctuser@darc} rsh ig1  
Verify ctuser@ig1 prompt is present.
- 4.) Exit from the IG Node # 1 Remote Shell:  
{ctuser@ig1} exit
- 5.) Ping IG Node #2:  
{ctuser@darc} ping ig2  
Verify ping is successful.  
Press <Ctrl+C> to stop ping process.
- 6.) Remote Shell to the IG Node #2:  
{ctuser@darc} rsh ig2  
Verify ctuser@ig2 prompt is present.
- 7.) Exit from the IG Node # 2 Remote Shell:  
{ctuser@ig2} exit
- 8.) Ping IG Node # 3:  
{ctuser@darc} ping ig3  
Verify ping is successful.  
Press <Ctrl+C> to stop ping process.
- 9.) Remote Shell to the IG Node # 3:  
{ctuser@darc} rsh ig3  
Verify ctuser@ig3 prompt is present.
- 10.) Exit from the IG Node # 3 Remote Shell:  
{ctuser@ig3} exit
- 11.) Exit from the DARC Node Remote Shell:

```
{ctuser@darco} exit  
{ctuser@hostname}
```

12.) The IG Computer(s) RAC (Recon Accelerator Card) will be tested In the following test.

```
{ctuser@hostname} racdiags
```

**NOTICE:** The command `racdiags` will test up to three (3) IG Node RAC's.

13.) Verify rac diagnostic passes for each IG Node configured in the Operator Console.

**NOTICE:** The Unix Shell will be used again, so do not exit or close at this time.

## Section 6.0 Check the hardware setting in reconfig

```
ctuser@hostname: su -  
Password: #bigguy  
{root@hostname} reconfig
```

Click on the "Hardware", check the setting of console and IG.

DAS type: GDAS16

Console type: GOC3 or GOC4

IG # : 3

If no error found, click "accept" to exit reconfig GUI.

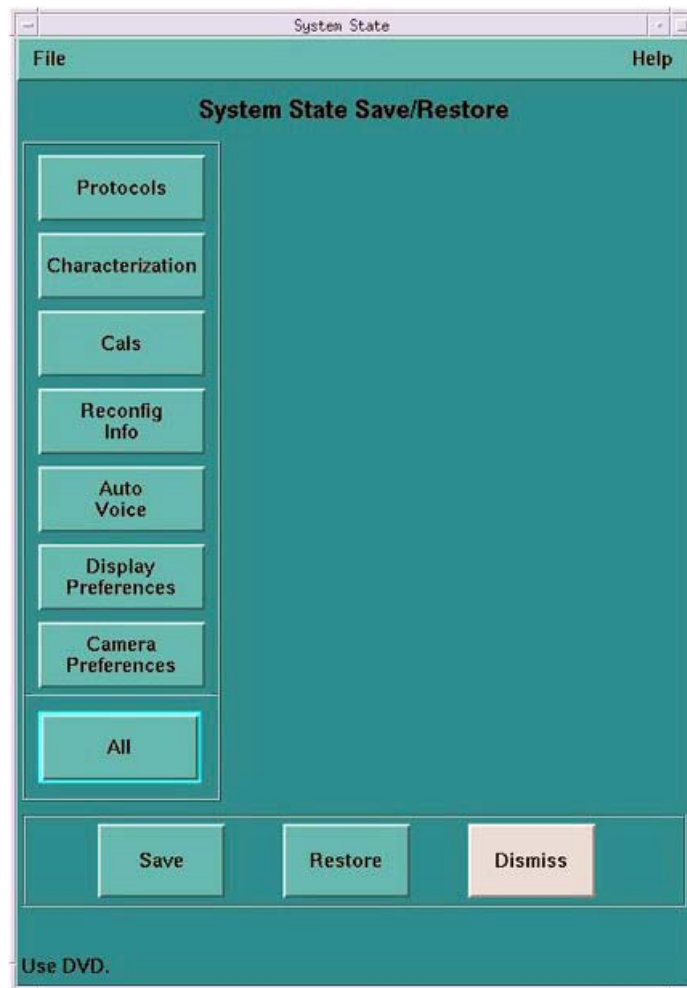
**NOTICE:** The console hardware configuration was setup in manufacture.

## Section 7.0 Restore system state

Restore the system state with the system state DVD-RAM shipped with system.

**NOTICE:** Do not restore the reconfig information.

- 1.) Insert the System State DVD-RAM into the SCSI Tower DVD RAM drive.
- 2.) Wait until the DVD drive is ready (i.e., until the front panel green LED is no longer lit).
- 3.) Select: Service icon to access the CSD (Common Service Desktop).
- 4.) Select: [Utilities].
- 5.) Select: [System State]



**Figure 2-6 System State GUI**

- 6.) Select all the tabs except "Reconfig info".
- 7.) Select [Restore]
- 8.) If applicable, select [Yes] when the following message appears: System State Media Status: Please insert a DVD into the drive and press Save again.



Figure 2-7 Save System State Ready

9.) When completed, select [CANCEL]

**NOTICE:** Do NOT select [DISMISS] more than once. Doing so will result in the GUI becoming hung, and the System State will be unusable. Should this occur, Re-Save the System State again.

10.) When completed, select [Dismiss]

11.) Close the *Service Desktop* window at the upper left corner of the screen.

## Section 8.0 Install Software Options

**NOTICE:** For Perfusion and Denta Scan:

If you loaded software in a language other than English, Please reconfig, changing the language to English, to load these two options.

Otherwise, the LFC procedure may failed.

**NOTICE:** Option must be loaded before Protocols.

1.) Insert the Options DVD in the SCSI Tower DVD-RAM drive.

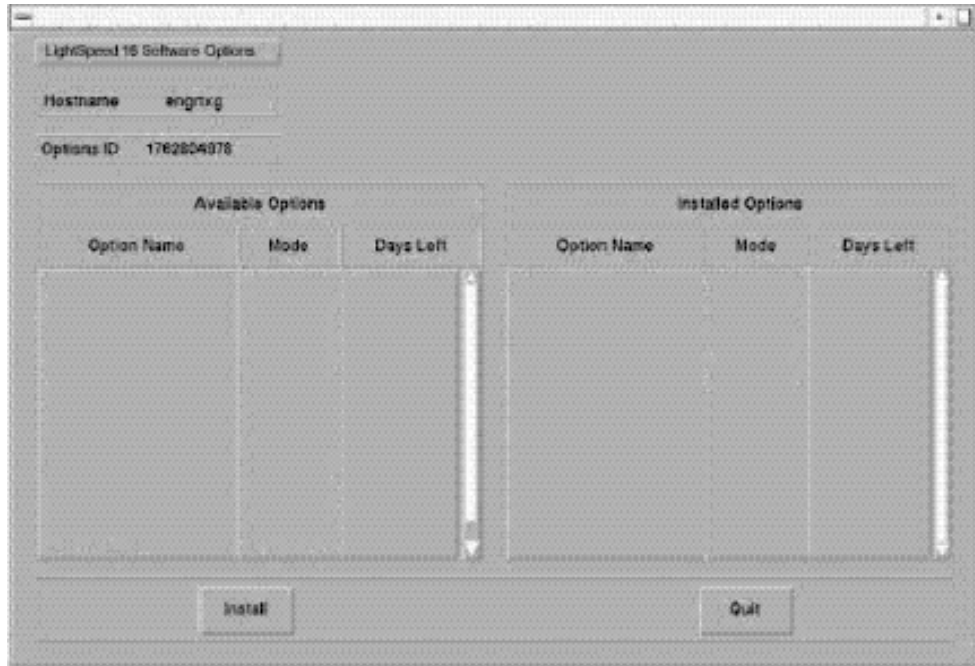
**Note:** *(For GE Healthcare Employees Only)* If you do not have the Option DVD, then you can use the eLicence feature. Follow this link to the eLicence Page.

<http://elicense.gehealthcare.com>

2.) With the Application up, select the [SERVICE DESKTOP].

3.) Select [CONFIGURATION].

4.) Select [INSTALL OPTIONS], A blank software options screen appears:



- 5.) Select [INSTALL] . A Select Mechanism window opens (see below illustration). Select the mechanism through which you want to install Option Keys.

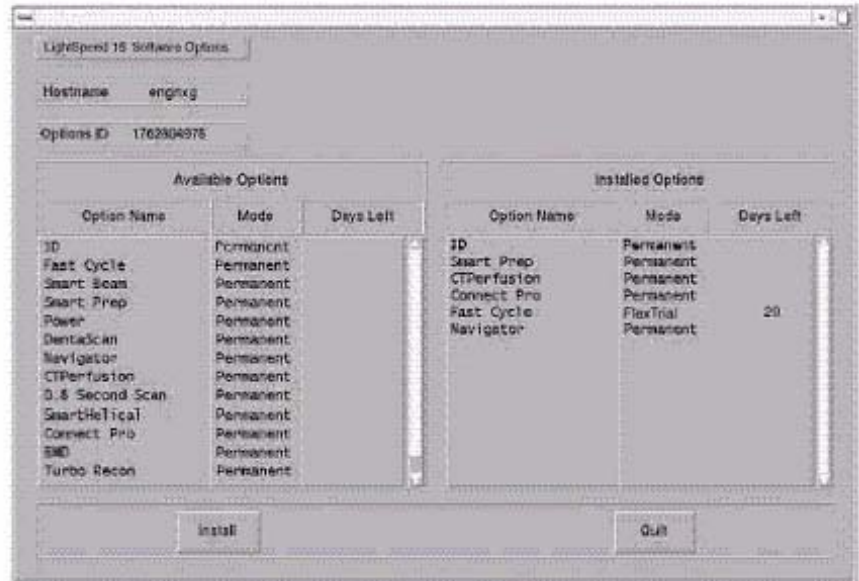


- 6.) Select [Permanent]. A Select Device window opens (see below illustration). Select the mechanism through which you want to install the Permanent Option Keys.



- 7.) Select the [MEDIA] button and insert the Options DVD or MOD.
- 8.) Select [OK] . Available options appear on the Software Options screen.

Example:  
Options screen  
with Permanent  
& FlexTrial  
options.



- 9.) Select either the DMPR (Direct Multi Planar Reformat) or Variviewer Option installations, if applicable, per Note:

**Note:** **IMPORTANT!**

**DMPR and Variviewer are mutually exclusive options with 05MW14.5 or later software. If you have DMPR (the full option), software will not allow you to install Variviewer, and vice-versa. For example, do not install Variviewer, if you plan to load DMPR.**

- 10.) Perform the following Option installations, if applicable:

**Note:** **The order of installation is critical.**

- A.) VolumeViewer
- B.) CardIQ2

- C.) CardEP
- D.) Conect pro (enable pps)
- E.) Exam Split (VES)
- 11.) Pick remaining options one at a time from the Available Options list and select [INSTALL] to update each selection and place it on the Installed Options List.
- 12.) When the process is complete, select [Quit] then [Quit] to close the window.

**Note:** After Select [Quit] , please wait for 5 minutes before perform any other operation.

## Section 9.0 Load Other Service Software

*(For GE Healthcare Employees or Licensed Customers Only)* If applicable, load Class C Service Software now.

*(For GE Healthcare Employees Only)* If applicable, load Class M Service Software now.

### 9.1 Load Class C

- 1.) Open a Unix Shell.
- 2.) Type: `su -`  
Password: `#bigguy<Enter>`
- 3.) Insert the Class C software CD-ROM into the HP Host CD drive. Wait for the disk read to STOP.
- 4.) Install the Class C software on the system:  
At the superuser prompt, type: `install.classC`  
When the installation process is complete, the Console reports the following:  
`Finished loadingSystem TypeClass C software`
- 5.) Verify that the Class C software is on the system:  
At the superuser prompt, type: `showprods | grep -i classc`  
Verify that the window displays a list of CLASS C file information and locations.

### 9.2 Load Class M

- 1.) Open a Unix Shell.
- 2.) Type: `su -`  
Password: `#bigguy<Enter>`
- 3.) Insert the Class M software CD-ROM into the HP Host CD drive. Wait for the disk read to STOP.
- 4.) Install the Class M software on the system:  
At the superuser prompt, type: `install.classM`  
When the installation process is complete, the Console reports the following:  
`Finished loadingSystem TypeClass M software`
- 5.) Verify that the Class M software is on the system:  
At the superuser prompt, type: `showprods | grep -i classm`  
Verify that the window displays a list of CLASS M file information and locations.

## Section 10.0 Retro Recon Test

The Reconstruction (not Scan) portion of the system can be tested at this point.

- 1.) Start up application  
{ctuser@hostname} st
- 2.) Verify the FSA Box is Idle (not Paused). If paused, click on Recon Management and Restart the Queue.
- 3.) Select [RETRO RECON] on the left Monitor.
- 4.) Select [RAT GOLD] series.
- 5.) Select [SELECT SERIES] .
- 6.) Select [CONFIRM].
- 7.) Verify the image(s) reconstruct and are displayed.
- 8.) Select [QUIT] .

## Section 11.0 Verify Recon Data Path Diagnostic

- 1.) Select the *Service* Icon.
- 2.) Select [DIAGNOSTICS]
- 3.) Select [Recon Data Path]
- 4.) Select [1] and [ALL]
- 5.) Select [RUN]
- 6.) Verify Recon Data Path tests pass.
- 7.) Select [Dismiss]

## Section 12.0 Re-save Reconfig Info File on System State

Save system state with a new DVD-RAM shipped with 16 FPS option. Label the DVD-RAM with "System State – 16 FPS configuration".

- 1.) Insert the System State DVD-RAM into the SCSI Tower DVD RAM drive.
- 2.) Wait until the DVD drive is ready (i.e., until the front panel green LED is no longer lit)
- 3.) Select: *Service icon* to access the CSD (Common Service Desktop)
- 4.) Select: [Utilities]

5.) Select: [System State]

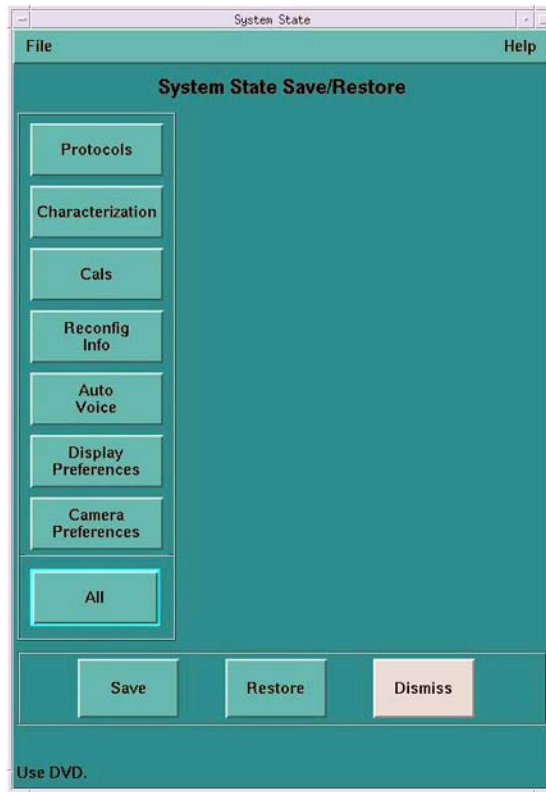


Figure 2-8 System State GUI

- 6.) Select [All]
- 7.) Select [Save]
- 8.) If applicable, select [Yes] when the following message appears: System State Media Status: Please insert a DVD into the drive and press Save again.



Figure 2-9 Save System State Ready

- 9.) When completed, select [CANCEL]

**NOTICE:** Do NOT select [DISMISS] more than once. Doing so will result in the GUI becoming hung, and the System State will be unusable. Should this occur, Re-Save the System State again.

- 10.) When completed, select [Dismiss]
- 11.) Close the *Service Desktop* window at the upper left corner of the screen
- 12.) Install software options

## Section 13.0 Finalization

- 1.) Perform sanity scans (e.g., scout, axial and helical)

**NOTICE:** If the System will not scan or reconstruct verify the memory on the DARC2 Node is correct (Ihinv). Verify the DIP diagnostics pass Verify the RAC diagnostics pass.

- 2.) Verify the image(s) reconstruct and are displayed.
- 3.) Install the front and rear Operator Console covers.



# Chapter 3

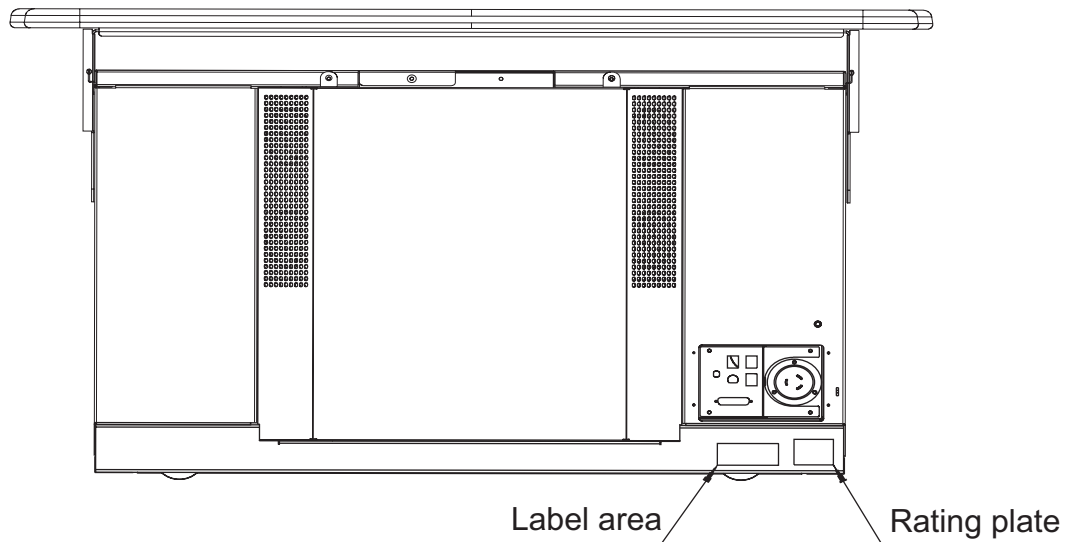
## Final Check

### Section 1.0

#### Attaching The Rating Plate

Attach the provided rating plate to the following location (in the label area left to the rating plate of the OC).

OC Rear Side







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