

Z800 to Z840 Host Computer Upgrade Instruction

Service Documentation

OPERATING DOCUMENTATION



5767651-1EN

Rev 2

© 2017 GE Company. All rights reserved.

LEGAL NOTES

TRADEMARKS

Adobe, the Adobe logo, Acrobat, the Acrobat logo, Exchange, and PostScript are trademarks of Adobe Systems Incorporated or its subsidiaries and may be registered in certain jurisdictions.

Microsoft is a registered trademark and Windows is a trademark of Microsoft Corporation.

All other products and their name brands are trademarks of their respective holders.

COPYRIGHTS

All Material Copyrighted (c) 2017 by the GE Company, All rights reserved.

This Page Intentionally Blank.

IMPORTANT PRECAUTIONS

LANGUAGE

<p>ПРЕДУПРЕЖДЕНИЕ (BG)</p>	<ul style="list-style-type: none"> • ТОВА УПЪТВАНЕ ЗА РАБОТА Е НАЛИЧНО САМО НА АНГЛИЙСКИ ЕЗИК. • АКО ДОСТАВЧИКЪТ НА УСЛУГАТА НА КЛИЕНТА ИЗИСКА ЕЗИК, РАЗЛИЧЕН ОТ АНГЛИЙСКИ, ЗАДЪЛЖЕНИЕ НА КЛИЕНТА Е ДА ОСИГУРИ ПРЕВОД. • НЕ ИЗПОЛЗВАЙТЕ ОБОРУДВАНЕТО ПРЕДИ ДА СТЕ СЕ КОНСУЛТИРАЛИ И РАЗБРАЛИ УПЪТВАНЕТО ЗА РАБОТА. • 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.
<p>警告 (ZH-CN)</p>	<ul style="list-style-type: none"> • 本维修手册仅提供英文版本。 • 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。 • 未详细阅读和完全理解本维修手册之前，不得进行维修。 • 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。
<p>VÝSTRAHA (CS)</p>	<ul style="list-style-type: none"> • Tento provozní návod existuje pouze v anglickém jazyce. • V případě, že externí služba zákazníkům potřebuje návod v jiném jazyce, je zajištění překladu do odpovídajícího jazyka úkolem zákazníka. • Nesnažte se o údržbu tohoto zařízení, aniž byste si přečetli tento provozní návod a pochopili jeho obsah. • 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.
<p>ADVARSEL (DA)</p>	<ul style="list-style-type: none"> • Denne servicemanual findes kun på engelsk. • Hvis en kundes tekniker har brug for et andet sprog end engelsk, er det kundens ansvar at sørge for oversættelse. • Forsøg ikke at servicere udstyret medmindre denne servicemanual har været konsulteret og er forstået. • Manglende overholdelse af denne advarsel kan medføre skade på grund af elektrisk, mekanisk eller anden fare for teknikeren, operatøren eller patienten.
<p>WAARSCHUWING (NL)</p>	<ul style="list-style-type: none"> • Deze onderhoudshandleiding is enkel in het Engels verkrijgbaar. • Als het onderhoudspersoneel een andere taal vereist, dan is de klant verantwoordelijk voor de vertaling ervan. • Probeer de apparatuur niet te onderhouden voordat deze onderhoudshandleiding werd geraadpleegd en begrepen is. • 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.

<p>WARNING (EN)</p>	<ul style="list-style-type: none"> • This Service Manual is available in English only. • If a customer's service provider requires a language other than English, it is the customer's responsibility to provide translation services. • Do not attempt to service the equipment unless this service manual has been consulted and is understood. • 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.
<p>HOIATUS (ET)</p>	<ul style="list-style-type: none"> • Käesolev teenindusjuhend on saadaval ainult inglise keeles. • Kui klienditeeninduse osutaja nõuab juhendit inglise keelest erinevas keeles, vastutab klient tõlketeenuse osutamise eest. • Ärge üritage seadmeid teenindada enne eelnevalt käesoleva teenindusjuhendiga tutvumist ja sellest aru saamist. • Käesoleva hoiatuse eiramine võib põhjustada teenuseosutaja, operaatori või patsiendi vigastamist elektrilöögi, mehaanilise või muu ohu tagajärjel.
<p>VAROITUS (FI)</p>	<ul style="list-style-type: none"> • Tämä huolto-ohje on saatavilla vain englanniksi. • Jos asiakkaan huoltohenkilöstö vaatii muuta kuin englanninkielistä materiaalia, tarvittavan käännöksen hankkiminen on asiakkaan vastuulla. • Älä yritä korjata laitteistoa ennen kuin olet varmasti lukenut ja ymmärtänyt tämän huolto-ohjeen. • Mikäli tätä varoitusta ei noudateta, seurauksena voi olla huoltohenkilöstön, laitteiston käyttäjän tai potilaan vahingoittuminen sähköiskun, mekaanisen vian tai muun vaaratilanteen vuoksi.
<p>ATTENTION (FR)</p>	<ul style="list-style-type: none"> • Ce manuel de service n'est disponible qu'en anglais. • 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. • Ne pas tenter d'intervenir sur les équipements tant que le manuel service n'a pas été consulté et compris • 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.
<p>WARNUNG (DE)</p>	<ul style="list-style-type: none"> • Diese Serviceanleitung existiert nur in Englischer Sprache. • Falls ein fremder Kundendienst eine andere Sprache benötigt, ist es aufgabe des Kunden für eine Entsprechende Übersetzung zu sorgen. • Versuchen Sie nicht diese Anlage zu warten, ohne diese Serviceanleitung gelesen und verstanden zu haben. • Wird diese Warnung nicht beachtet, so kann es zu Verletzungen des Kundendiensttechnikers, des Bedieners oder des Patienten durch Stromschläge, Mechanische oder Sonstige gefahren kommen.
<p>ΠΡΟΕΙΔΟΠΟΙΗΣΗ (EL)</p>	<ul style="list-style-type: none"> • Το παρόν εγχειρίδιο σέρβις διατίθεται στα αγγλικά μόνο. • Εάν το άτομο παροχής σέρβις ενός πελάτη απαιτεί το παρόν εγχειρίδιο σε γλώσσα εκτός των αγγλικών, αποτελεί ευθύνη του πελάτη να παρέχει υπηρεσίες μετάφρασης. • Μην επιχειρήσετε την εκτέλεση εργασιών σέρβις στον εξοπλισμό εκτός εάν έχετε συμβουλευτεί και έχετε κατανοήσει το παρόν εγχειρίδιο σέρβις. • 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.

<p>FIGYELMEZTETÉS (HU)</p>	<ul style="list-style-type: none"> • Ezen karbantartási kézikönyv kizárólag angol nyelven érhető el. • Ha a vevő szolgáltatója angoltól eltérő nyelvre tart igényt, akkor a vevő felelőssége a fordítás elkészítése. • Ne próbálja elkezdni használni a berendezést, amíg a karbantartási kézikönyvben leírtakat nem értelmezték. • Ezen figyelmeztetés figyelmen kívül hagyása a szolgáltató, működtető vagy a beteg áramütés, mechanikai vagy egyéb veszélyhelyzet miatti sérülését eredményezheti.
<p>AÐVÖRUN (IS)</p>	<ul style="list-style-type: none"> • Þessi þjónustuhandbók er eingöngu fánleg á ensku. • Ef að þjónustuveitandi viðskiptamanns þarfnast annas tungumáls en ensku, er það skylda viðskiptamanns að skaffa tungumálaþjónustu. • Reynið ekki að afgreiða tækið nema að þessi þjónustuhandbók hefur verið skoðuð og skilin. • Brot á sinna þessari aðvörun getur leitt til meiðsla á þjónustuveitanda, stjórnanda eða sjúklings frá raflosti, vélrænu eða öðrum áhættum.
<p>AVVERTENZA (IT)</p>	<ul style="list-style-type: none"> • Il presente manuale di manutenzione è disponibile soltanto in inglese. • Se un addetto alla manutenzione richiede il manuale in una lingua diversa, il cliente è tenuto a provvedere direttamente alla traduzione. • Si proceda alla manutenzione dell'apparecchiatura solo dopo aver consultato il presente manuale ed averne compreso il contenuto. • 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.
<p>警告 (JA)</p>	<ul style="list-style-type: none"> • このサービスマニュアルには英語版しかありません。 • 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。 • 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。 • 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。
<p>경고 (KO)</p>	<ul style="list-style-type: none"> • 본 서비스 지침서는 영어로만 이용하실 수 있습니다. • 고객의 서비스 제공자가 영어 이외의 언어를 요구할 경우, 번역 서비스를 제공하는 것은 고객의 책임입니다. • 본 서비스 지침서를 참고했고 이해하지 않는 한은 해당 장비를 수리하려고 시도하지 마십시오. • 이 경고에 유의하지 않으면 전기 쇼크, 기계상의 혹은 다른 위험으로부터 서비스 제공자, 운영자 혹은 환자에게 위해를 가할 수 있습니다.
<p>BRDINJUMS (LV)</p>	<ul style="list-style-type: none"> • Ģī apkalpes rokasgrāmata ir pieejama tikai angļu valodā. • Ja klienta apkalpes sniedzĶjam nepiecieĶama informācija citā valodā, nevis angļu, klienta pienākums ir nodrošināt tulkoĶanu. • Neveiciet aprīkojuma apkalpi bez apkalpes rokasgrāmatas izlasīšanas un saprašanas. • Ģī brīdinājuma neievērošana var radīt elektriskās strāvas trieciena, mehānisku vai citu risku izraisītu traumā apkalpes sniedzĶjam, operatoram vai pacientam.

<p>ÁSPĚJIMAS (LT)</p>	<ul style="list-style-type: none"> • Šis eksploataavimo vadovas yra prieinamas tik anglø kalba. • Jei kliento paslaugø tiekëjas reikalauja vadovo kita kalba – ne anglø, numatyti vertimo paslaugas yra kliento atsakomybë. • Nemëginkite atlikti árangos techninës prieþiûros, nebent atsipvelgëte á ðá eksploataavimo vadovà ir já supratote. • Jei neatkreipsite dëmesio á ðá perspëjimà, galimi supalojimai dël elektros ðoko, mechaniniø ar kitø pavojø paslaugø tiekëjui, operatoriui ar pacientui.
<p>ADVARSEL (NO)</p>	<ul style="list-style-type: none"> • Denne servicehåndboken finnes bare på engelsk. • Hvis kundens serviceleverandør trenger et annet språk, er det kundens ansvar å sørge for oversettelse. • Ikke forsøk å reparere utstyret uten at denne servicehåndboken er lest og forstått. • Manglende hensyn til denne advarselen kan føre til at serviceleverandøren, operatøren eller pasienten skades på grunn av elektrisk støt, mekaniske eller andre farer.
<p>OSTRZEŻENIE (PL)</p>	<ul style="list-style-type: none"> • Niniejszy podręcznik serwisowy dostępny jest jedynie w języku angielskim. • Jeśli dostawca usług klienta wymaga języka innego niż angielski, zapewnienie usługi tłumaczenia jest obowiązkiem klienta. • Nie próbować serwisować wyposażenia bez zapoznania się i zrozumienia niniejszego podręcznika serwisowego. • Niezastosowanie się do tego ostrzeżenia może spowodować urazy dostawcy usług, operatora lub pacjenta w wyniku porażenia elektrycznego, zagrożenia mechanicznego bądź innego.
<p>ATENÇÃO (PT)</p>	<ul style="list-style-type: none"> • Este manual de assistência técnica só se encontra disponível em inglês. • Se qualquer outro serviço de assistência técnica solicitar estes manuais noutra idioma, é da responsabilidade do cliente fornecer os serviços de tradução. • Não tente consertar o equipamento sem ter consultado e compreendido este manual de assistência técnica. • O não cumprimento deste aviso pode pôr em perigo a segurança do técnico, do operador ou do paciente devido a choques elétricos, mecânicos ou outros.
<p>ATENȚIE (RO)</p>	<ul style="list-style-type: none"> • Acest manual de service este disponibil numai în limba engleză. • Dacă un furnizor de servicii pentru clienți necesită o altă limbă decât cea engleză, este de datoria clientului să furnizeze o traducere. • Nu încercați să reparați echipamentul decât ulterior consultării și înțelegerii acestui manual de service. • Ignorarea acestui avertisment ar putea duce la rănirea depanatorului, operatorului sau pacientului în urma pericolelor de electrocutare, mecanice sau de altă natură.

<p>ОСТОРОЖНО! (RU)</p>	<ul style="list-style-type: none"> • Данное руководство по обслуживанию предлагается только на английском языке. • Если сервисному персоналу клиента необходимо руководство не на английском, а на каком-то другом языке, клиенту следует самостоятельно обеспечить перевод. • Перед обслуживанием оборудования обязательно обратитесь к данному руководству и поймите изложенные в нем сведения. • Несоблюдение требований данного предупреждения может привести к тому, что специалист по обслуживанию, оператор или пациент получат удар электрическим током, механическую травму или другое повреждение.
<p>UPOZORNENIE (SK)</p>	<ul style="list-style-type: none"> • Tento návod na obsluhu je k dispozícii len v angličtine. • Ak zákazníkovi poskytovateľ služieb vyžaduje iný jazyk ako angličtinu, poskytnutie prekladateľských služieb je zodpovednosťou zákazníka. • Nepokúšajte sa o obsluhu zariadenia skôr, ako si neprečítate návod na obsluhu a neporozumiete mu. • Zanedbanie tohto upozornenia môže vyústiť do zranenia poskytovateľa služieb, obsluhujúcej osoby alebo pacienta elektrickým prúdom, do mechanického alebo iného nebezpečenstva.
<p>ATENCIÓN (ES)</p>	<ul style="list-style-type: none"> • Este manual de servicio sólo existe en inglés. • 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. • No se deberá dar servicio técnico al equipo, sin haber consultado y comprendido este manual de servicio. • 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.
<p>VARNING (SV)</p>	<ul style="list-style-type: none"> • Den här servicehandboken finns bara tillgänglig på engelska. • Om en kunds servicetekniker har behov av ett annat språk än engelska ansvarar kunden för att tillhandahålla översättningstjänster. • Försök inte utföra service på utrustningen om du inte har läst och förstår den här servicehandboken. • 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.
<p>DIKKAT (TR)</p>	<ul style="list-style-type: none"> • Bu servis kilavuzunun sadece ingilizcesi mevcuttur. • Eğer müşteri teknisyeni bu kilavuzu ingilizce dışında bir başka lisandan talep ederse, bunu tercüme ettirmek müşteriye düşer. • Servis kilavuzunu okuyup anlamadan ekipmanlara müdahale etmeyiniz. • Bu uyarıya uyulmaması, elektrik, mekanik veya diğer tehlikelerden dolayı teknisyen, operatör veya hastanın yaralanmasına yol açabilir.

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 GE 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://us44hdd21/sctq/InstallFulfill/InstalFulfillment.htm>
- Contact your local service coordinator for more information on this process.

Rev. Jan. 5, 2005

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 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 GE Company 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 GE Company, 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.

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 GE PQR Process to report all omissions, errors, and defects in this publication.

This Page Intentionally Blank.

Revision History

Revision	Date	Reason for change
1	03/01/17	Initial release.
2	03/22/17	Update Flowchart and add e-license website.

This Page Intentionally Blank.

Table of Contents

Preface

Publication Conventions 17

Section 1.0

Safety & Hazard Information 17

1.1 Text and Character Representation..... 17

1.2 Graphical Representation 18

Section 2.0

Publication Conventions 19

2.1 General Paragraph and Character Styles..... 19

2.2 Page Layout..... 19

2.3 Computer Screen Output/Input Text Character Styles 20

2.4 Buttons, Switches and Keyboard Inputs (Hard & Soft Keys)..... 20

Chapter 1

Introduction..... 21

Section 1.0

System Requirement..... 21

Section 2.0

Overview and Flowchart..... 21

Section 3.0:

Material List 23

3.1 B-Cat Inventory..... 23

Chapter 2

Upgrade Procedure 25

Section 1.0:

Preparative..... 25

Section 2.0:

System Config Checking 25

Section 3.0:

Save System State 25

Section 4.0:

Record System Information 30

4.1 Record PPS Server Information 30

4.2 Record All Remote Host Network Information 32

4.3 Record Product Network Filters (PNF) Information 34

4.4 Record AW IP for Direct Information 35

4.5 Record Option Information Licenses 36

Section 5.0:	
Host PC Z800 Removal and Z840 Installation 36	
5.1	Old Console (Z800) Removal..... 36
5.2	New Console (Z840) Installation 36
5.2.1	Unpack NIO16 Console with Z840 36
5.2.2	GPU Card Installation 39
5.2.3	Memory Installation 39
5.2.4	Console Cable Connections..... 40
5.2.5	Console Cover Installation 46
Section 6.0:	
Load From Cold Procedure 46	
6.1	LFC Procedure 46
6.2	Restore System State 50
6.3	Convert Protocol 51
6.4	Configure System Information on SUSE..... 52
Section 7.0:	
Finalization 55	
7.1	Flash Download 55
7.2	GPU Card Checking..... 57
7.3	System Checking 57
7.4	Save System State..... 57
7.5	Label Attaching 58
7.6	Old Console Disposal..... 58

Preface

Publication Conventions

Purpose: Standardize conventions for representing information is a uniform way of communicating information to a reader in a consistent manner. Conventions are used so that the reader can easily recognize the actions or decisions that must be made. There are a number of character and paragraph styles used in this publication to accomplish this task. Please become familiar with them before proceeding forward.

Section 1.0

Safety & Hazard Information

1.1 Text and Character Representation

Within this publication, different paragraph and character styles have been used to indicate potential hazards. Paragraph prefixes, such as hazard, caution, danger and warning, are used to identify important safety information. Text (Hazard) styles are applied to the paragraph contents that is applicable to each specific safety statement. Words describe the type of potential hazard that may be encountered and are placed immediately before the paragraph it modifies. Safety information will normally include:

- Type of potential Hazard
- Nature of potential injury
- Causative condition
- How to avoid or correct the causative condition

EXAMPLES OF HAZARD STATEMENTS USED

It's important that you read and understand hazard statements, and not just ignore them.

 **DANGER
SEVERE
PERSONAL
INJURY**


DANGER IS USED WHEN A HAZARD EXISTS WHICH WILL CAUSE SEVERE PERSONAL INJURY OR DEATH IF INSTRUCTIONS ARE IGNORED. THEY CAN INCLUDE:

- **ELECTROCUTION**
- **CRUSHING**
- **RADIATION**


 **WARNING
SERIOUS
PERSONAL
INJURY**

WARNING IS USED WHEN A HAZARD EXISTS WHICH COULD OR CAN CAUSE SERIOUS PERSONAL INJURY OR DEATH IF INSTRUCTIONS ARE IGNORED. THEY CAN INCLUDE:

- **POTENTIAL FOR SHOCK**
- **EXPOSED WIRES**
- **FAILURE TO TAG AND LOCKOUT SYSTEM POWER COULD ALLOW FOR UN-COMMANDED MOTION.**


 **CAUTION**
Minor Personal Injury
Caution is used when a hazard exists which can or could cause minor injury to self or others if instructions are ignored. They include for example:










- Loss of critical patient data
- Crush or pinch points
- Sharp objects

 **NOTICE**
Property Damage Only
Notice is used when a hazard is present that can cause property damage but has absolutely no personal injury risk. They can include:

- Disk drive will be destroyed
- Internal mechanical damage, such as to the x-ray tube
- Coasting the rotor through resonance.

1.2 Graphical Representation

Important information will always be preceded by the exclamation point  contained within a triangle, as seen throughout the Preface chapter. In addition to text, several different graphical icons (symbols) may be used to make you aware of specific types of hazards that could possibly cause harm.

<p>ELECTRICAL</p>  <p>LASER</p>  <p>LASER LIGHT</p>	<p>HAZARDS MECHANICAL</p>  <p>HEAT</p> 	<p>RADIATION</p>  <p>PINCH</p> 
<p>AVOID STATIC ELECTRICITY</p> 	<p>PROCEDURAL TAG AND LOCK OUT</p> 	<p>WEAR EYE PROTECTION</p>  <p>EYE PROTECTION</p>

Section 2.0 Publication Conventions

2.1 General Paragraph and Character Styles

Prefixes are used to highlight important non-safety related information. Paragraph prefixes (such as purpose, example, comment or note) are used to identify important but non-safety related information. Text styles are also applied to text within each paragraph modified by the specific prefix.

EXAMPLES OF PREFIXES USED FOR GENERAL INFORMATION

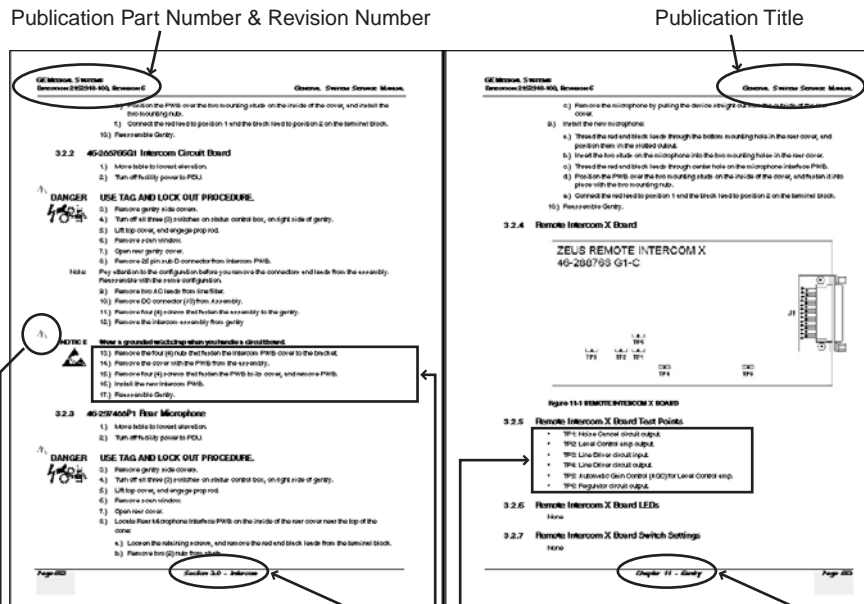
Purpose: Introduces and provides meaning as to the information contained within the chapter, section or subsection, Such as used at the beginning this chapter for example.

Note: Conveys information that should be considered important to the reader.

Example: Used to make the reader aware that the paragraph(s) that follow are examples of information possibly stated previously.

Comment: Represents "additional" information that may or may not be relevant to your situation.

2.2 Page Layout



The current section and its title are always shown in the footer of the left (even) page.

An exclamation point in a triangle is used to indicate important information to the user.

Paragraphs preceded by **Alphanumeric** characters (e.g. numbers) contain information that must be followed in a **specific order**.

The current chapter and its title are always shown in the footer of the right (odd) page.

Paragraphs preceded by a **symbol** (e.g. bullets) contain information that has **no specific order**.

Headers and footers in this publication are designed to allow you to quickly identify your location. The document's part number and revision number appears in every header on every page. Odd

numbered page footers indicate the current chapter, its title and current page number. Even page footers show the current section and its title, as well current page number.

2.3 Computer Screen Output/Input Text Character Styles

Within this publication, mono-spaced character styles (fonts) are used to indicate computer text that's either screen input and output. Mono spaced fonts, such as courier, are used to indicate text direction. When you type at your keyboard, you are generating computer input. Occasionally you will see the math operators "greater than" and "less than" symbols used to indicate the start and finish of variable output. When reading text generated by the computer, you are reading it as computer generated output. In addition to direction, characters are italicized (e.g. *italics*) to indicate information specific to your system or site.

Example:
Fixed Output

This paragraph's fonts represents computer generated screen "fixed" output. It's output is fixed from the sense that it does not vary from application to application. It's the most commonly used style used to indicate filenames, paths and text that does not change from system to system. The character style used is a fixed width such as courier.

Example:
Variable Output

This paragraph's font represents computer screen output that is "variable". Its used to represent output that varies from application to application or system to system. Variable output is sometimes found placed between greater than and lesser than operators for clarification. For example: <variable_ouput> or <3.45.120.3>. In both cases, the < and > operators are not part of the actual input.

Example:
Fixed Input

This paragraph's font represents fixed input. It's computer input that is typed-in via the keyboard. Typed input that does not vary from application to application or system to system. Fixed text the user is required to supply as input. For example: cd /usr/3p

Example:
Variable Input

This paragraph's font represents computer input that can vary from application to application or system to system. With variable text, the user is required to supply system dependent input or information. Variable input sometimes is placed between greater-than and less-than operators. For example: <variable_input>. In these cases, the (<>) operators would be dropped prior to input. For example: ypcat hosts | grep <3.45.120.3> would be typed into the computer as ypcat hosts | grep 3.45.120.3 without the greater-than and less-than operators.

2.4 Buttons, Switches and Keyboard Inputs (Hard & Soft Keys)

Different character styles are used to indicate actions requiring the reader to press either a hard or soft button, switch or key. Physical hardware, such as buttons and switches, are called hard keys because they are hard wired or mechanical in nature. A keyboard or on/off switch would be a hard key. Software or computer generated buttons are called soft keys because they are software generated. Software driven menu buttons are an example of such keys. Soft and hard keys are represented differently in this publication.

Example:
Hard Keys

A power switch **ON/OFF** or a keyboard key like **ENTER** is indicated by applying a character style that uses both over and under-lined bold text that is bold. This is a hard key.

Example:
Soft Keys

Whereas the computer MENU button that you would click with your mouse or touch with your hand uses over and under-lined regular text. This is a soft key.

END OF SECTION

Chapter 1

Introduction

Section 1.0

System Requirement

The **Upgrade Kit** is available for Discovery CT590 RT, Optima CT580 and Discovery RT with NIO16 Console Z800 Host Computer.

Section 2.0

Overview and Flowchart

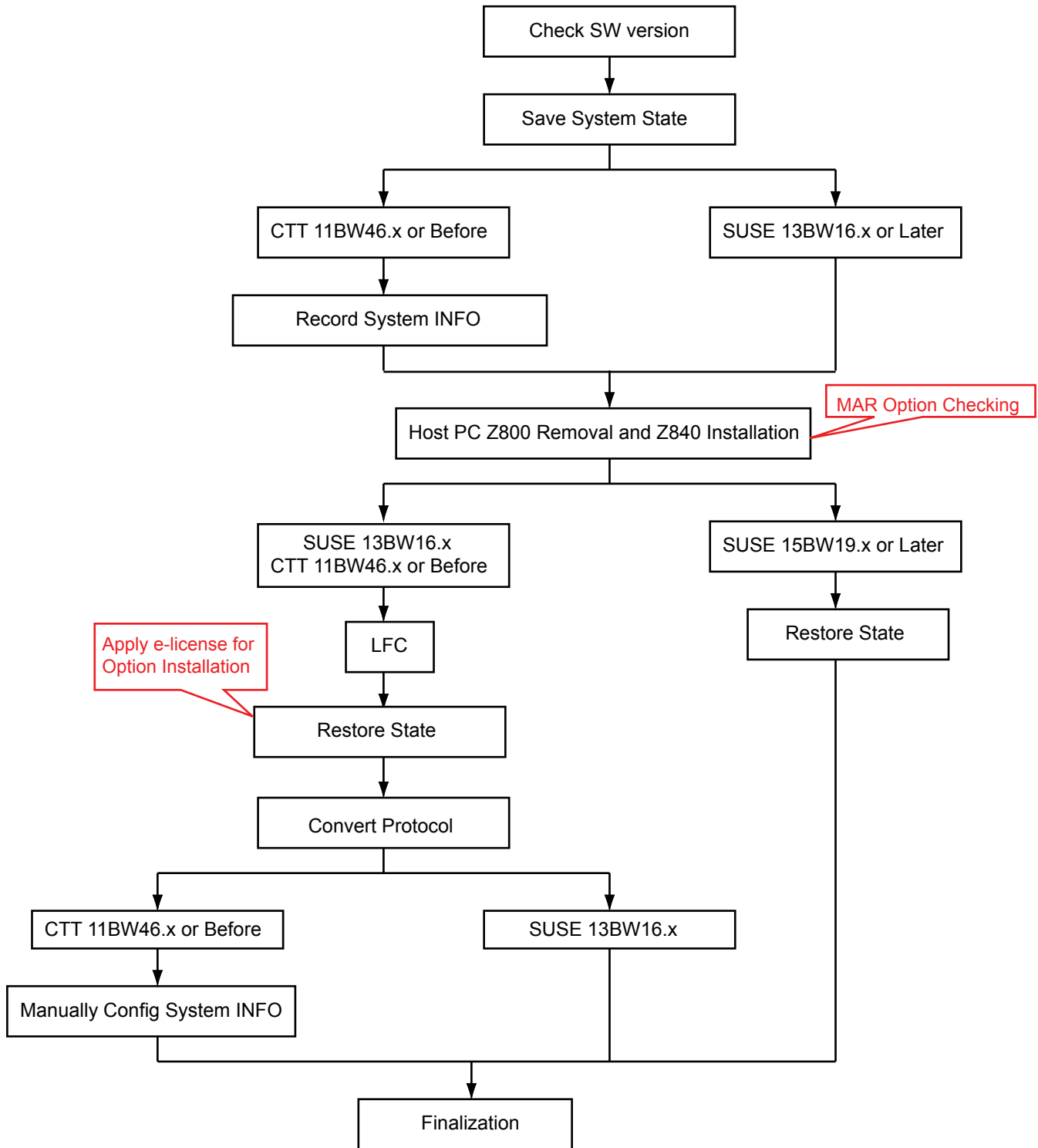
The upgrade instruction is to guide FE how to upgrade NIO16 Console Host Computer from Z800 to Z840.

If the site need to upgrade from CTT to SUSE, please manually record the following information due to this information is not carried forward by restoring system state.

- PPS Server Info
- All remote Host Network Information
- PNF Information
- AW IP for direct connect
- Option Information Licenses

The illustration below shows the main flow of the upgrade procedures.

Figure 1-1 Flowchart



Section 3.0: Material List

Verify that the contents of upgrade kit are correct according to the material list below.

3.1 B-Cat Inventory

Description	Number	
	ASiR	Non ASiR
Z840 Upgrade Kit for RT	B79612CB	
Standard NIO16 Collector		B70762RT
NIO16 ASiR Collector	B71752RT	

Table 1-1 B-Cat Inventory

Description	Number
TP/SW/Option Collector for RT	5767191
Z800 to Z840 Host Computer Upgrade Instruction	5767651-1EN
GPU Fluoro	5767192
	NVIDIA Quadro M5000 Graphics
	8770000-126
	Label
	5767682
	GPU Fluoro Installation Manual
	5344368-1EN
NIO16 OC Assembly with Z840	5411192-7
	NIO Console Assy without Cover for RT
	5411200-11
	Console Rating Plate
	5731873
	Label, Read Docs, Edition 3
	5442200-EN
	ETL Label
	5405500
	WEEE Label
	5139485

Table 1-2 Z840 Upgrade Kit for RT (B79612CB)

This Page Intentionally Blank.

Chapter 2

Upgrade Procedure

Section 1.0: Preparative

Refer to the latest service methods (5366639-8EN) to understand detailed hardware and software installation procedure.

Section 2.0: System Config Checking

- 1.) Enter the cursor in the monitor screen, then click on the right button of the mouse to select [UnixShellLeft] or [UnixShellRight] in Utilities window.
- 2.) Check system configuration:
{ctuser@hostname} **check_config**
- 3.) Record Product Name and Software Version.

Section 3.0: Save System State

Before proceeding with Save System State:

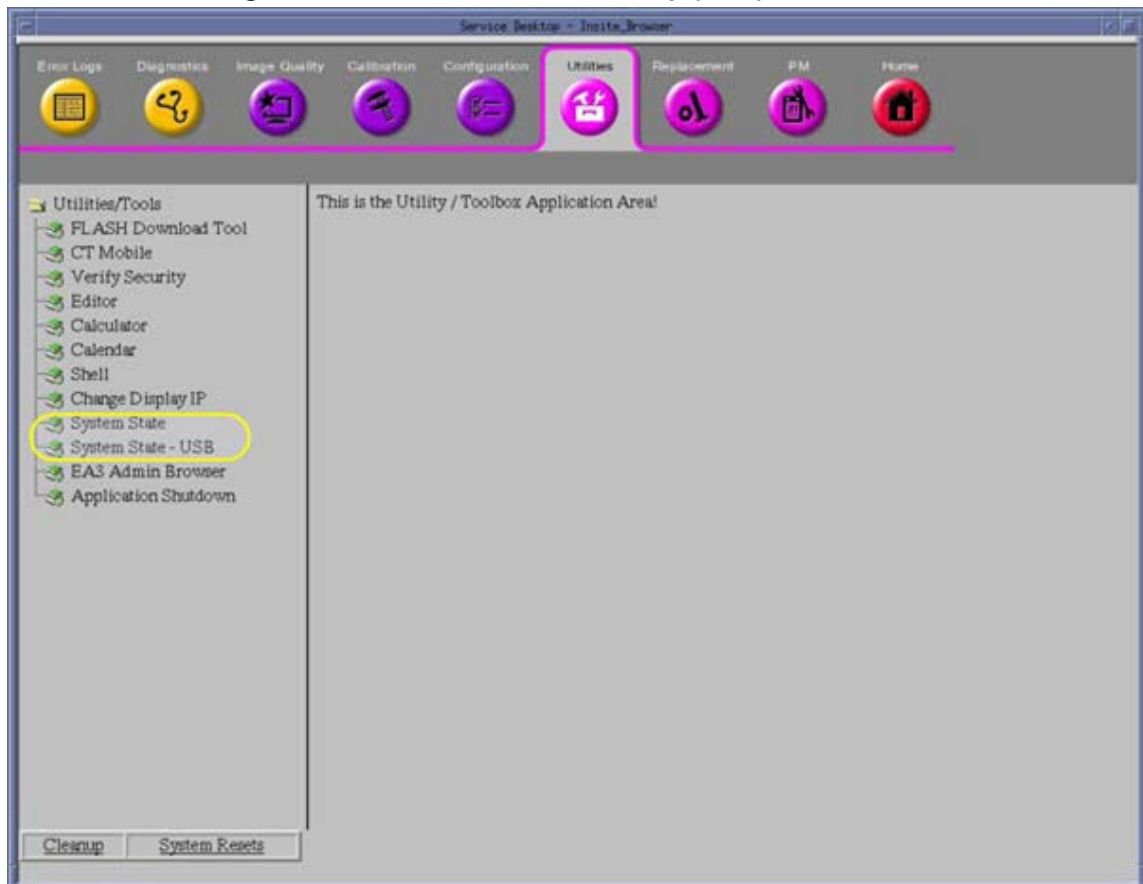
- Make sure to have formatted DVD-RAM disk. Make sure the DVD-RAM disk is not write-protected.

Or

- Have a FAT32 Formatted USB media (either Memory Stick or USB External Drive, minimum of 2 GB).
- 1.) Insert the System State DVD-RAM Media into the Peripheral Tower DVD-RAM Drive or USB Media in the console's USB ports.
 - 2.) Wait until the DVD-RAM Drive or USB Media is ready (i.e., front panel DVD-RAM Drive LED or USB Device Access LED is no longer flashing).
 - 3.) Select: [Service] icon to access the Common Service Desktop (CSD).
 - 4.) Click [OK] as required.

- 5.) Select: [Utilities] tab.

Figure 2-1 Common Service Desktop (CSD), Utilities Tab



- 6.) Select: [System State] for DVD-RAM Media or [System State - USB] for USB Media. The System State Save/Restore screen appears.

Figure 2-2 Save System State Window (DVD-RAM Media)

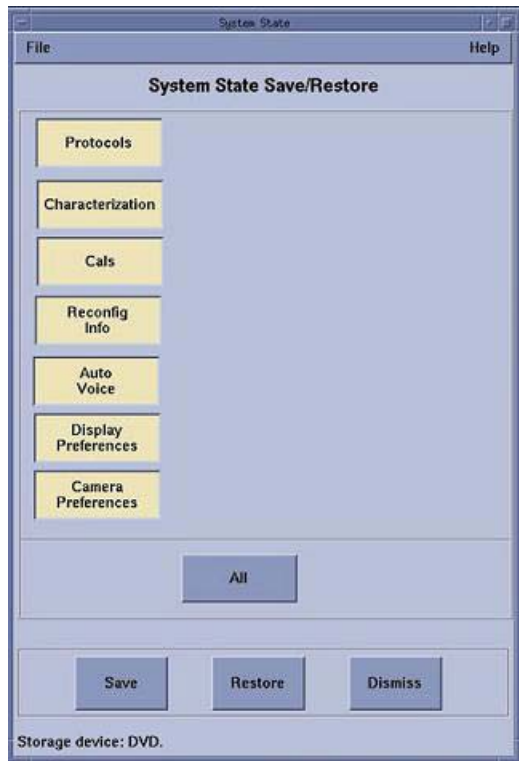
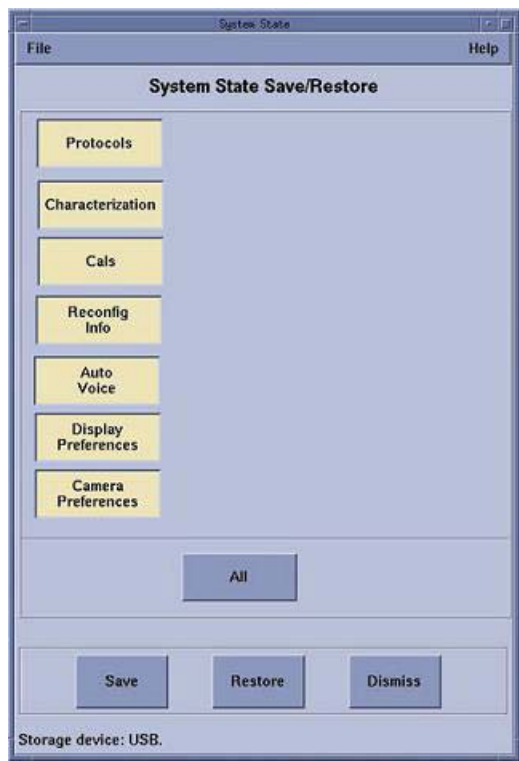


Figure 2-3 Save System State Window (USB Media)



- 7.) Select [All].
- 8.) Select [Save]. The System State Media Ready pop-up window appears.
- 9.) Select [Yes] in the System State Media Ready pop-up window.

Figure 2-4 System State DVD Media Ready Pop-up Window

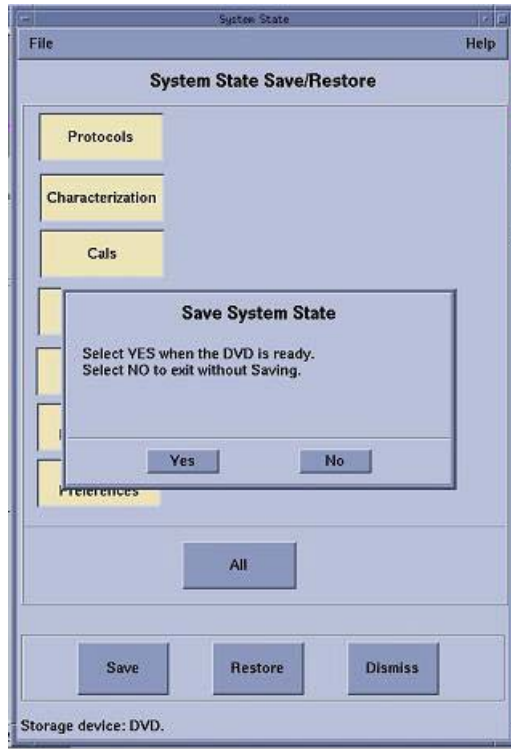
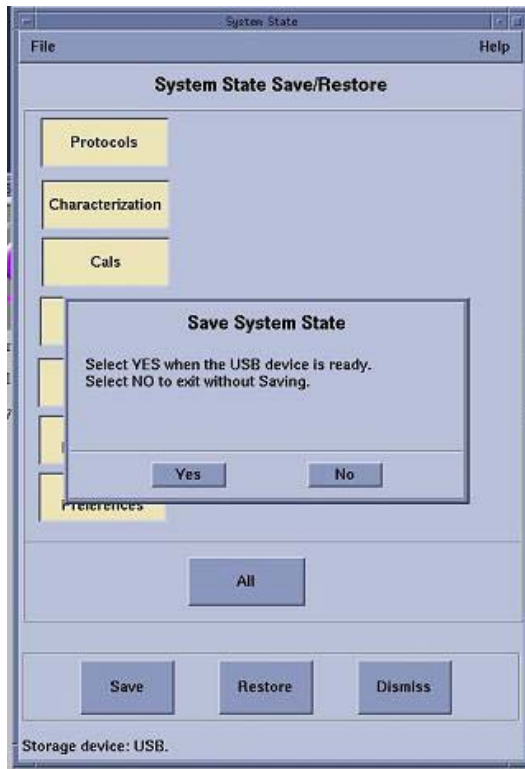


Figure 2-5 System State USB Media Ready Pop-up Window



- 10.) Verify that the "Save" of System State was successful. A message at the end of the System State Message Log Window should state: Save/Restore System State: Completed Successfully.

Figure 2-6 System State Message Log Window



- 11.) When completed, select [Cancel], then [Dismiss].
- 12.) Close the Common Service Desktop window at the upper left corner of the screen.
- 13.) Remove System State DVD-RAM disk from the DVD Peripheral Tower or USB Media from USB port. Label System State Backup Media appropriately and place in a safe location.

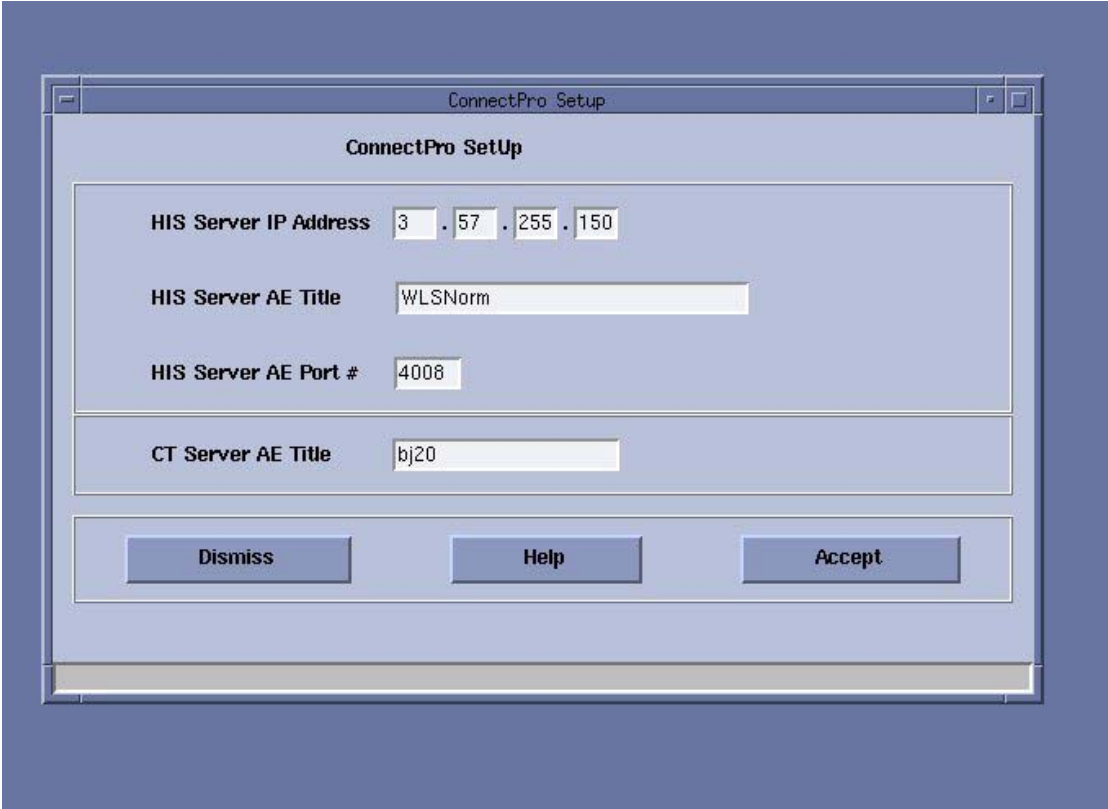
Section 4.0: Record System Information

- If the software version checked in [Section 2.0 : System Config Checking](#) is CTT 11BW46.x or before, go ahead the following steps.
- If the software version checked in [Section 2.0 : System Config Checking](#) is SUSE 13BW16.x or later, skip this section and go to the next section: [Section 5.0 : Host PC Z800 Removal and Z840 Installation](#).

4.1 Record PPS Server Information

- 1.) Open a Unix Shell:

```
{ctuser@hostname} installhisris
```
- 2.) Press <ENTER>, the following illustration appeared, record the data then press [Accept].

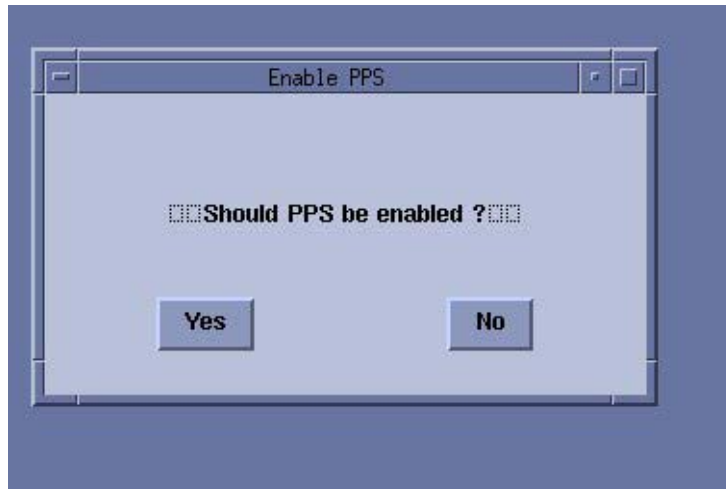


The screenshot shows a window titled "ConnectPro Setup" with the following fields and values:

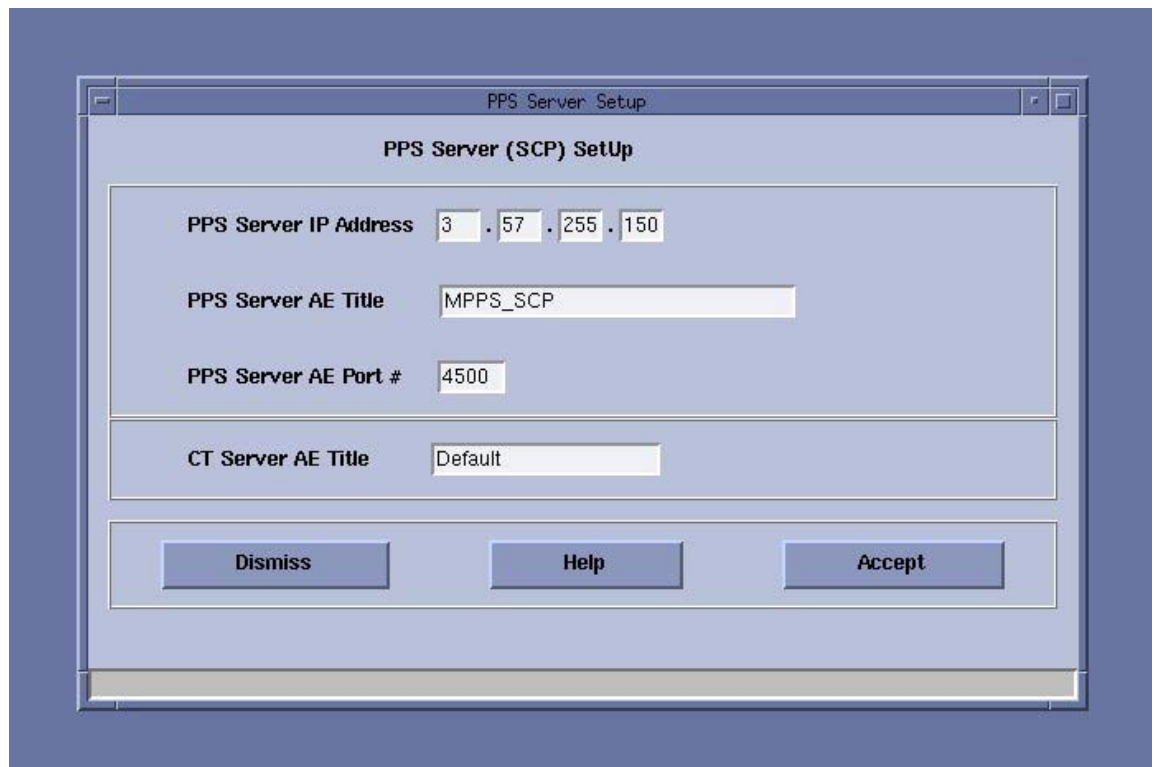
Field	Value
HIS Server IP Address	3 . 57 . 255 . 150
HIS Server AE Title	WLSNorm
HIS Server AE Port #	4008
CT Server AE Title	bj20

Buttons at the bottom: Dismiss, Help, Accept.

3.) Press [Yes].



4.) Record PPS data then press [Accept].

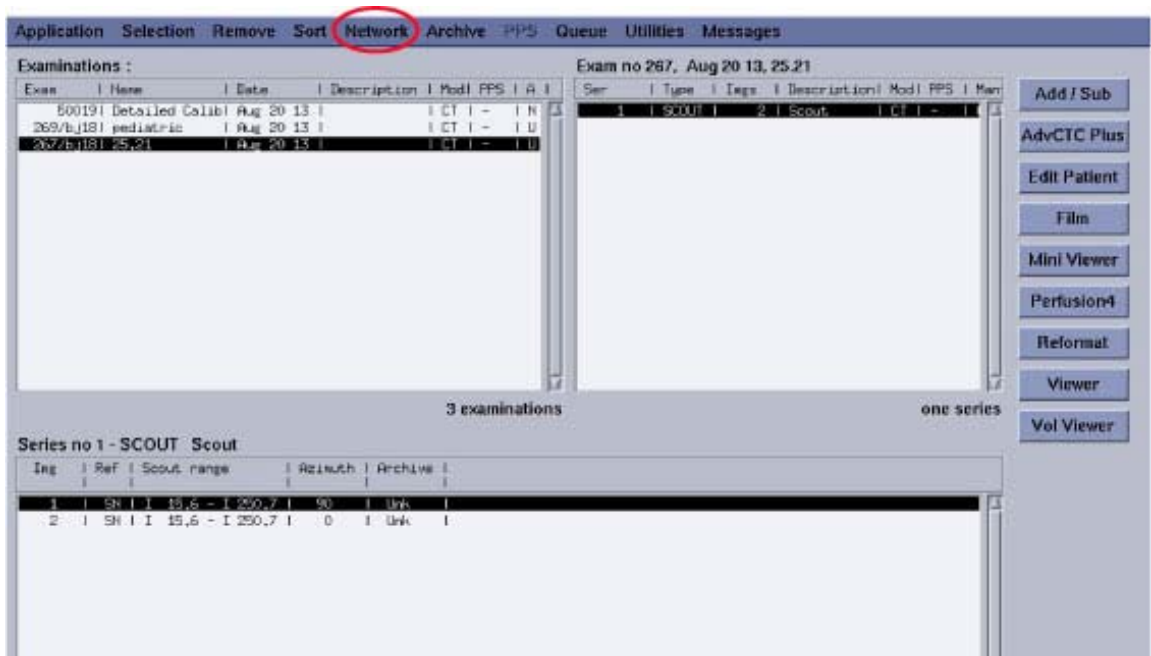


4.2 Record All Remote Host Network Information

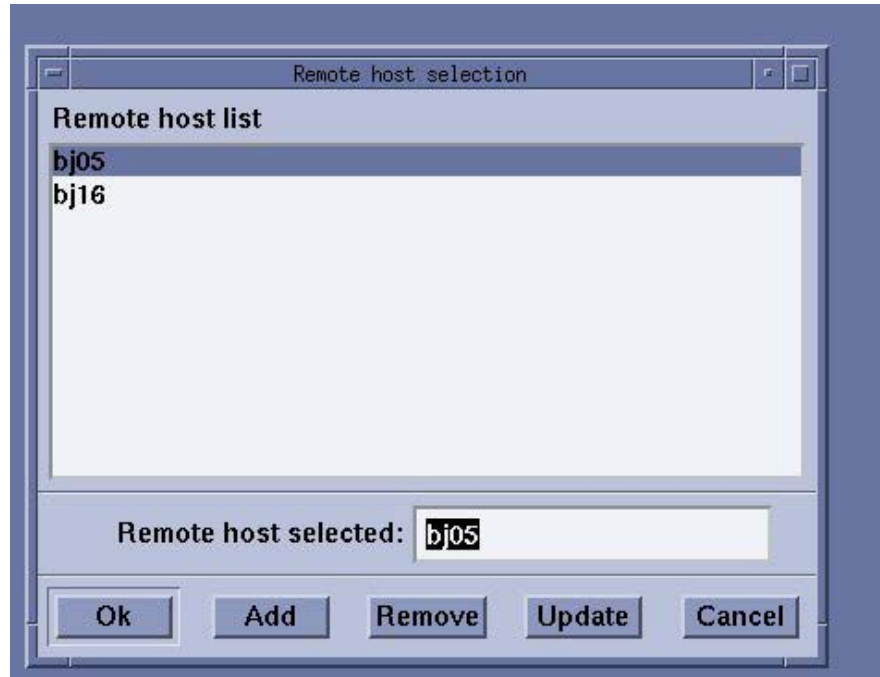
- 1.) Select [ImageWorks] from the desktop.



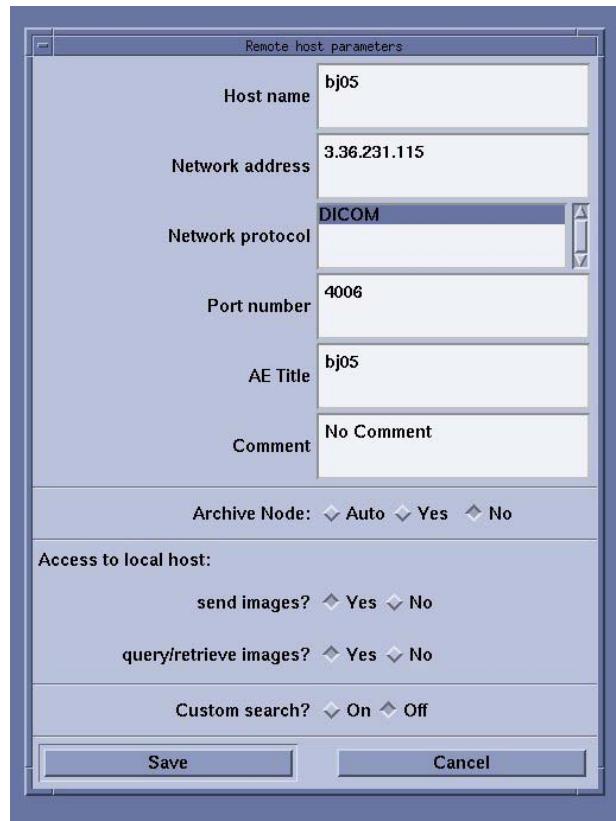
- 2.) Select [Network]



- 3.) Click [Select remote host] on the Network list menu
- 4.) Select Remote host from the Remote host list, then click [update].

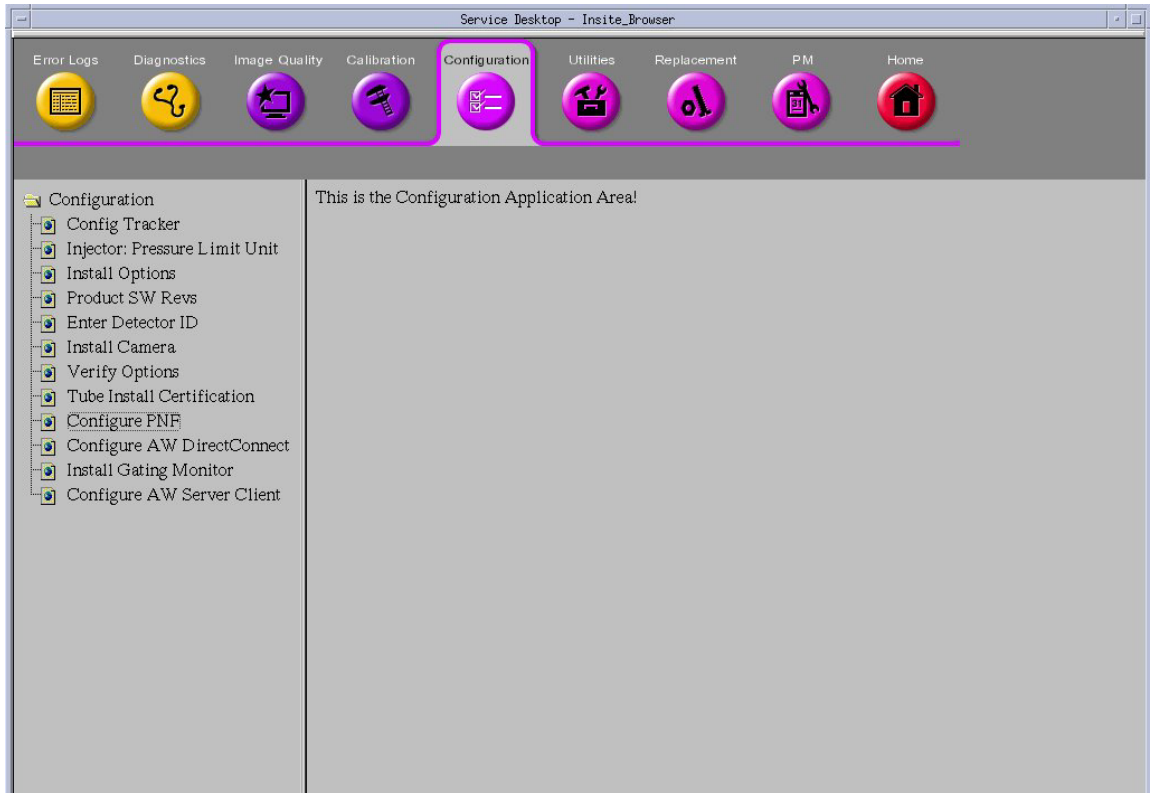


- 5.) Record the Network information as below.

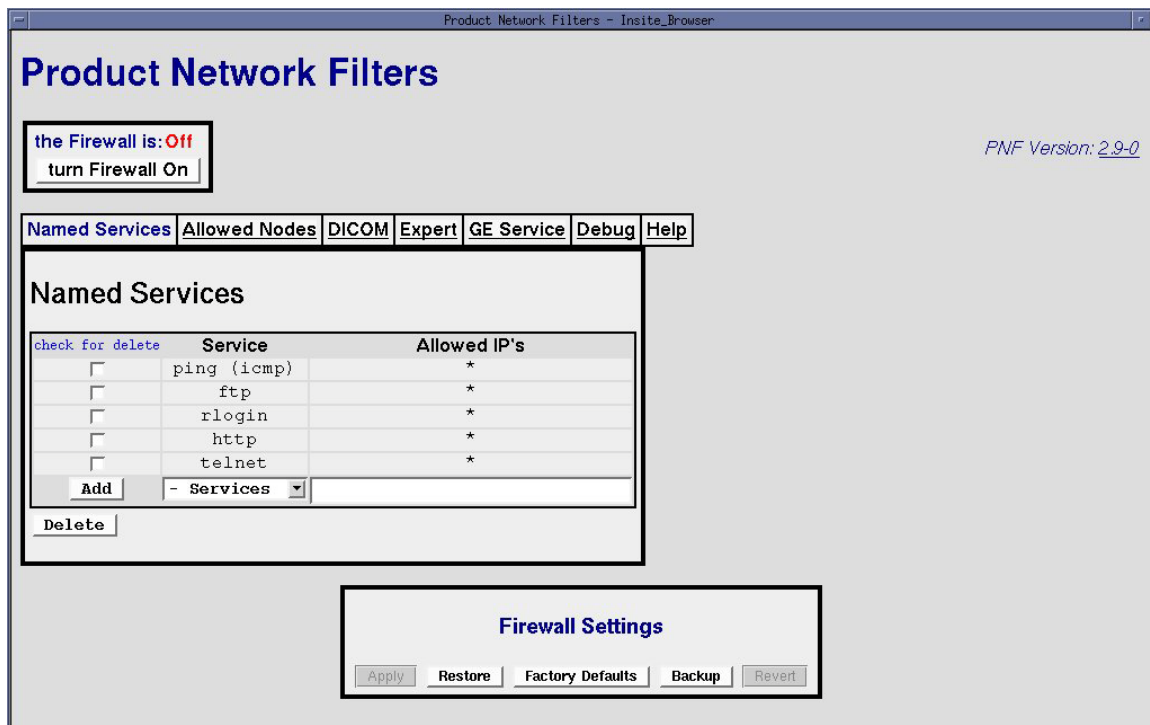


4.3 Record Product Network Filters (PNF) Information

- 1.) Select the [SERVICE DESKTOP].
- 2.) Select in sequence: Configuration → Configure PNF

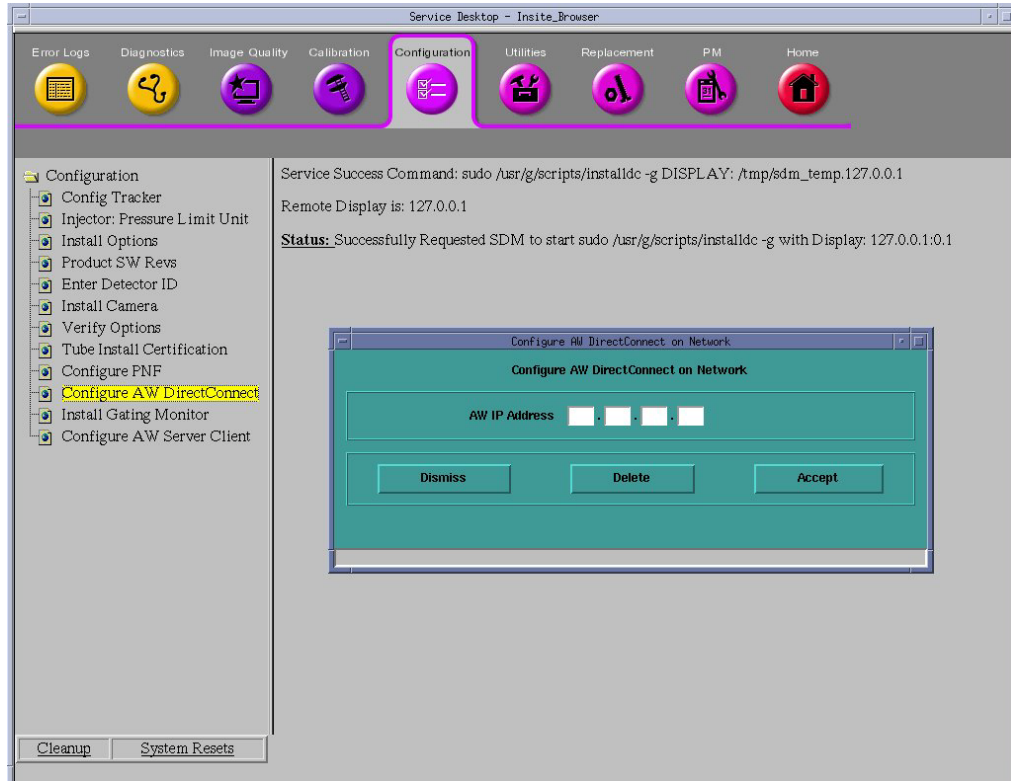


- 3.) Record PNF information.

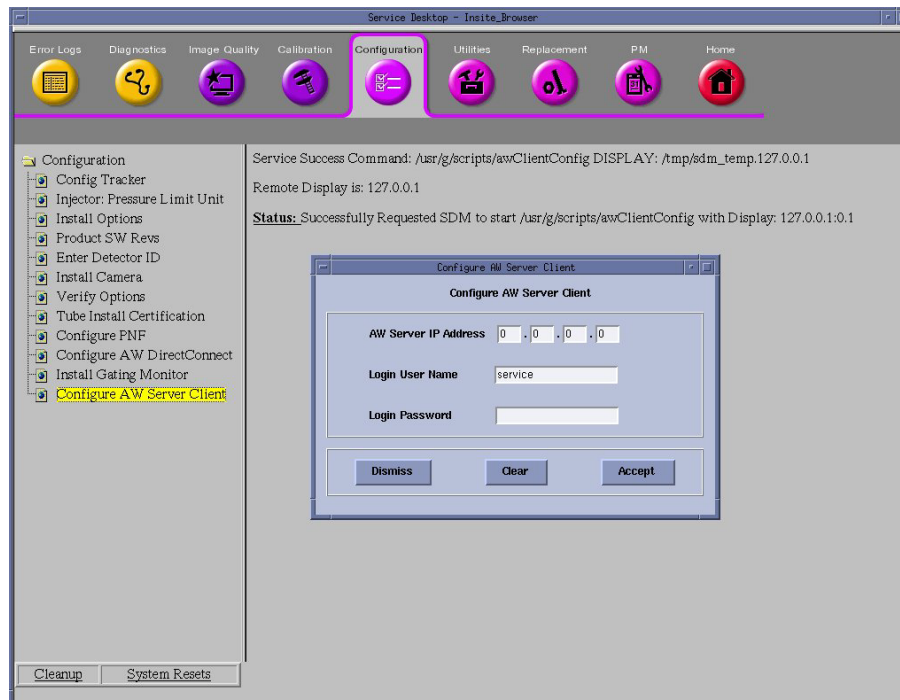


4.4 Record AW IP for Direct Information

- 1.) Select the [SERVICE DESKTOP].
- 2.) Select in sequence: Configuration → Configure AW DirectConnect and record AW IP address

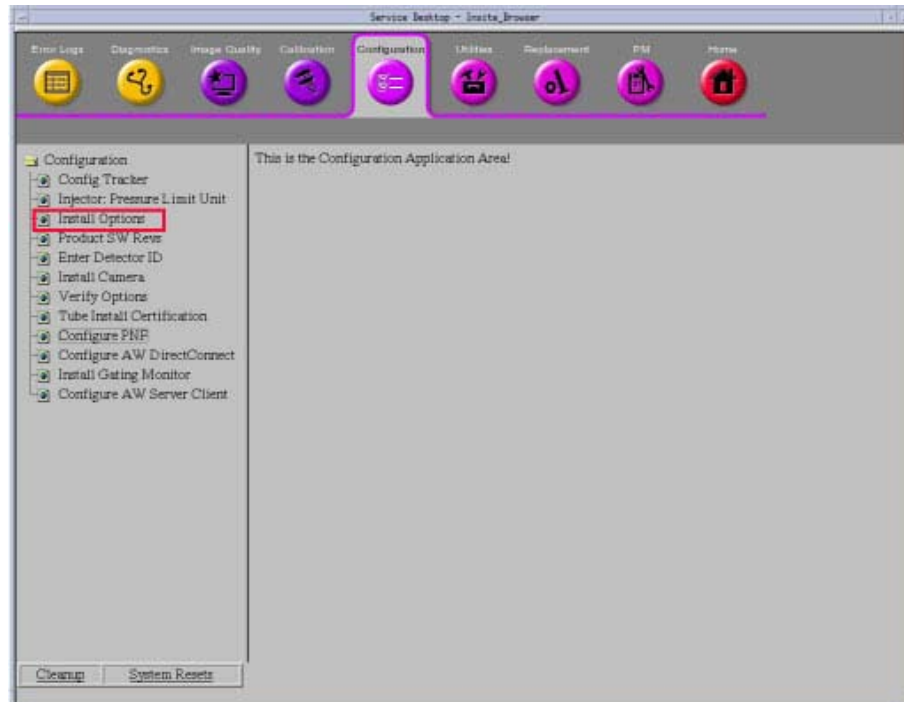


- 3.) Select in sequence: Configuration → Configure AW Server Client and record AW server INFO



4.5 Record Option Information Licenses

- 1.) Select the [SERVICE DESKTOP].
- 2.) Select in sequence: Configuration → Install Options



Section 5.0: Host PC Z800 Removal and Z840 Installation

5.1 Old Console (Z800) Removal

- 1.) Shut down the system and power off the Operator Console power switch.
 - 2.) Switch OFF the breaker in the Power Distribution Box (hospital supply).
- Note: If there is UPS, switch OFF the UPS output.
- 3.) Visually verify proper labeling of each cable and disconnect all console rear cables.
 - 4.) Remove the old Console aside.

5.2 New Console (Z840) Installation

5.2.1 Unpack NIO16 Console with Z840

Please read the details about NIO16 installation procedure in Service Manuals.

- 1.) Unpack console packaging.
 - a.) Remove all items from the console.
 - b.) Remove all packaging and discard per local requirement.
 - c.) Place the step-board under the front edge of the skid and step on it to raise the front edge

of the skid as in [Figure 2-7](#).

Figure 2-7 Step-Board Used to Raise Front Edge of Skid



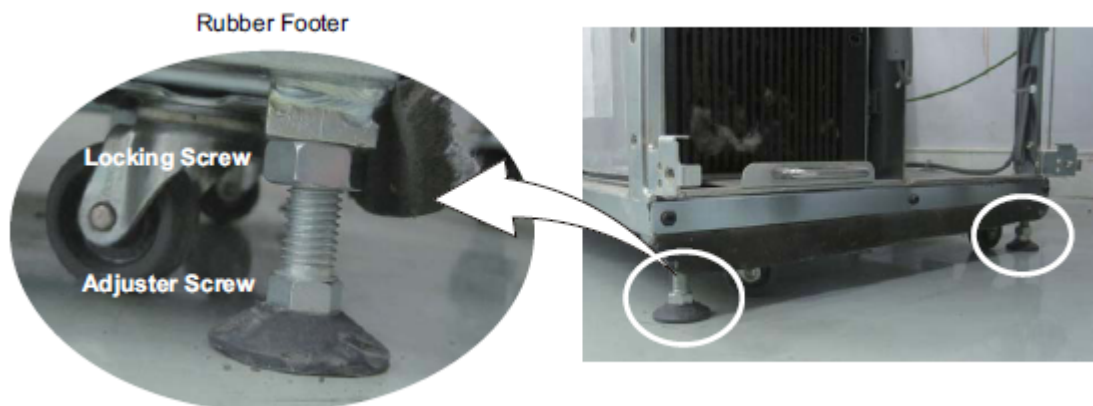
- d.) Remove the two front cushions from the bottom of the skid.

Figure 2-8 Cushion on Bottom of Skid



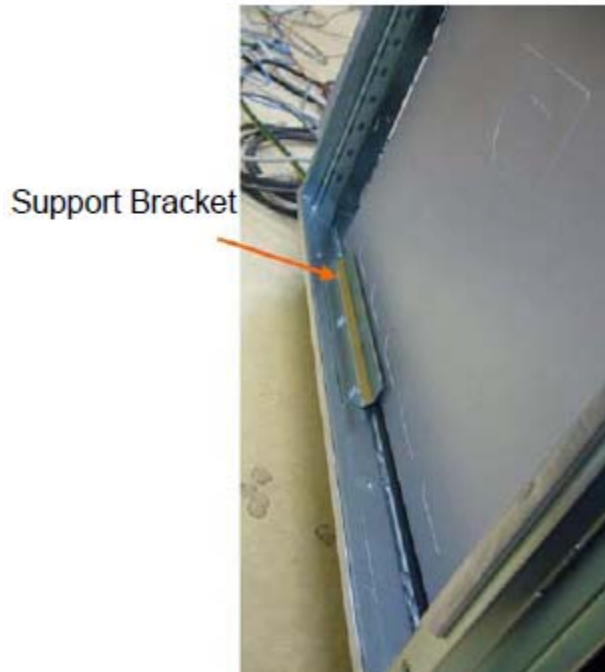
- e.) Lift up on the strap on the front of the step-board (Figure 2-7) to lower the skid. Remove the step-board.
- f.) Ensure the console stabilizers are in line with the notched portion at the front of the skid. This will allow enough clearance to smoothly roll the console down the ramps.
- 2.) Move and place the console to the operator room.
- 3.) Adjust two rubber footer to fasten the console for preventing slide.

Figure 2-9 Cushion on Bottom of Skid



4.) Remove the Host PC support bracket from left side of Console.

Figure 2-10 Host PC Support Bracket



5.2.2 GPU Card Installation

Please refer to *GPU Fluoro Prerequisite Installation Manual (5344368-1EN_r5 or later)* to install GPU Card (8770000-126, shipped with B79612CB) in Z840 Host Computer.

5.2.3 Memory Installation

Note: If the customer has purchased MAR Option and installed in old system, please order MAR Option Kit (B79602CB) for new system.

Please refer to MAR Option Installation Manual (5767680-1EN) to install Memory (8770000-100, shipped with B79602CB) in Z840 Host Computer.

Figure 2-13 Z840 Port Label

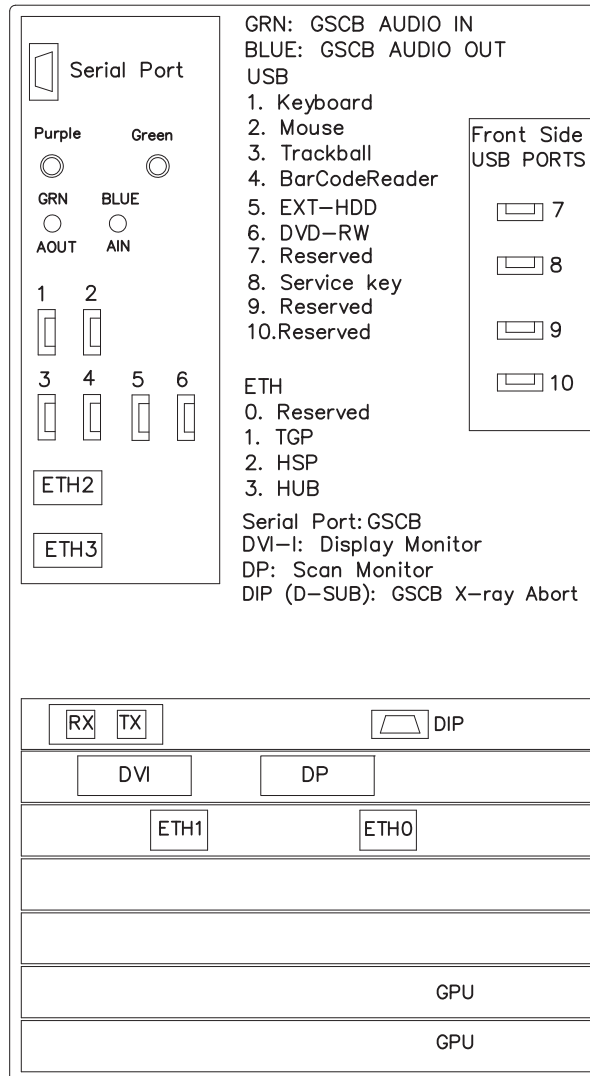
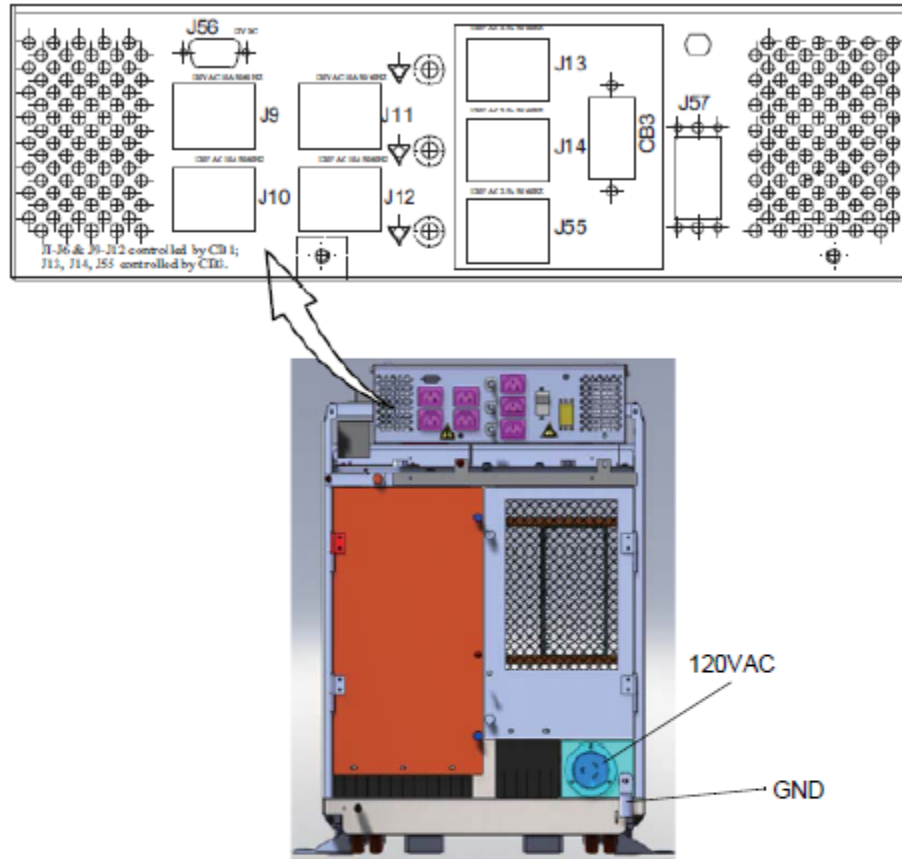


Figure 2-14 NIO16 Console AC Box Assignments



Number	Description
J9	Display Monitor Power Connection
J10	Scan Monitor Power Connection
J11	Peripheral Media Tower Power Connection
J12	In-Room Monitor Connection
J13	Injector Power Connection
J14	RPM Power Connection
J56	GSCB Power Connection

1.) Connect the Keyboard and Mouse cables to NIO16 Console Z840 Host Computer.

DESCRIPTION	PART NUMBER	QTY
USB Ext Cable (Mouse)	5366514	1
USB Ext Cable (Keyboard)	5366514-2	1

- 2.) Connect GSCB cable connectors to NIO16 Console AC Box and Z840 Host Computer according to [Figure 2-15](#) and [Table 2-1](#).

Figure 2-15 GSCB Cables



Table 2-1 GSCB Cable Connectors

PN	Description	From	To
5404262	GSCB Cable	GSCB	DB9/M Black - AC Box J56 Voice Blue - Host Computer Audio In Voice Green - Host Computer Audio Out DB9/F Gray - Host Computer RS232 DB9/F Black - Host Computer DIP

- 3.) Connect Media Tower cable connectors to NIO16 Console AC Box and Z840 Host Computer.
- 4.) Connect the LCD Monitors for Z840 Host Computer.
 - Scan Monitor
 - Video Cable: from Console Host DP to Monitor DVI
 - Power Cable: from Console AC Box J10 to Monitor

Figure 2-16 Video Cable and Power Cable for LCD Monitor



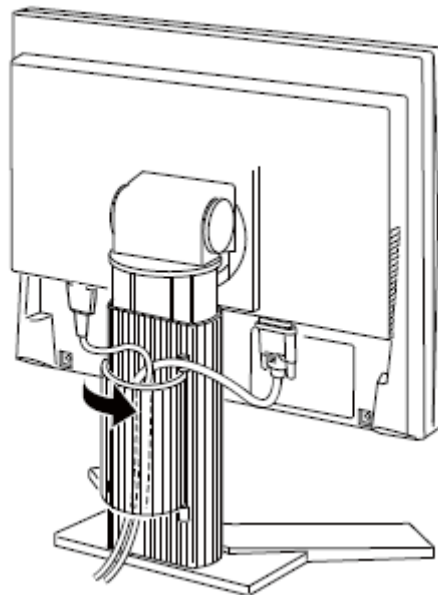
- Image Monitor
Video Cable: from Console Host DVI to Monitor D-SUB (VGA)
Power Cable: from Console AC Box J9 to Monitor

Figure 2-17 Video Cable and Power Cable for LCD Monitor



g.) Route LCDs video cable and power cable.

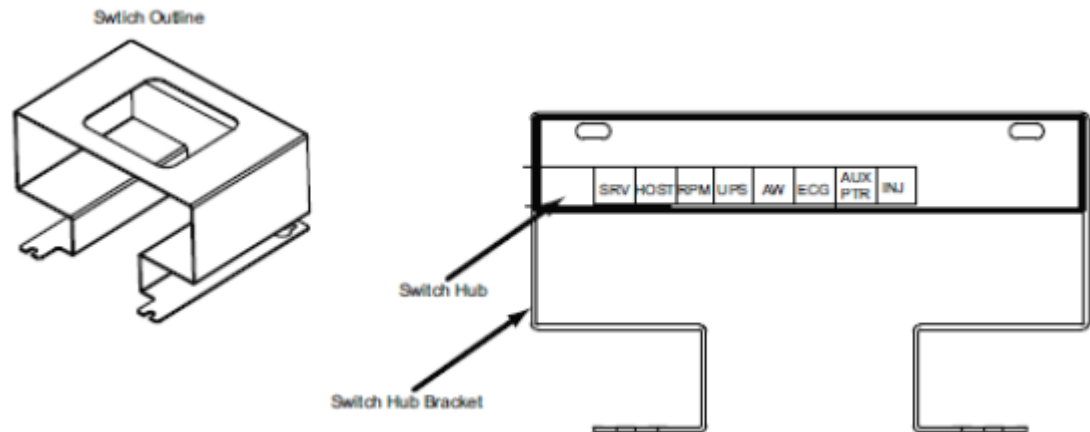
Figure 2-18 Cable Routing and Keeper



5.) Plug cables into the Switch Hub on Console if request.

6.) Connect other cables to Z840 Host Computer according to [Figure 2-13](#).

Figure 2-19 Switch Hub Connection



7.) Connect the Power Cable and Ground Cable to the NIO16 Console (See [Figure 2-14](#)).

5.2.5 Console Cover Installation

Please refer to *Service Methods (5366638-2EN_r19) -> Replacement -> NIO16 Console -> Console Cover Removal and Installation* to install console covers.

Section 6.0: Load From Cold Procedure

- If the software version checked in [Section 2.0 : System Config Checking](#) is CTT 11BW46.x or before, go ahead the following steps.
- If the software version checked in [Section 2.0 : System Config Checking](#) is SUSE 13BW16.x, go ahead the following steps.
- If the software version checked in [Section 2.0 : System Config Checking](#) is SUSE 15BW19.x or later, directly restore system state by following [6.2 Restore System State](#).

6.1 LFC Procedure

Detail LFC procedure refer to *Service Methods (5366638-2EN_r19) -> Software -> LFC Procedure (13BW16.x/15BW19.x/16BW32.x)*.

Note: Please check and select the correct **Gantry Sub Type** in CT Software Configuration -> Hardware after loading system INFO.

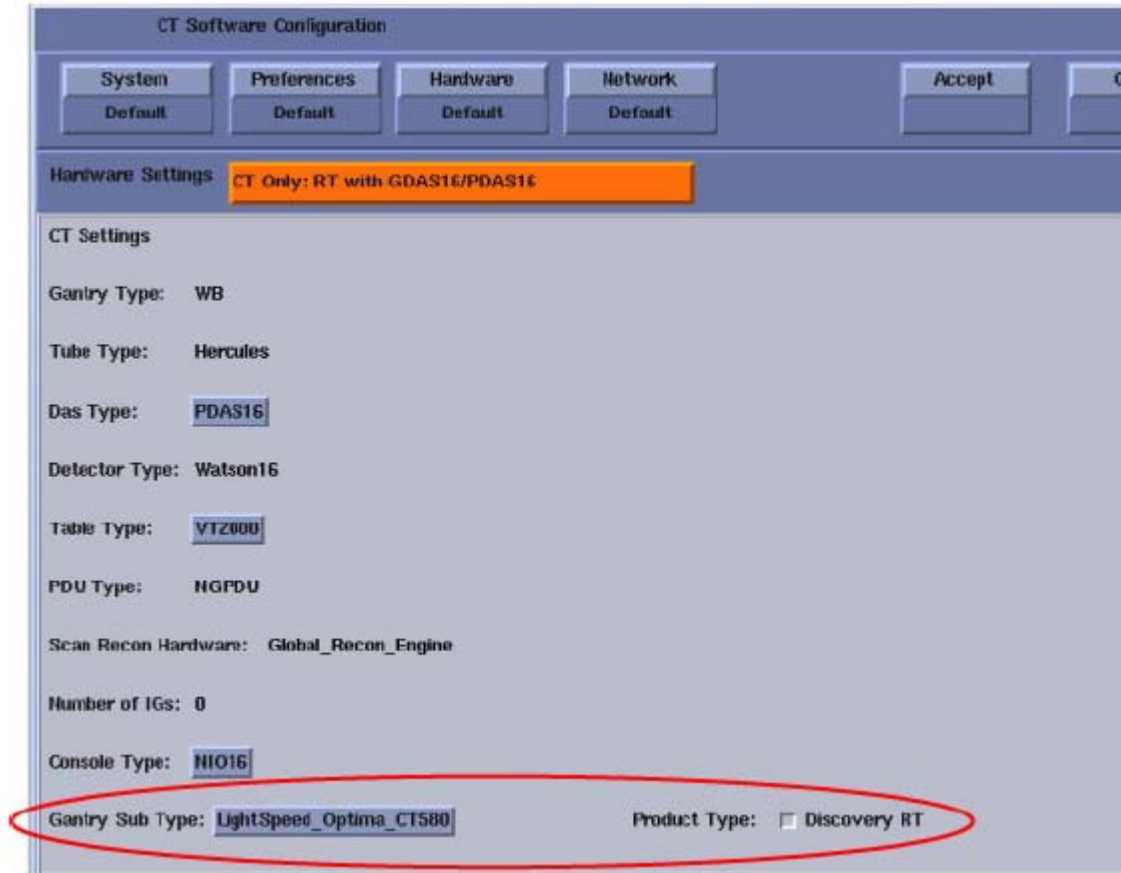
- Discovery CT590 RT / Optima CT580
 - For Discovery CT590 RT, **MUST** toggle Product Type - Discovery RT [OFF] and select "LightSpeed_Discovery_CT590RT" as Gantry Sub Type.

Figure 2-20 Hardware Configuration Window (Discovery CT590 RT)



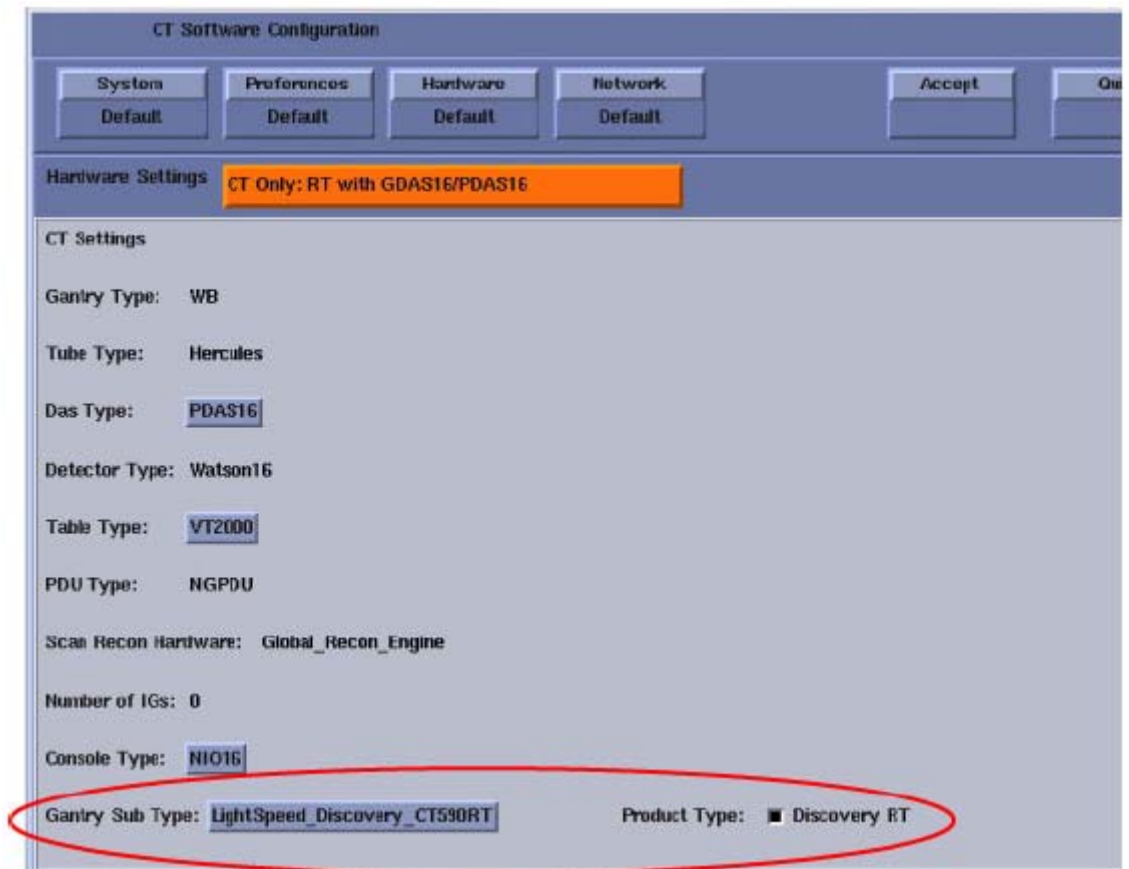
- For Optima CT580, MUST toggle Product Type - Discovery RT [OFF] and select "LightSpeed_Optima_CT580" as Gantry Sub Type.

Figure 2-21 Hardware Configuration Window (Optima CT580)



- Discovery RT
For Discovery RT, **MUST** toggle Productor Type - Discovery RT [ON] and select "LightSpeed_Discovery_CT590RT" as Gantry Sub Type.

Figure 2-22 Hardware Configuration Window (Discovery RT)



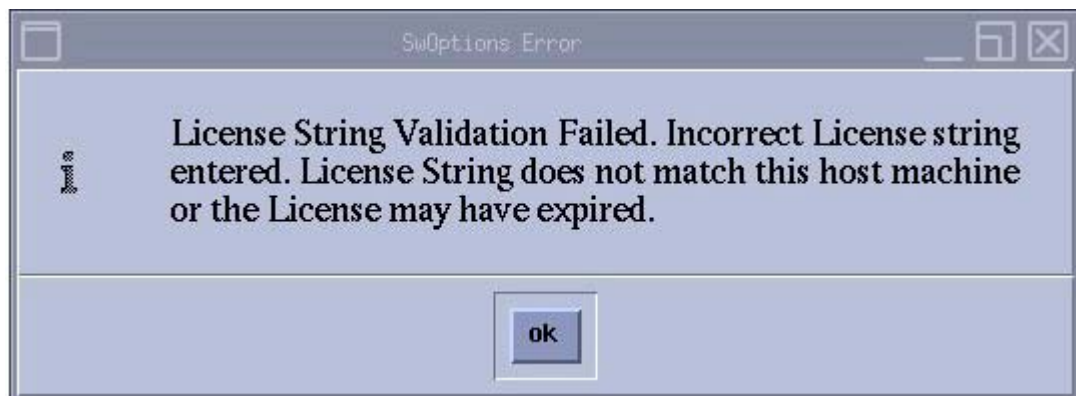
6.2 Restore System State



NOTICE All options need apply new e-licence through e-licence website (<http://elicense.gehealthcare.com/elicense/>) when OC upgrade to Z840 computer. Please refer to option list recorded in 4.5 Record Option Information Licenses.

- 1.) Insert a previously saved System State DVD-RAM Media into the Peripheral Tower DVD-RAM Drive or USB Media in the USB ports
- 2.) Wait until the DVD-RAM Drive or USB Media is ready (i.e., front panel DVD-RAM Drive LED or USB Device Access LED is no longer flashing).
- 3.) Select the [Service] icon to access the CSD (Common Service Desktop).
- 4.) Select: [Utilities].
- 5.) Select: [System State] for DVD-RAM Media or [System State - USB] for USB Media. The System State Save/Restore screen appears.
- 6.) Select [All].
- 7.) Select [Restore]. The Restore System State box appears.
- 8.) Select [Yes].
- 9.) Verify that the "Restore" of System State was successful. If not, restore the System State again. A message at the end of the System State Log window should display: Restore System State Completed Successfully.

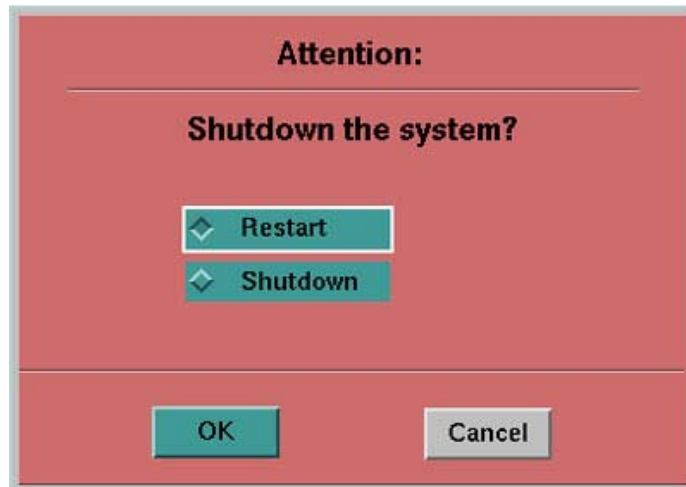
Note: Please ignore any SwOption Error information during restoring the System State.



- 10.) When completed, select [Cancel].

Note: If Dose check option is installed, Dose audit tool starts up when Reconfig Info or Protocol is selected. That shows configuration and Protocol summary. Press Quit to continue.

- 11.) Select [Yes] when the Scan Hardware Reset pop-up appears.
- 12.) When completed, select [Dismiss].
- 13.) Remove System State DVD-RAM disk from the DVD Peripheral Tower or USB Media from USB port and place in a safe location.
- 14.) Reboot the Operators Console by selecting [Shutdown] Desktop, then select [Restart] in the Attention Window.



- 15.) Verify Restore System State.
 - a.) Visually verify that the system has the correct configuration and preference settings by opening a Terminal Window.
 - b.) Execute script "reconfig" and manual reset system info.

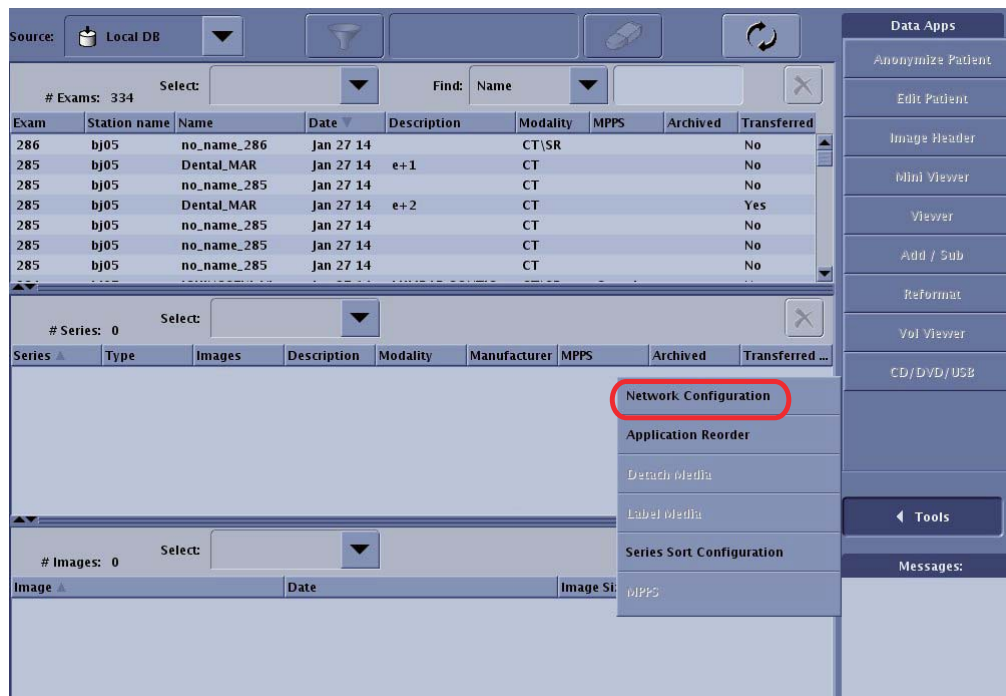
6.3 Convert Protocol

- If the software version checked in [Section 2.0 : System Config Checking](#) is CTT 11BW46.x or before, go ahead the following steps.
 - If the software version checked in [Section 2.0 : System Config Checking](#) is SUSE 13BW16.x, go ahead the following steps.
 - If the software version checked in [Section 2.0 : System Config Checking](#) is SUSE 15BW19.x or later, directly skip to [Section 7.0 : Finalization](#).
- 1.) Open a Unix Shell, type:
{ctuser@hostname} **su -**
Password: **#bigguy**
 - 2.) [root@hostname] **/usr/g/scripts/conv_proto** <Enter>
 - 3.) Input **y** then press [Enter] to convert protocols.
Do you want to convert protocols? [Y/N]
 - 4.) Below information should show if the convert protocol successfully:
Success, process finished.

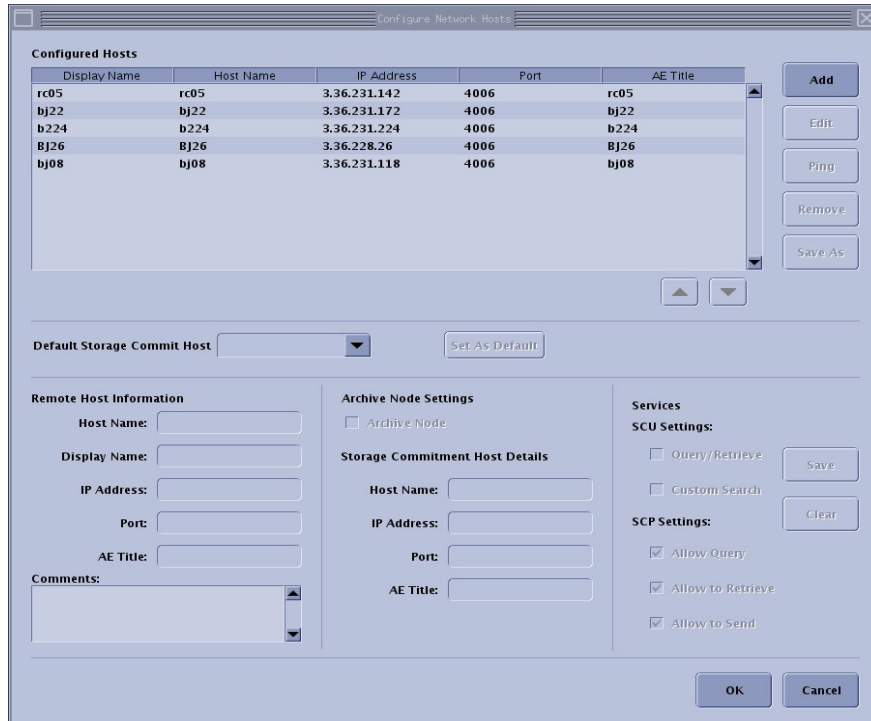
Note: After finishing the user protocol convert, make sure every protocol can be opened by protocol management and save the current system state to another new media.

6.4 Configure System Information on SUSE

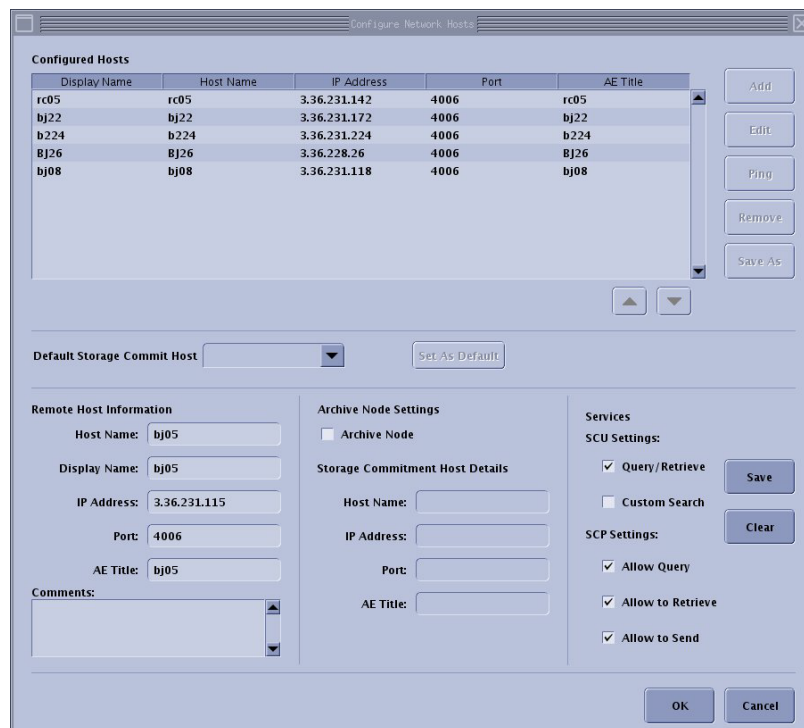
- If the software version checked in [Section 2.0 : System Config Checking](#) is CTT 11BW46.x or before, go ahead the following steps.
 - If the software version checked in [Section 2.0 : System Config Checking](#) is SUSE 13BW16.x or later, skip this section and go to the next section: [Section 7.0 : Finalization](#).
- 1.) Configure PPS server information. Please refer to [section 4.1 on page 30](#).
 - 2.) Configure all remote network information
 - a.) Select [ImageWorks] from the desktop.
 - b.) Select in sequence: Tools-> Network Configuration



- c.) Select [Add]



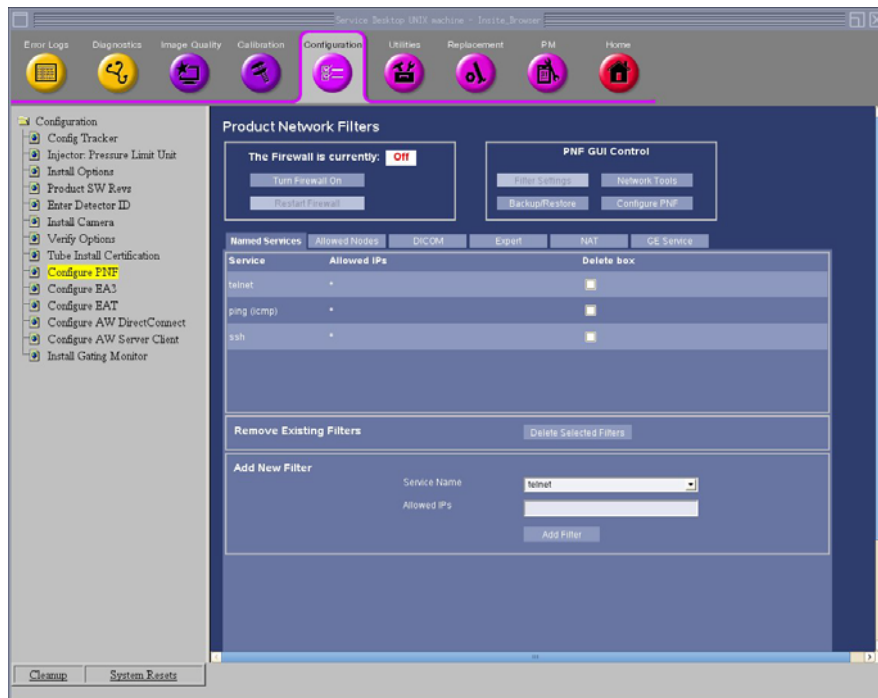
d.) Input the Host Name then press enter.



3.) Configure PNF information.

a.) Select the Service Desktop.

b.) Select in sequence: Configuration -> Configure PNF.



4.) Configure AW IP for direct information, Please refer to [section 4.4 on page 35](#).

Section 7.0: Finalization

7.1 Flash Download

The Flash Download takes anywhere from 5-30 minutes, depending on which subsystems require updates.

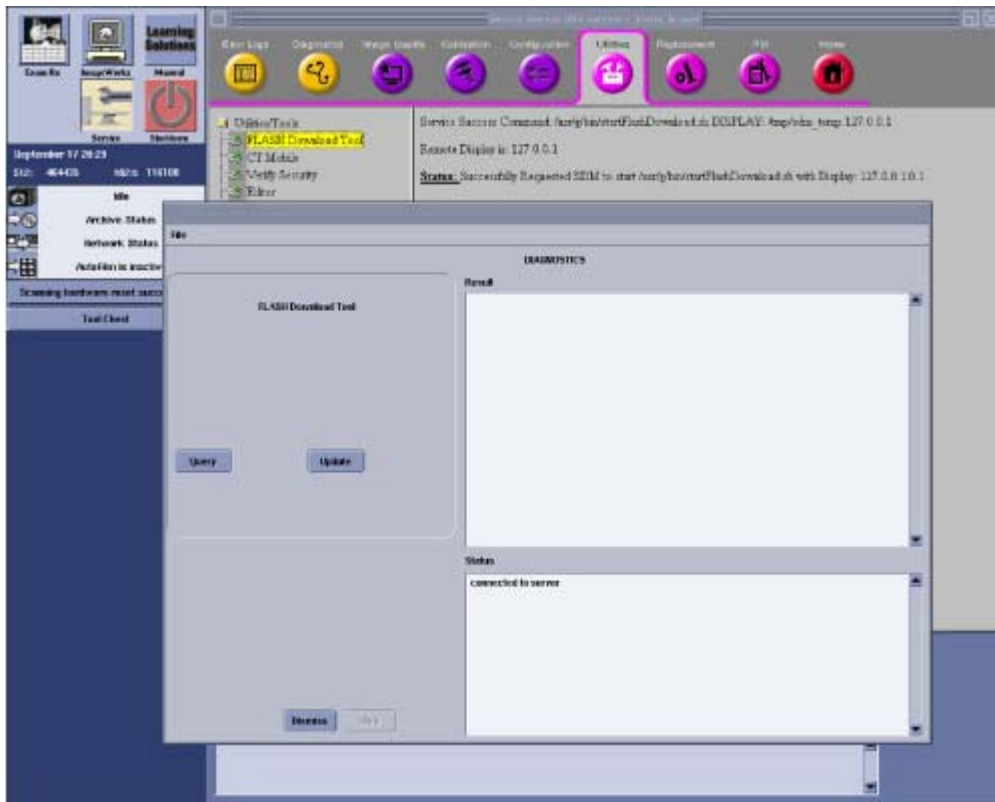
- 1.) Perform the Flash Download Utility found on the Common Service Desktop - Utilities Tab, select [Flash Download].

Figure 23 Common Service Desktop - Utilities Tab, Flash Download



2.) When the Flash Download Window opens, Select [Update].

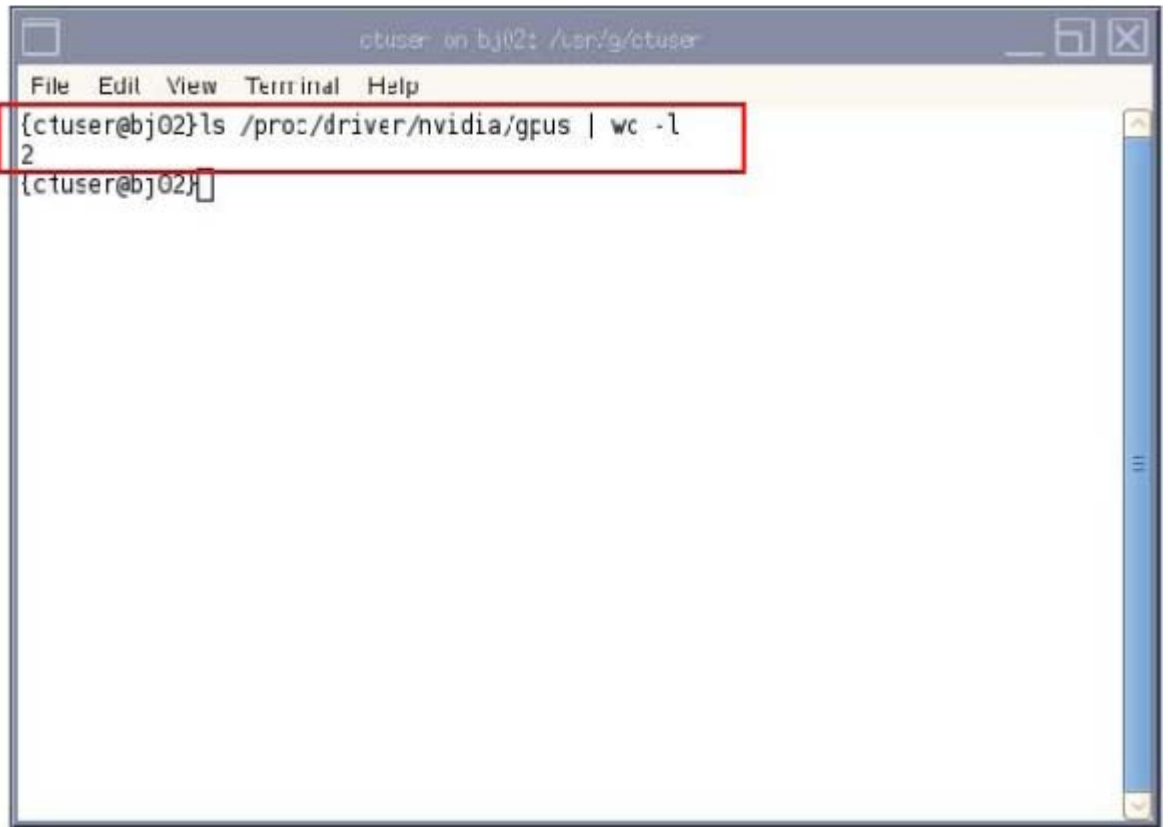
Figure 24 Flash Download Window5



- 3.) Once the Gantry Hardware Flash Downloads successfully, select [Dismiss].
- 4.) Close the Common Service Desktop.

7.2 GPU Card Checking

Open a shell, then type: `ls /proc/driver/nvidia/gpus | wc -l`



- If "2" displays, the Recon GPU card is installed.
- If "1" displays, the Recon GPU card is un-installed.

7.3 System Checking

Perform *Quality Assurance Test* of Functional Checks on Service Methods, make sure all of them pass.

7.4 Save System State

Refer to [Section 3.0 : Save System State](#) to save the new system state after system function is normal.

7.5 Label Attaching

Attach the GPU Fluoro label beside the OC Rating Plate on the rear cover of console.



7.6 Old Console Disposal

The old console has components that are needed to cover FRU shortages, so please **RETURN** the old console. Follow the normal local return process to return the console.

- 1.) Package the old console with the shipping material.
- 2.) Mark type of the old console on the outside of the box.
- 3.) Return the old console:
 - **For U.S. sites**
 Call **Schenker** Heavyweight Return at 866-229-7877 (Option 25), and ship to:
 GE Healthcare Renewable Resources
 7624 South 10th Street
 Oak Creek, WI. 53154
 - **For Western Europe sites**
 Stick the harvest sticker (see below) on the OC box & ship (Heavyweight Return) to:
P.Vinet - Volta Repair Center Manager
 Gems, 283 rue de la Minière 78533 Buc
 VIA St WITZ



- **For other Europe sites**
 Please contact your local service representative for approbation.

www.gehealthcare.com

