Technical Publication

Invenia™ ABUS Viewer

System Setup and Basic Service Manual
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Rev. 3

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Revision history

Revision History

Revision	Date (YYYY/MM/DD)	Reason for change
Rev. 1	2018/07/24	Initial Release
Rev. 2	2018/07/25	Added reviewer comments
Rev. 3	2019/05/08	Incorporated updates from SN75200

List of Effected Pages (LOEP)

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Important Precautions

Translation policy

English (EN)

WARNING

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, mechanical or other hazards.

Français (FR)

AVERTISSEMENT

Ce manuel de maintenance est disponible en anglais uniquement.

- Si un client de la personne responsable de la maintenance demande une langue autre que l'anglais, il est de la responsabilité du client de fournir les services de traduction.
- N'essayez pas d'effectuer vous-même la maintenance de l'équipement avant d'avoir préalablement lu et compris le manuel de maintenance.
- Le non-respect cet avertissement peut entraîner des blessures dues à un choc électrique, une défaillance mécanique ou à d'autres éléments dangereux chez la personne en charge de la maintenance, l'opérateur ou le patient.

ADVERTENCIA

Español (ES)

Este Manual de servicio está disponible en idioma inglés únicamente.

- Si un proveedor de servicio del cliente requiere un idioma distinto, es responsabilidad del cliente ofrecer servicios de traducción.
- No intente reparar el equipo a menos que haya consultado y comprendido este Manual de servicio.
- Si no presta atención a esta Advertencia, se pueden ocasionar lesiones al proveedor de servicio, al operador o al paciente por descarga eléctrica, por riesgos mecánicos o de otra índole.

WARNUNG

Deutsch (DE)

Dieses Wartungshandbuch ist nur auf Englisch verfügbar.

- Wenn der Kundendiensttechniker eines Kunden eine andere Sprache als Englisch benötigt, unterliegt es der Verantwortung des Kunden eine Übersetzung anfertigen zu lassen.
- Warten Sie das Gerät nur, wenn Sie dieses Wartungshandbuch gelesen und verstanden haben.
- Die Nichtbeachtung dieses Warnhinweises kann zu Verletzungen des Kundendiensttechnikers, Anwenders oder Patienten durch Stromschläge, mechanische oder andere Gefahren führen.

AVVERTENZA

italiano (IT)

Il presente Manuale di assistenza è disponibile solo in inglese.

- Se il fornitore di servizi di un cliente ne richiede una copia in una lingua diversa dall'inglese, è responsabilità del cliente fornire il servizio di traduzione.
- Non tentare di riparare l'apparecchio se questo Manuale di assistenza non è stato letto e compreso.
- Il mancato rispetto di questa avvertenza può comportare il rischio di lesioni al fornitore di servizi, all'operatore o al paziente causate da scosse elettriche o da pericoli di origine meccanica o di altro tipo.

WAARSCHUWING

Nederlands (NL)

Deze servicehandleiding is alleen beschikbaar in het Engels.

- Als de serviceleverancier van een klant vraagt om een andere taal dan Engels, is het de verantwoordelijkheid van de klant om een vertaalde versie te bieden.
- Probeer geen onderhoud aan de apparatuur uit te voeren tenzij deze servicehandleiding is geraadpleegd en begrepen.
- Het niet opvolgen van deze waarschuwing kan bij de serviceleverancier, de operator of de patiënt leiden tot letsel door elektrische schokken, mechanische of andere gevaren.

ADVERTÊNCIA

Português (PT-BR)

Este Manual de Manutenção está disponível apenas em Inglês.

- Caso um prestador de serviços do cliente solicite o manual em idioma diferente do inglês, é de responsabilidade do cliente o fornecimento de serviços de tradução.
- Não tente realizar a manutenção do equipamento antes de ler e compreender este Manual de manutenção.
- O não cumprimento desta advertência pode resultar em danos por choque elétrico e riscos mecânicos para o prestador de serviços, operador ou paciente.

HOIATUS!

Eesti (ET)

Service Manual (Hooldusjuhend) on saadaval ainult ingliskeelsena.

- Kui kliendi teenusepakkuja nõue on, et juhend oleks mõnes muus keeles, korraldab juhendi tõlkimise klient.
- Tutvuge enne seadme hooldustööde tegemist kindlasti juhendiga Service Manual (Hooldusjuhend).
- Selle nõude eiramise korral võib teenindaja, kasutaja või patsient saada elektrilöögi, samuti võivad kaasneda muud ohud.

OPOZORILO

Slovenščina (SL)

Ta servisni priročnik je na voljo samo v angleščini.

- Če ponudnik servisnih storitev za stranko potrebuje navodila v drugem jeziku, mora stranka sama poskrbeti za prevajanje.
- Ne poskušajte servisirati opreme, ne da bi prej prebrali in razumeli servisni priročnik.
- Če tega opozorila ne upoštevate, obstaja nevarnost električnega udara, mehanskih ali drugih nevarnosti in posledičnih poškodb ponudnika servisnih storitev, uporabnika opreme ali pacienta.

警告

日本語 (JA)

このサービスマニュアルは英語版のみ提供されています。

- お客様の保守担当者が英語以外のマニュアルを必要とされる場合は、お客様の負担にて翻訳サービスをご利用ください。
- 装置の保守を行う前に、必ずサービスマニュアルを読み、内容を理解してください。
- この警告に注意を払わない場合、保守担当者やオペレータ、患者に対して、電気ショック、機械またはその他の危険による傷害が発生する恐れがあります。

警告

简体中文 (ZH-CN)

本维修手册仅提供英文版。

- 如果客户需要其它语种版本，请自行翻译。
- 在维修机器前，请务必阅读并完全理解本维修手册。
- 若违反本警告，有可能会给维修提供商、操作员或患者带来电击伤害、机械损伤或其它危害。

VARNING

Svenska (SV)

Den här servicehandboken finns endast på engelska.

- Om en kunds servicetekniker kräver ett annat språk än engelska är det kundens ansvar att tillhandahålla en översatt version.
- Försök inte att utföra service på utrustningen om du inte har läst igenom och förstått den här servicehandboken.
- Om du inte tar hänsyn till den här varningen kan serviceteknikern, operatören eller patienten utsättas för elektriska stötar eller mekaniska eller andra faror, vilket kan leda till personskador.

警告

繁體中文 (ZH-TW)

此服務手冊僅推出英文版。

- 若客戶的維修人員需要英文以外的其他語言版本，客戶需自行負責提供翻譯服務。
- 在詳閱此服務手冊並充分理解其內容之前，請勿試圖開始維修設備。
- 若忽視此警告，可能導致維修人員、操作人員或病患因為觸電、機械問題或其他危險而受傷。

경고

한국어 (KO)

이 서비스 설명서는 영어로만 제공됩니다.

- 고객의 서비스 공급자가 영어 이외의 언어를 요구하는 경우 번역 서비스를 제공할 책임은 고객에게 있습니다.
- 이 서비스 설명서를 참조 및 이해하지 못한 경우 장비를 만지지 마십시오.
- 이 경고를 무시한 경우 서비스 공급자, 오퍼레이터 또는 환자가 감전, 기계적 위험 또는 기타 위험으로 인한 부상을 입을 수 있습니다.

На русском языке (RU)

ПРЕДУПРЕЖДЕНИЕ

Данное руководство по обслуживанию доступно только на английском языке.

- Если специалисту по техническому обслуживанию клиента требуется документация на каком-либо другом языке, ответственность за выполнение перевода возлагается на клиента.
- Приступайте к обслуживанию оборудования только после того, как изучите данное руководство по обслуживанию и полностью поймете его содержание.
- Несоблюдение данного требования может привести к травмированию специалиста по техническому обслуживанию, пользователя или пациента вследствие поражения электрическим током, механических и прочих повреждений.

Polski (PL)

OSTRZEŻENIE

Niniejszy podręcznik serwisowy jest dostępny wyłącznie w języku angielskim.

- Jeżeli dostawca usług klienta posługuje się językiem innym niż angielski, za zapewnienie usług tłumaczeniowych odpowiada klient.
- Przed przystąpieniem do czynności serwisowych należy zapoznać się z informacjami zawartymi w niniejszym podręczniku serwisowym i je zrozumieć.
- W przeciwnym wypadku dostawca usług, operator lub pacjent mogą odnieść obrażenia spowodowane porażeniem prądem elektrycznym, działaniem elementów mechanicznych lub innymi zagrożeniami.

Ελληνικά (EL)

ΠΡΟΕΙΔΟΠΟΙΗΣΗ

Το παρόν Εγχειρίδιο σέρβις διατίθεται μόνο στα Αγγλικά.

- Εάν ο πάροχος σέρβις του πελάτη απαιτεί γλώσσα εκτός των Αγγλικών, η παροχή μεταφραστικών υπηρεσιών αποτελεί ευθύνη του πελάτη.
- Μην επιχειρήσετε να επισκευάσετε τον εξοπλισμό εάν πρώτα δεν συμβουλευτείτε και κατανοήσετε το παρόν Εγχειρίδιο σέρβις.
- Σε περίπτωση μη τήρησης της παρούσας προειδοποίησης, ενδέχεται να προκληθεί τραυματισμός στον πάροχο σέρβις, το χειριστή ή τον ασθενή εξαιτίας ηλεκτροπληξίας καθώς και μηχανικών ή άλλων κινδύνων.

FIGYELMEZTETÉS

Magyar (HU)

A szervizkézikönyv kizárólag angol nyelven érhető el.

- Amennyiben az ügyfél szolgáltatójának nem felel meg az angol nyelvű dokumentáció, úgy a fordításról az ügyfélnek kell gondoskodnia.
- Kizárólag úgy lásson hozzá a berendezés karbantartásához, hogy elolvasta és megértette a szervizkézikönyvben foglaltakat.
- Ezen figyelmeztetés figyelmen kívül hagyása esetén a szolgáltató, a kezelő vagy a páciens áramütést, mechanikus sérülést vagy más veszély által okozott személyi sérülést szenvedhet.

VAROVANIE

Slovenčina (SK)

Táto servisná príručka je dostupná iba v anglickom jazyku.

- Ak poskytovateľ služieb zákazníkom vyžaduje iný jazyk ako anglický jazyk, jeho povinnosťou je zabezpečiť prekladateľské služby.
- Zariadenie nepoužívajte bez prečítania a porozumenia tejto servisnej príručky.
- Nedodržanie tejto výstrahy môže viesť k zraneniu poskytovateľa služieb, operátora alebo pacienta spôsobeného elektrickým šokom, mechanickým alebo iným nebezpečenstvom.

VÝSTRAHA

česky (CZ)

Tato servisní příručka je k dispozici pouze v angličtině.

- Pokud poskytovatel služby zákazníkovi požaduje jiný jazyk než angličtinu, je odpovědností zákazníka poskytnout služby překladu.
- Nepokoušejte se provádět servis zařízení, dokud si neprostudujete a neporozumíte servisní příručce.
- Nevěnování pozornosti této výstraze může způsobit poskytovateli služeb, obsluze nebo pacientovi úraz elektrickým proudem, mechanická nebo jiná nebezpečí.

UYARI

Türkçe (TR)

Servis Kılavuzu yalnızca İngilizce olarak mevcuttur.

- Müşterinin servis sağlayıcısı için kılavuzun İngilizce dışında başka bir dile çevrilmesi gerekiyorsa çeviri hizmeti sağlamak müşterinin sorumluluğudur.
- Bu Servis Kılavuzu'na bakıp talimatları anlamadan ekipmanı kullanmaya çalışmayın.
- Bu Uyarının göz ardı edilmesi servis sağlayıcısının, operatörün veya hastanın, elektrik çarpması, mekanik arıza ya da diğer tehlikeler nedeniyle yaralanmasına neden olabilir.

ADVARSEL

Dansk (DA)

Denne servicemanual fås kun på engelsk.

- Hvis en kundes tjenesteudbyder kræver et andet sprog end engelsk, er det kundens ansvar at sørge for oversættelsesydelserne.
- Forsøg ikke at udføre service på udstyret, medmindre denne servicemanual er læst og forstået.
- Manglende overholdelse af denne advarsel kan medføre skade på serviceudbyderen, operatøren eller patienten som følge af elektrisk stød, mekaniske eller andre farer.

ADVARSEL

Norsk (NO)

Denne servicehåndboken er bare tilgjengelig på engelsk.

- Hvis en kundes tjenestetilbyder krever et annet språk enn engelsk, er det kundens ansvar å tilby oversettelsestjenester.
- Ikke forsøk å utføre service på utstyret før denne servicehåndboken er lest og forstått.
- Dersom det ikke tas hensyn til denne advarselen, kan det føre til skader på tjenestetilbyderen, operatøren eller pasienten fra elektrisk støt, mekaniske eller andre farer.

VAKAVA VAROITUS

Suomi (FI)

Tämä huolto-opas on saatavana vain englanniksi.

- Jos asiakkaan palveluntarjoaja tarvitsee oppaan jollain muulla kielellä, käännöspalveluiden hankkiminen on asiakkaan vastuulla.
- Laitetta ei saa huoltaa ellei huolto-oppaaseen ole sitä ennen tutustuttu huolellisesti.
- Jos tätä varoitusta ei noudateta, palveluntarjoaja, käyttäjä tai potilas saattaa saada sähköiskun, ja saattaa aiheutua mekaanisia tai muita vaurioita.

ПРЕДУПРЕЖДЕНИЕ

Български (BG)

Настоящото Сервизно ръководство се предлага само на английски език.

- Ако доставчикът на сервизни услуги на клиента изисква ръководство на език, който се различава от английския, клиентът има отговорност да осигури адекватен превод.
- Не правете опити за сервиз на оборудването, без да проверите и да разберете съветите в Сервизното ръководство.
- Неспазването на това предупреждение може да доведе до нараняване на доставчика на сервизни услуги, оператора или пациента вследствие на токов удар, механична или други опасности.

AVERTISMENT

Română (RO)

Acest manual de service este disponibil doar în engleză.

- Dacă furnizorul de servicii al unui client solicită altă limbă decât engleza, este responsabilitatea clientului să ofere servicii de traducere.
- Nu încercaţi să efectuaţi lucrări de service asupra echipamentului, în afară de cazul când aţi consultat acest manual de service şi l-aţi înţeles.
- Nerespectarea acestui avertisment poate avea ca rezultat rănirea furnizorului de servicii, a operatorului sau a pacientului ca urmare a electrocutării, pericolelor mecanice sau a altor pericole.

UPOZORENJE

Hrvatski (HR)

Ovaj servisni priručnik dostupan je samo na engleskom jeziku.

- Ako klijentov serviser zahtijeva jezik koji nije engleski, odgovornost klijenta je pružiti usluge prijevoda.
- Nemojte pokušavati servisirati opremu ako niste pročitali i razumjeli servisni priručnik.
- Ako ne poštujete ovo upozorenje, može doći do ozljede servisera, operatera ili pacijenta prouzročene strujnim udarom, mehaničkim i drugim opasnostima.

ĮSPĖJIMAS

Lietuvių k. (LT)

Šis priežiūros vadovas galimas tik anglų kalba.

- Jei kliento paslaugų teikėjas reikalauja kitos kalbos nei anglų, klientas atsako už vertimo paslaugos teikimą.
- Atlikite įrangos priežiūrą tik gerai susipažinę su priežiūros vadovu ir jį supratę.
- Nesilaikant šio įspėjimo galimas paslaugos teikėjo, operatoriaus ar paciento sužeidimas dėl elektros šoko, mechaninio ar kito pavojaus.

BRĪDINĀJUMS

Latviski (LV)

Šī apkalpes rokasgrāmata ir pieejama tikai angļu valodā.

- Ja klienta pakalpojumu sniedzējam ir nepieciešama cita valoda, kas nav angļu valoda, klienta pienākums ir nodrošināt tulkojumu.
- Nemēģiniet apkalpot aprīkojumu, ja apkalpes rokasgrāmata nav izlasīta un izprasta.
- Ja šis brīdinājums netiek ievērots, pakalpojumu sniedzējs, operators vai pacients var gūt traumas no elektrošoka vai var rasties mehānisks vai cita veida apdraudējums.

UPOZORENJE

Srpski (SR)

Ovaj priručnik za servisiranje dostupan je samo na engleskom jeziku.

- Ako klijentov serviser zahteva jezik koji nije engleski, odgovornost je na klijentu da pruži usluge prevođenja.
- Nemojte da pokušavate da servisirate opremu ako prethodno niste pročitali i razumeli ovaj priručnik.
- Ako ne poštujete ovo upozorenje, može doći do povređivanja servisera, operatera ili pacijenta uzrokovanog električnim udarom, mehaničkim i drugim opasnostima.

AVISO

Português (Portugal) (PT-PT)

Este manual de assistência está disponível apenas em inglês.

- Se o prestador de serviços de assistência do cliente necessitar do manual noutro idioma, a disponibilização dos serviços de tradução é da responsabilidade do cliente.
- Não tente reparar o equipamento se não tiver consultado e compreendido este manual de assistência.
- O não cumprimento das instruções constantes neste aviso pode resultar em ferimentos no prestador de serviços de assistência, no operador ou no paciente devido a choques eléctricos, perigos mecânicos ou outros problemas.

ПОПЕРЕДЖЕННЯ

Українська (UK)

Цей посібник із технічного обслуговування доступний лише англійською мовою.

- Якщо постачальнику послуг із технічного обслуговування потрібна інформація мовою, відмінною від англійської, відповідальність за надання послуг перекладу несе користувач.
- Технічне обслуговування обладнання можна виконувати лише після ознайомлення з посібником із технічного обслуговування та усвідомлення його змісту.
- Недотримання цього попередження може призвести до травм постачальника послуг, оператора або пацієнта, спричинених дією електричного струму, механічних або інших пошкоджень.

PERINGATAN

Bahasa Indonesia (ID)

Panduan Servis ini hanya tersedia dalam Bahasa Inggris.

- Jika penyedia layanan pelanggan memerlukan bahasa di luar Bahasa Inggris, maka pelanggan bertanggung jawab untuk memberikan layanan tersebut.
- Jangan mencoba menyervis peralatan ini, kecuali Panduan Servis ini telah dijadikan rujukan dan dipahami dengan baik.
- Kelalaian memperhatikan Peringatan ini dapat menyebabkan cedera terhadap penyedia layanan, operator, atau pasien akibat bahaya kejutan listrik, mekanik, dan bahaya lainnya.

CẢNH BÁO

(VI) Tiếng Việt

Hướng dẫn sử dụng dịch vụ này chỉ sẵn dùng bằng tiếng Anh.

- Nếu nhà cung cấp dịch vụ của khách hàng yêu cầu ngôn ngữ khác ngoài tiếng Anh, thì khách hàng phải có trách nhiệm cung cấp các dịch vụ dịch thuật.
- Không được tìm cách sửa chữa thiết bị trừ khi đã tham khảo và hiểu rõ Hướng dẫn sử dụng dịch vụ này.
- Bỏ qua lời cảnh báo này có thể gây thương tích cho nhà cung cấp dịch vụ, nhân viên vận hành hoặc bệnh nhân do sốc điện, những nguy hiểm về máy móc hoặc yếu tố khác.

ЕСКЕРТУ

Қазақ тілінде (KK)

Осы қызмет көрсету нұсқаулығы тек ағылшын тілінде қолжетімді.

- Егер тұтынушылардың қызметтер жеткізушісі ағылшын тілінен басқа тілді талап етсе, аудару қызметтерімен қамтамасыз ету тұтынушының жауапкершілігіне кіреді.
- Осы қызмет көрсету нұсқаулығын түсініп, ол туралы кеңес алмайынша жабдыққа қызмет көрсетуге тырыспаңыз.
- Осы ескертуді орындамау электр тогының соғуы, механикалық немесе басқа да қауіптер салдарынан қызметтер жеткізушісінің, оператордың немесе емделушінің жарақаттануына алып келуі мүмкін.

คำเตือน

ไทย (TH)

คู่มือซ่อมบำรุงนี้มีเฉพาะภาษาอังกฤษเท่านั้น

- หากผู้ให้บริการของลูกค้าต้องการฉบับภาษาอื่นนอกเหนือจากภาษาอังกฤษ ลูกค้าต้องเป็นผู้รับผิดชอบในการจัดเตรียมคู่มือซ่อมบำรุงฉบับแปล
- โปรดอย่าซ่อมบำรุงอุปกรณ์โดยไม่ศึกษา และทำความเข้าใจคู่มือซ่อมบำรุงนี้
- หากไม่ปฏิบัติตามคำเตือนนี้อาจส่งผลให้ผู้ให้บริการ ผู้ใช้งานอุปกรณ์ หรือผู้ป่วยได้รับบาดเจ็บจากไฟฟ้าช็อต อันตรายจากกลไกของอุปกรณ์ หรืออันตรายอื่น ๆ

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- Huwag subukan na iserbisyo ang mga kasangkapan maliban kung nakonsulta ang nauunawaan itong Manwal ng Serbisyo.
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GE Medical Systems Ultrasound and Primary Care Diagnostics, LLC
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Chapter 1

Invenia ABUS Viewer Introduction

The Invenia ABUS Viewer is the updated version of the Invenia ABUS Review Software. The Invenia ABUS Viewer is backwards compatible and can be used to display images from any prior Invenia ABUS system.

Service Manual Overview

Content in this Manual

This manual provides installation and service information for the Invenia ABUS Viewer (Invenia ABUS Workstation Review Software).

The manual is divided into eight chapters.

In the beginning of the manual, before Chapter 1, you will find the *Revision overview*, the *Important Precautions* including the *Translation Policy*, *Damage in Transportation*, *Certified Electrical Contractor Statement*, *Omissions and Errors*, *Service Safety Considerations* and *Legal Notes*, and the *Table of Contents*.

NOTE: This document covers only service documentation related to the Invenia ABUS Viewer software application. For service documentation for the Invenia ABUS 2.0 please refer to the Invenia ABUS 2.0 Proprietary Service Manual.

Content in this Manual (continued)

Table 1-1: Manual Content

Chapter number	Chapter title	Description
1.	Introduction	Contains a content summary and warnings.
2.	Invenia ABUS Viewer Site Preparation/Pre-Installation	Contains pre-setup requirements for the Invenia ABUS Viewer.
3.	Invenia ABUS Viewer Software Installation	Contains setup procedure with procedure checklist.
4.	Configuring Invenia ABUS Viewer Service Parameters	Contains basic setup procedures that the service engineer should perform during the installation of the Invenia ABUS Viewer software product.
5.	Configuring Invenia ABUS Viewer Application Parameters	Contains setup procedures for customer-specific areas of the Invenia ABUS Viewer software product.
6.	Service Desktop	Information on the Service Desktop setup.
7.	InSite	Covers setup and use for InSite, the GE service that provides customer ability to connect to a GE Service Engineer.
8.	Troubleshooting	Contains updates to settings, configurations or procedures to facilitate implementing solutions.

Typical users of the Service Manual

- System administrators
- Licensed Hospital's Service Providers

Invenia ABUS models covered by this manual

Model Numbers and System Catalog Numbers

Table 1-2: Model and Catalog numbers

Description	CAT#	Console Number	GIB INSTALLATION REQUIRED
Invenia ABUS Viewer	H5098SW	N/A	**YES**
Workstation PC	H5098HW	N/A	**NO**

NOTE: These are the basic catalog numbers. There are functional catalog numbers that combine different configurations. Consult your Marketing teams for more information.

Invenia ABUS Viewer

The Invenia ABUS Viewer software will typically be installed at a Workstation PC located in a mammography reading room environment, normally with low ambient light levels next to a mammography reading station and a DICOM workstation. The Workstation PC is designed to accept, transfer, display, store and process medical images and data. The Workstation PC enables the user to optimize, measure and annotate the images. The Invenia ABUS Viewer provides images to enable Physicians to differentiate normal and abnormal breast tissue. The Invenia ABUS Viewer is intended for use by Health Care Professionals only.

The Invenia ABUS Viewer software displays three-dimensional data sets for viewing in three orthogonal planes and standard ultrasound images, permitting Interpreting Physicians to quickly review, locate, and mark regions of interest. The Workstation includes the following components:

1. Workstation PC Tower with minimal hardware requirements
2. Monitor
3. Keyboard
4. Mouse

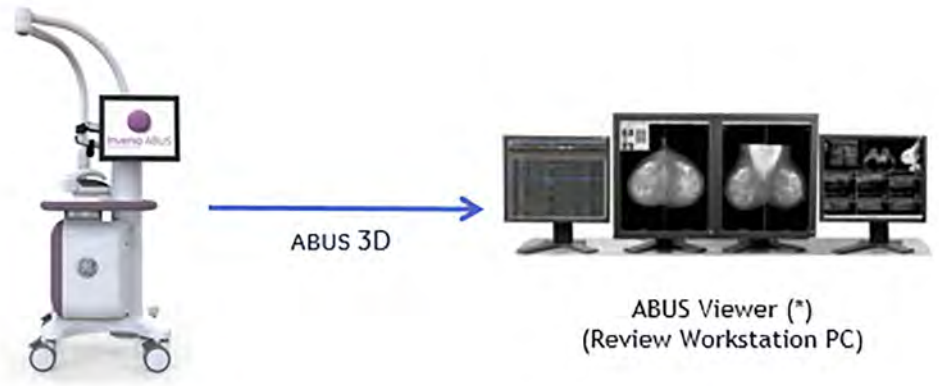
NOTE: The Invenia ABUS Viewer software does not require planned maintenance.

For hardware specific maintenance requirements, check Workstation OEM manuals.

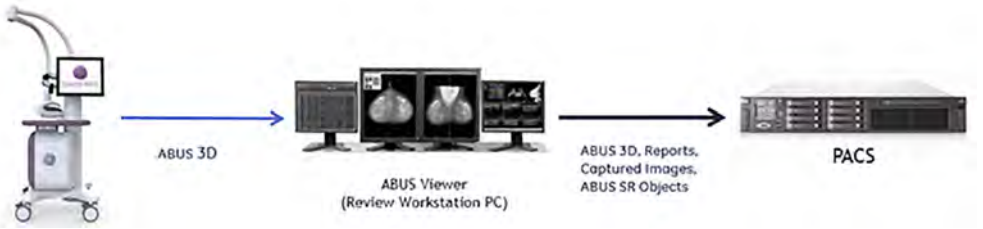
Network Dataflow Configuration

Exam studies are sent from the Invenia ABUS 2.0 (scan station) to the Invenia ABUS Viewer and sent either directly or indirectly (via PACS/Enterprise Archive) to be reviewed by the Interpreting Physician before they are archived.

Basic Image Dataflow Samples



NOTE: Customer backs up the ABUS 3D, Reports, Captured Images, and ABUS SR Objects on the USB/NAS drive.



NOTE: Chapter 4 covers complex dataflows, Invenia ABUS Viewer DICOM Setup. Chapter 9 covers Troubleshooting.

Data Storage and Archive

The workstation that the Invenia ABUS Viewer operates on, is intended to provide temporary storage. A Workstation PC with 1 TB disk space will hold approximately 200 patient studies. The Invenia ABUS Viewer can be configured to maintain 10, 20, 30, 40, or 50 percent of the available disk space free to ensure good workstation performance.

If free space reaches a percentage under the configured limit specified by the user, old reviewed studies are then deleted (oldest first) overnight or when the workstation is powered up the next time. Transfers from the Invenia ABUS Viewer are rejected by the Workstation PC if free disk space falls below 5%. Suspended or un-reviewed studies are never automatically deleted in this manner. Deleted studies can only be re-displayed if the whole study was stored to PACS or external storage, and re-imported.

NOTE: Chapter 4 covers the auto-delete functionality. Chapter 9 covers troubleshooting.

Label Locations

NOTE: *It is important to refer to the current revision of the Invenia ABUS Viewer Basic User Manual for a full list of product labels prior to servicing the system.*

The Invenia ABUS Viewer software DVD ships with a GE CARES label.

Figure 1-1. Invenia ABUS Viewer Software and GE CARES Label Package Sample

Qualified personnel should apply the Invenia ABUS Viewer Software System ID (GE CARES label) on the Workstation PC Tower. The following figure shows the recommended location to install the GE CARES label on a HP Z440 Workstation PC.

Figure 1-2. Label Installation on HP Z440 Workstation PC

Invenia ABUS Viewer Software Commercial Strategy

The customer may purchase the Invenia ABUS Viewer software as follows:

This process describes installing the following items on the computer system:

Option 1. Invenia ABUS Viewer Software Only

Option 2. Invenia ABUS Viewer Software and Workstation PC

NOTE: Both options require qualified personnel to load the Invenia ABUS Viewer software and apply the Invenia ABUS Viewer license during installation.

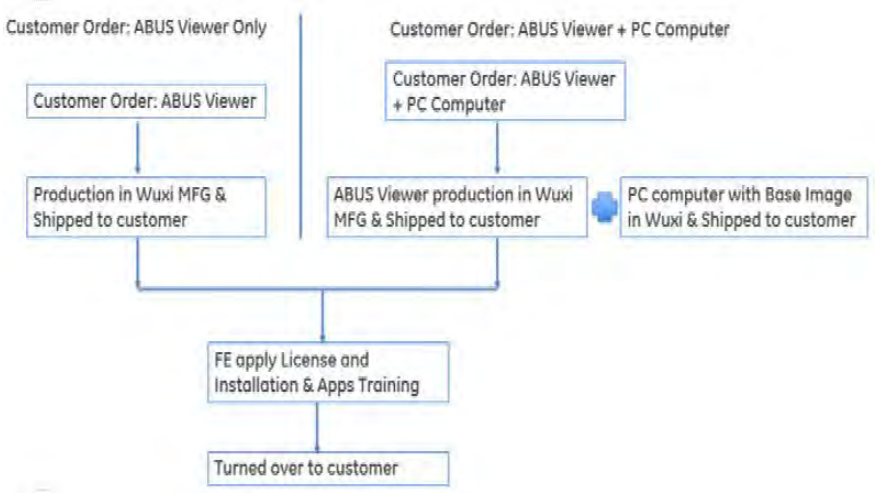


Figure 1-3. Invenia ABUS Viewer Commercial Strategy

Option 1. Invenia ABUS Viewer Software Only Installation Overview

The field engineer will load the Invenia ABUS Viewer Software to a customer-owned Workstation PC (minimum hardware requirements must be met). The field engineer will also configure the Invenia ABUS Viewer DICOM network settings (per site survey), and complete the Invenia ABUS Viewer license procedure. The GE CARES sticker should be applied to the Workstation PC Tower and the Invenia ABUS Viewer software should be stored at the customer site.

NOTE: The Invenia ABUS Viewer software is a medical device. Customers should store the disk or USB drive at a safe location.

Invenia ABUS Viewer Software Commercial Strategy (continued)

Option 2. Invenia ABUS Viewer Software and Workstation PC Installation Overview

The field engineer will unpack and set up the Workstation PC Tower, Monitor, Mouse and Keyboard. The field engineer will then load the Invenia ABUS Viewer software, configure the Invenia ABUS software DICOM network settings (per site survey), and complete the Invenia ABUS Viewer license procedure. The GE CARES sticker should be applied to the Workstation PC Tower and the Invenia ABUS Viewer software should be stored at the customer site.

Chapter 2

Site Preparation/ Pre-Installation Requirements

This chapter covers topics and tasks in preparation for installation.

Installation

Installation Checklist

Please follow this checklist when setting up the Invenia ABUS Viewer:

Table 2-1: Installation Checklist

Step		Page
1.	Pre-installation preparation steps: a. Site survey with all defined Dataflows and all DICOM services destinations (IP Address, AE Title, Port Number). b. Workstation PC(s) have minimum hardware configuration, c. Customer IT and PACs administrators available at the time of install	'Site Preparation/ Pre-Installation Requirements' on *page 2-1*
2.	Workstation PC Basic setup (if needed): a. Plug in, power on, and boot up the Workstation b. Apply the system ID sticker to the Workstation PC tower c. Check/Configure the Workstation PC local date and time. d. Check/Configure the local area network (LAN) addresses.	'Setting up the Workstation PC (Optional)' on *page 2-12*
IF UPGRADING, ensure patient data is properly backed up, and manually back up user and system configuration settings. Perform the backup found on the page listed here.		'Import Patient Exams into the Workstation' on *page 2-4*
3.	Invenia ABUS Viewer Software Installation: a. Perform the software installation procedure b. Perform the HASP license .C2V file procedure - see Chapter 3 c. Install V2Cfile (received from GE after request) to enable HASP license procedure - See Chapter 3 step 4. This step may not be completable at the immediate time of Viewer installation, as it requires interaction with GE then a response. Therefore this action must be noted for future action. d. Verify the license is set to "perpetual".	'Invenia ABUS Viewer Software Installation' on *page 3-1*
4.	Invenia ABUS Viewer configuration setup: a. Configure the Invenia ABUS Viewer AE Title and Port Number b. Configure the Image Data folder (required for Seno Iris integration) c. Configure DICOM services and destinations (per Customer Request or Site Survey) d. Configure the DICOM Output Mapping (per Customer Request or Site Survey) e. Configure InSite Agent Configuration on Service Desktop	'Invenia ABUS Viewer AE Title and Port Number Network' on *page 4-11*

Table 2-1: Installation Checklist (Continued)

Step		Page
5.	Invenia ABUS Viewer testing: Perform a complete validation of customer's dataflow. For example: a. Start a new test exam on the Invenia ABUS 2.0 (using a Worklist and Manual Mode) b. Perform a test scan of the six (6) sets of images (LAP, RAP, LMED, etc.) c. Transfer test study to destination device (per Customer Request or Site Survey) d. Note the transfer time (address any problems with long transfer time with site IT admin)Verify test study on Invenia ABUS Viewer (verify all images arrived) e. Review test study (add markers, calipers and secondary captures) f. Sign report (studies will transfer per Auto-export configuration) g. Verify test study status changed from NEW to REVIEWED on all workstations. (see Export tab in DICOM config and check the SR box for each workstation) h. Verify test study arrived at all appropriate destinations (PACS, NAS, etc.) i. Verify PACS viewers can open and view Screen captures and report (worksheet) j. Verify Query/Retrieve (if applicable - per Site Survey) k. Verify Pre-fetching works (if applicable - per Site Survey)	Invenia ABUS Viewer Basic User Manual
6.	Back up configuration of both Invenia ABUS 2.0 and Invenia ABUS Viewer to a USB portable drive.	Invenia ABUS Viewer Basic User Manual
7.	Test InSite connections by logging into both the Invenia ABUS 2.0 and all workstations.	Invenia ABUS Viewer Basic User Manual
8.	If the site has multiple workstations, you will need to test all the workstations for the ability to push a study to each workstation.	Invenia ABUS Viewer Basic User Manual
9.	Setup configuration for the workstation, Worklist server, PACS server, and MPPS server (if applicable). Confirm / Set the AE Title.	Invenia ABUS Viewer Basic User Manual

Import Patient Exams into the Workstation

1. At the Invenia ABUS Workstation, connect the USB drive. Wait for it to be detected.
2. Run the Invenia ABUS Workstation application and login with your service account.
3. Click the Study Browser button .
4. In the top right corner of the Study Browser screen click From then click on the **Browse** button.
5. Browse to the USB drive then click **OK**. If the patient exam folders are in a particular folder then select that folder otherwise just select the USB drive itself.
6. A list of patient exams identified on the USB drive will be displayed. The list may take a few seconds to display.
7. Click the check boxes of the patient exams to be imported.

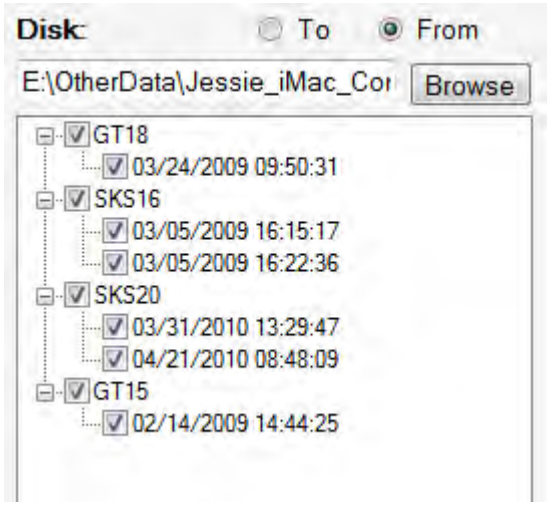


Figure 2-1. Patient exams to transfer

8. Click the **Import** button. A progress bar will show the import progress and completion.
9. Once the import has completed delete the patient exam folder(s) on the USB drive.

The patient exam data copied to the USB drive in this procedure must not leave the site in compliance with HIPAA. Ensure that the copied folders are deleted from the USB drive before leaving the facility.

10. Remove the USB drive from the Workstation.

Workstation PC Requirements

Requirements

The Invenia ABUS Viewer must be installed on a PC Workstation that supports high resolution graphics and provides 10 GB for the application and sufficient storage to support the user's exam volume.

For the latest information on the Invenia Viewer requirements:

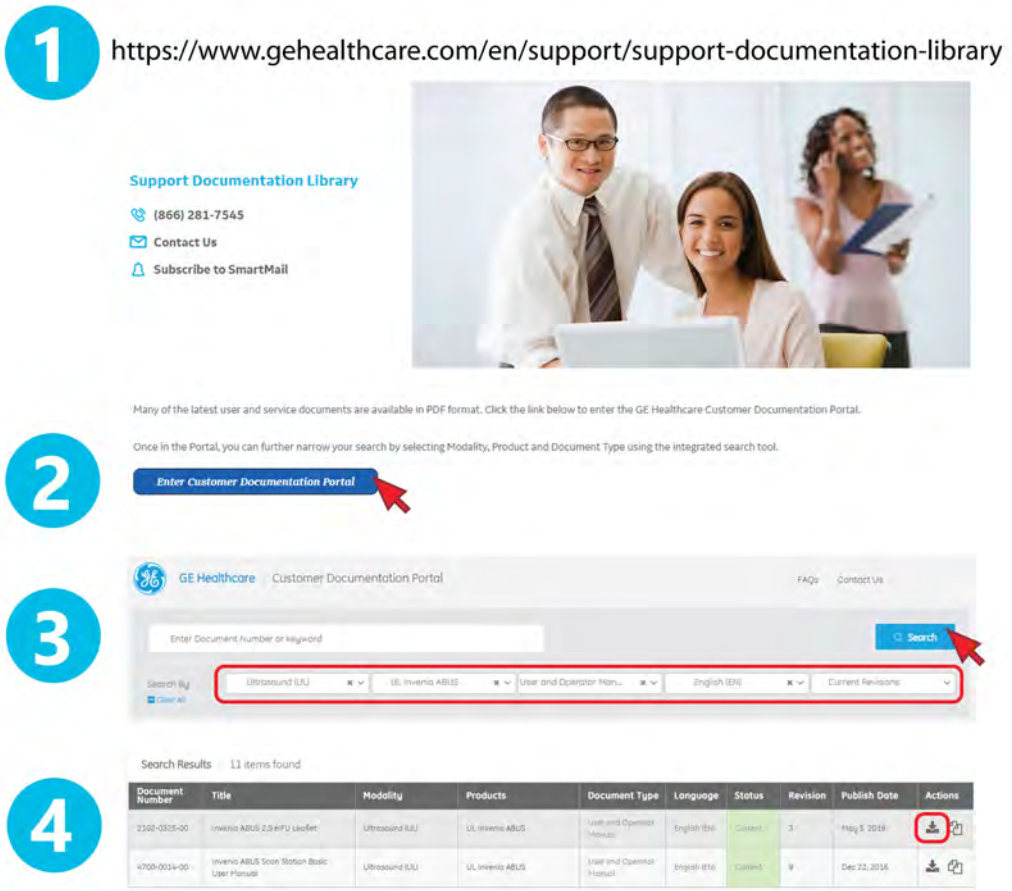


Figure 2-2. GE Support Documentation Library

Requirements (continued)

1. Go to this link in a web browser:

   https://www.gehealthcare.com/en/support/support-documentation-library
2. From the Support Documentation Library page, select to "Enter Customer Documentation Portal."
3. Select the following Search Criteria: Modality (Ultrasound), Product (Invenia ABUS), Manual Type (User and Operator Manual), Language [select preferred language], and Current Revisions (Current Revisions), then press Search.
4. Select and download the Basic User Manual by pressing the Actions' Download icon.

Hardware Requirements

Table 2-2: Invenia ABUS Viewer Hardware Requirements

Hardware	Description
Video Card	Support for OpenGL 3.3 or Higher 2 GB GDDR5 Dedicated Video Memory or more Memory Bandwidth 100GB/s or higher Support Resolution of at least 1920 x 1200 at 60Hz
Monitor	Minimum Requirements: Dedicated 24” Color Monitor Minimum resolution 1920 x 1200 Recommended Monitor Specs: or greater diagonal size 1920 x 1200 resolution or higher LED backlit, Color Panel Brightness 250 cd/m or greater Contrast Ratio 1000:1 or higher
Database	The Invenia ABUS Viewer software uses PostgreSQL database. The database is installed and configured automatically during the isntallation process. No other instances of PostgreSQL database are supported on the same computer.
Processor, Memory	Xeon E5-1620 3.6GHz or better 8.0 GB RAM or better Minimum requirements at installation: 8.0 GB RAM
Available Disk Space	Hard Drive with 400MB reserved for the application and separate Hard Drive/disk space for Exames (1GB per exam, recommend 300 exams cache) *Minimum requirements at installation:* 300 GB of available space
I/O and Media	One or more USB 2.0 port/s, DVD Player
Video Card	Support for OpenGL 3.3 or Higher 2 GB GDDR5 Dedicated Video Memory or more Memory Bandwidth 100GB/s or higher Support Resolution of at least 1920 x 1200 at 60Hz

IMPORTANT OPERATING SYSTEM REQUIREMENTS:

Review Software:

Windows 7 x 64 (ONLY)

This software does not support Windows 10

Invenia ABUS Viewer:

Windows 7 x 64 and Windows 10

Workstation PC Hardware Compatibility

Workstation Hardware Compatibility Check

Performing the workstation hardware compatibility check:

Table 2-3: Workstation PC Hardware Compatibility

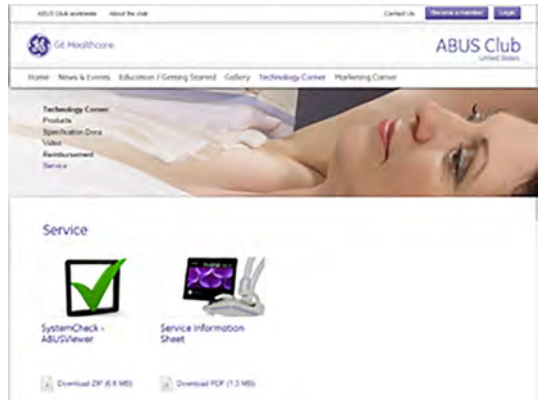
Step		Corresponding Graphic
1.	Open a Web browser and type: https://www.abusclub.net/us/service	

Table 2-3: Workstation PC Hardware Compatibility (Continued)

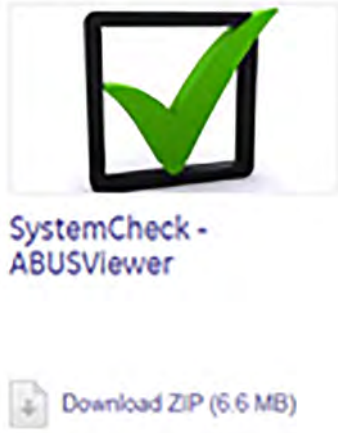
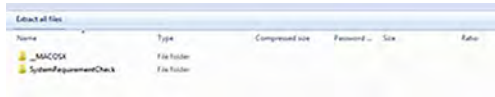
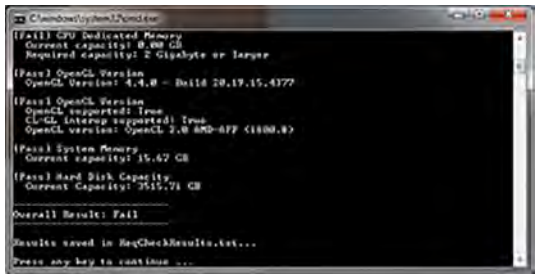
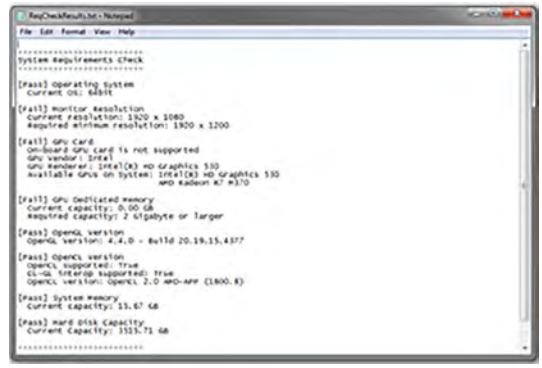
Step		Corresponding Graphic
2.	Download the SystemCheck-ABUSViewer file (zip file 6.6 MB)	
3.	Unzip it and copy it to the desktop of the computer where the compatibility needs to be tested.	
4.	Double-click on "Run.bat", then press any key to continue.	

Table 2-3: Workstation PC Hardware Compatibility (Continued)

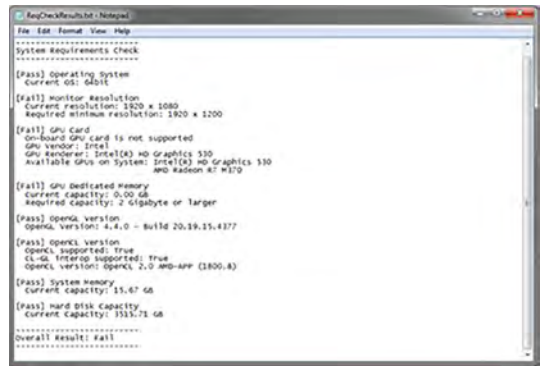
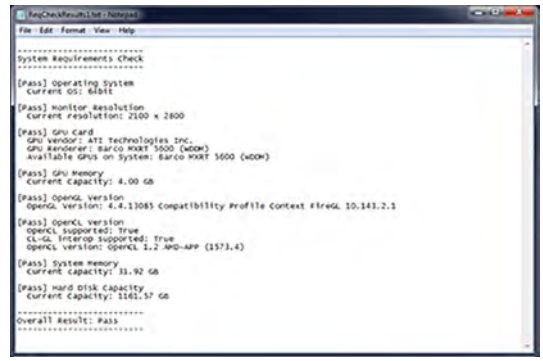
Step		Corresponding Graphic
5.	A "ReqCheckResults.txt" file is created containing the system requirements report.	

System Requirements Check Report

Examples

The workstation must pass the overall results in order for the Invenia ABUS Viewer software to be installed on a customer workstation.

Table 2-4: System Requirements Check Report

Description	Corresponding Graphic
Sample of a system that **failed** the overall system requirements check.	
Sample of a system that **passed** the overall system requirements check.	

Setting up the Workstation PC (Optional)

Workstation PC Setup

The Invenia ABUS Viewer can be installed on a customer PC that meets hardware requirements, or on an existing or new GE Workstation PC. For sales orders that include a Workstation PC, the field engineer must unpack and set up the Workstation hardware.

1. Carefully unpack the Workstation package: Workstation PC, Monitor, Keyboard, Mouse, Power and Network Cords:

Table 2-5: Setting up the Workstation PC

Step		Corresponding Graphic
1.	Cut the box straps using a pair of scissors.	

Table 2-5: Setting up the Workstation PC (Continued)

Step		Corresponding Graphic
2.	Cut the tape to open the box.	
3.	Carefully remove the Workstation PC Tower.	

Table 2-5: Setting up the Workstation PC (Continued)

Step		Corresponding Graphic
4.	Carefully remove the Monitor and Stand.	

2. Set up the Workstation by assembling the Monitor to the stand. Connect the power and monitor video cables.
3. Connect the Monitor video cable to the Video Output (Display Port) on the rear of the Workstation PC.
4. Connect the wired keyboard to any USB connector on the rear of the Workstation.
5. Connect the mouse to any open USB connector on the rear of the Workstation.
6. Plug in the Power and Network cables, then power on to boot up the Workstation.

Workstation PC Setup (continued)

7. Perform the Time Zone, Date and Time set up procedure (Chapter 4).
8. Unpack the Invenia ABUS Viewer Software package and apply the GE CARES Label (system ID sticker) to the Workstation PC Tower.

NOTE: Apply the sticker on the removal panel which is located on the left side of the PC as shown:

9. Continue to the Invenia ABUS Viewer installation procedure.

NOTE: Service Note SN75037 HP PC Workstation provides specific details on the Workstation and Base Load Software procedure.

Requirements for the Installer

Windows Operating System Administrator Rights

Windows level administrative rights are required to install the Invenia ABUS Viewer Software. Ensure that you are logged into the viewing workstation as an administrator.

Antivirus

Antivirus Software

Anti-virus software may impact or prevent the installation of the Invenia ABUS Viewer software or key components of the software: database, license, archive, service desktop. Therefore, it may be necessary to disable or to create an antivirus exclusion list for the Invenia ABUS Viewer software and its supporting applications such as Sentinal HASP.

Antivirus Exclusion List for the Invenia ABUS Viewer

In case an Antivirus software needs to be installed on the system running the Invenia ABUS Viewer software, the following programs/locations should be excluded from any antivirus monitoring: Default Invenia ABUS Viewer image archive folder: **C:\Image-Data folder**.

NOTE: The folder location can be modified during software installation or at the system configuration menu.

Default installation folder is **C:\Program Files\U-Systems\Invenia ABUS Workstation**

NOTE: The folder location can be changed only during the actual installation process of the Invenia ABUS Viewer software.

Exclude the following services/applications/processes:

Table 2-6: Antivirus Exclusion List for the Invenia ABUS Viewer

Applications	• Haspdinst.exe • Hasprus.exe • Invenia ABUS Workstation.exe • UsysContextSyncApp.exe • UsysDcmReceiveApp.exe • UsysDicomExportService.exe • UsysDiskClean.exe • UsysMonitorService.exe • UsysOfflineDataManager.exe
Services	• PostGreSQL • UsysDataCaptureService • UsysDicomSendService • UsysMonitorService

NOTE: The list could vary based on the system and configuration. While these are the most common applications and services utilized by the Invenia ABUS Application, other programs and locations specific to this application or the system in general, might need to be excluded from antivirus monitoring to improve performance.

Customer Assistance

Contact Information

If this equipment does not work as indicated in this service manual or in the user manual, or if you require additional assistance, please contact GE Service or appropriate support resource. Note the following:

1. System ID serial number.
2. Software version.
3. Date and time of occurrence.
4. Sequence of events leading to issue.
5. Is the issue repeatable?

Contact Information (continued)

Table 2-7: Phone Numbers for Customer Assistance

LOCATION	NUMBER	
USA GE Healthcare Ultrasound Service Engineering 9900 Innovation Drive (RP-2123) Wauwatosa, WI 53226, USA	Service	TEL: 1-800-437-1171
	Service Parts	TEL: 1-800-558-2040
	Online Center	TEL: 1-800-321-7937
	Application Support	TEL: 1-800-682-5327
		TEL: 1-262-524-5698
Canada	Service	TEL: 1-800-668-0732
	Online Center	TEL: 1-800-321-7937
	Application Support	TEL: 1-262-524-5698
Latin America	Service	TEL: +1-262-524-5300
	Application Support	TEL: +1-262-524-5698
EUROPE Ultrasound Europe GE Ultraschall Deutschland GmbH Beethovenstraße 239 Postfach 11 05 60, D-42655 Solingen Germany	Support	TEL: +49 (0) 212 2802 652
		FAX: +49 (0) 212 2802 431
Online Services Ultrasound Africa	Algeria Service Center	TEL: +(213) 2179 1212
	Egypt Service Center	TEL: +(202) 232 28410
Online Services Ultrasound EGM	Saudi Service Center	TEL: +(966) 800 124 3002
	UAE Service Center	TEL: +(971) 800 3646
Asia (Singapore) GE Ultrasound Asia Service Department – Ultrasound 298 Tiong Bahru Road #15-01/06 Central Placa Singapore 168730	Service Department	TEL: +65 6291-8528
		TOLL FREE: 800-101-2882
		FAX: +65 6291-7006
Japan	Online Center	TEL: +81 42-846-9011
		FAX: +81 42-648-2905
Korea	Online Center	TEL: +(82) 1544-6119
China	Technical Support	TEL: +(86) 800-810 8188 TEL: +(86) 400-812 8188
India	Technical Support	TEL: 1-800-425-8025 TEL: 1-800-425-7255 TEL: 1-800-102-7750

Manufacturer

Table 2-8: Manufacturer

GE Healthcare - GE Medical Systems Ultrasound and Primary Care Diagnostics, LLC
9900 Innovation Drive
Wauwatosa, WI 53226
USA

Chapter 3

Invenia ABUS Viewer Software Installation

This chapter describes how to install the Invenia ABUS Viewer software for a workstation.

Preparing for Installation

Overview

This process describes installing the following items on the computer system:

1. Invenia ABUS Viewer software
2. Sentinal HASP license handling software
3. GE Service Desktop software

Additionally, the installation allows users with Seno Iris hardware and software to integrate that functionality with the Invenia ABUS Viewer. This configuration must be done by a GE authorized representative.

Invenia ABUS Viewer Delivery Package Contents

The Invenia ABUS Viewer software is delivered in a package containing these items:

1. Invenia ABUS Viewer installation software on a Software media DVD or USB flash drive
2. GE CARES label

Figure 3-1. Invenia ABUS Viewer and GE CARES Label Package Sample

NOTE: It is important to refer to the current revision of the Invenia ABUS Viewer Basic User Manual for a full list of product labels prior to servicing the system.

Invenia ABUS Viewer Delivery Package Contents (continued)

The GE authorized representative installing the Invenia ABUS Viewer software should apply the Invenia ABUS Viewer software system ID (GE CARES label) on the Workstation PC Tower.

The following figure shows the recommended location to install the GE CARES label on a HP Z440 Workstation PC Tower.

Figure 3-2. Label Installation on the HP Z440 Workstation PC Tower

Invenia ABUS Viewer Software Installation Procedure

Before installing software:

NOTE: READ the ENTIRE procedure before starting the Software Load Procedure.

As a precautionary step, GE Healthcare recommends that system and user configurations are backed up before installing software.

NOTE: To install this software, Windows level administrative rights are required. Ensure that you are logged into the Viewer as an administrator.

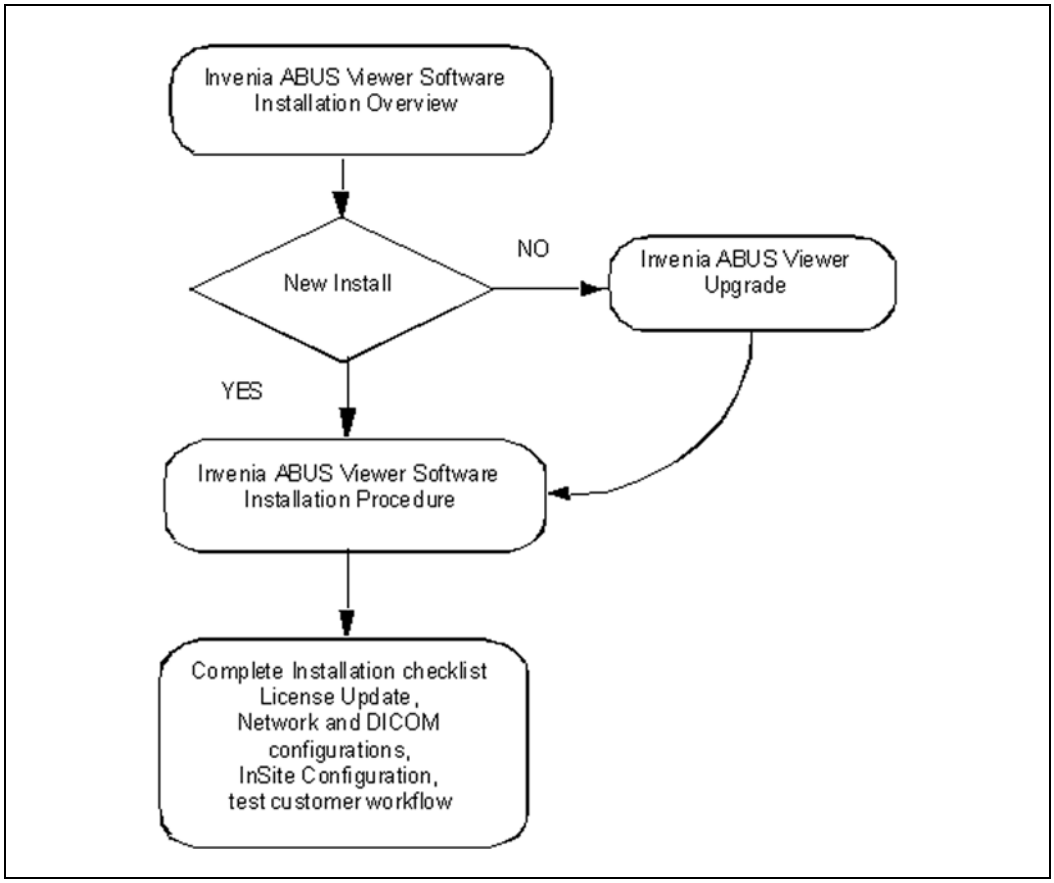
NOTE: For application reinstall, ensure that ALL patient data on the Viewer has been archived to a separate media before installing the new application software.

NOTE: Ensure that there is 300 GB of free space on the hard drive before installing the application software. Delete Patients using the Study Browser if required.

NOTE: Ensure that the system meets the minimum hardware requirements. (See Hardware Requirements). The Invenia ABUS Viewer Software will load on Windows 7 (64x) and Windows 10.

Invenia ABUS Viewer Software Load Procedure

Table 3-1: Invenia ABUS Viewer Database Flowchart



Invenia ABUS Viewer Upgrade Required Pre-Steps

(Software Installation on a System Running Invenia Review Software 2.3.0 and earlier)

NOTE: The procedure below is for upgrading a Workstation from Invenia Review Software (2.3.0 and earlier) to Invenia ABUS Viewer (2.5.1).

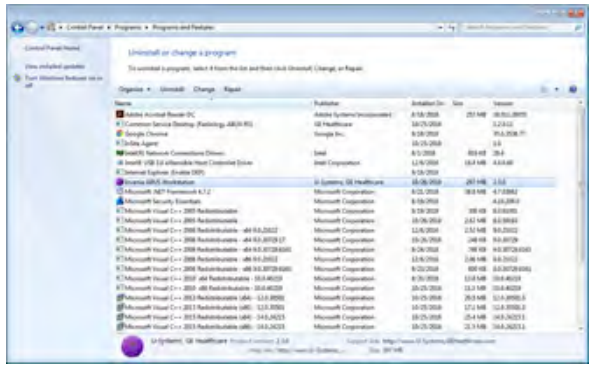
IMPORTANT: The field engineer MUST complete the following steps before loading the Invenia ABUS Viewer Software.

NOTE: The goal is to remove ALL traces of the old software to allow a complete installation of the new software. If this step is not completed, refer to the Troubleshooting chapter to find the steps required to redo the installation.

NOTE: For new installations, refer to 'Invenia ABUS Viewer Software Installation (New Software Installation)' on page 3-14.

Remove Invenia ABUS Review Software (2.3.0 and earlier)

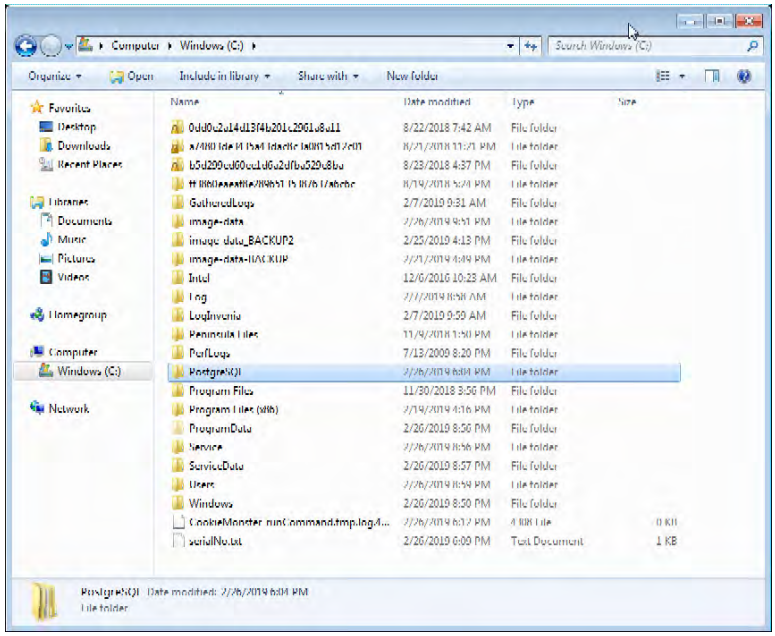
Table 3-2: Remove Invenia ABUS Review Software (2.3.0 and earlier)

Step		Corresponding Graphic
Before Performing this Procedure: 1. Log in to Invenia ABUS Viewer as Service. 2. Manually backup (write down or take pictures) of all of the system configuration settings. 3. Manually backup the user accounts (user passwords will be lost after the upgrade). 4. Ensure that ALL patient data is backed up, including image data to "C:\image-data_backup" (if needed). (Transfer images to PACS, NAS, etc.). 5. Log out.		
	This step is necessary only if upgrading from Invenia ABUS Review Software (2.3.0 and earlier) Uninstall the Invenia ABUS Workstation software: Click on the Windows "**Start**" icon; then click on the "**Control Panel**". Under "**Programs**", click on "**Uninstall a program**". Select the "**Invenia ABUS Workstation**" program. At the top of the program list, click "**Uninstall**". *NOTE: If a Program and Features message window appears, press "**Yes**".*	

Remove Database

Table 3-3: Remove Database

Step	Corresponding Graphic
1.	Find the database folder (it is usually located on the C:\ drive) to check which database is installed in your Workstation, the folder name is either “mysql” or “PostgreSQL”. Perform the next 6 steps of this procedure based on the database installed on the Workstation.



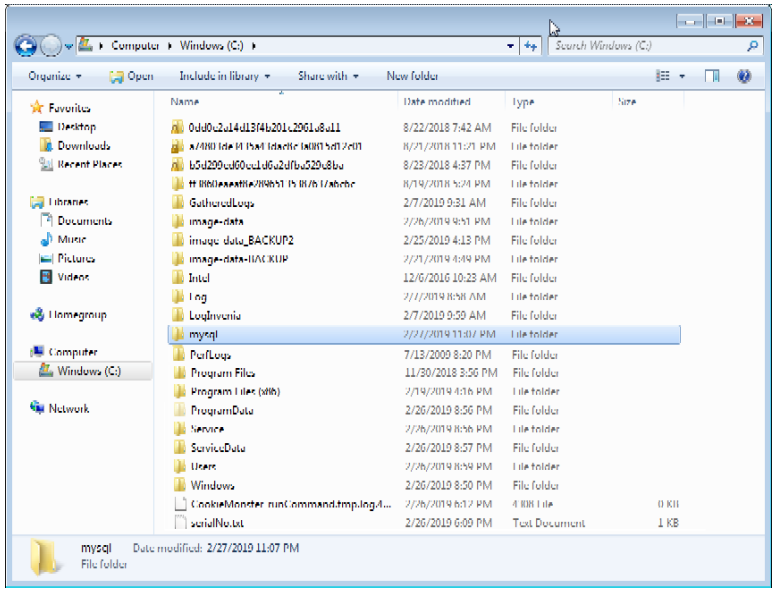


Table 3-3: Remove Database (Continued)

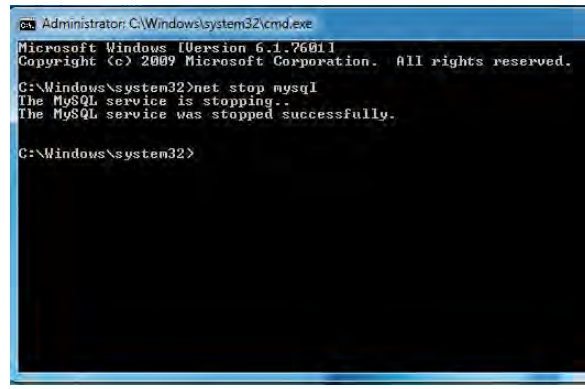
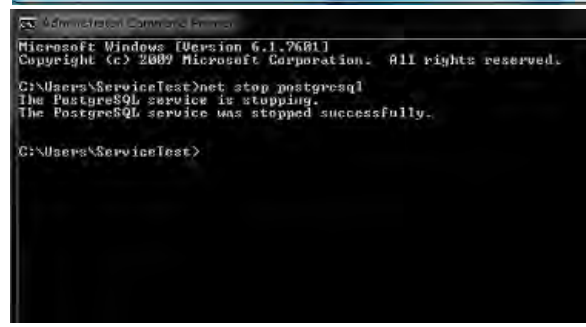
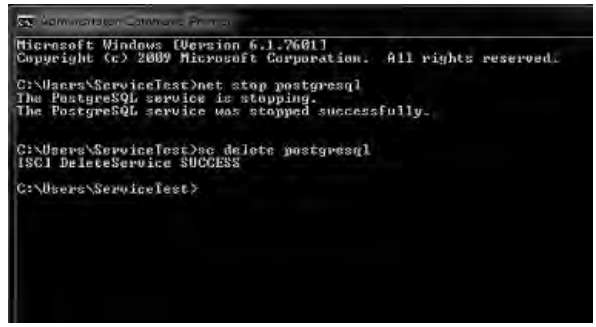
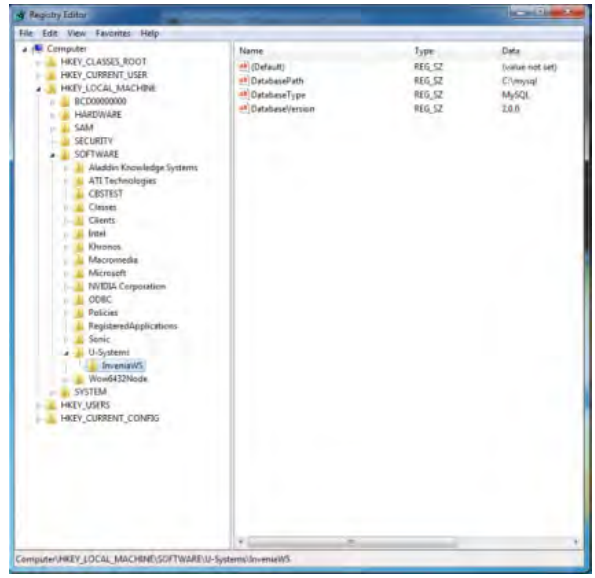
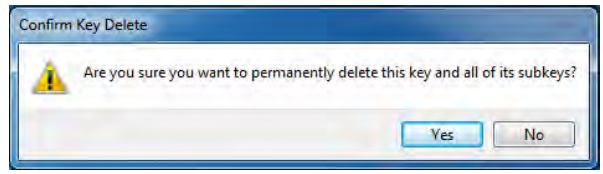
Step		Corresponding Graphic
2.	Run **cmd.exe** (command prompt) as administrator, do so by clicking on the Windows button (lower left corner). Type "**cmd**" in the Search programs and files area. Press and hold simultaneously the **Ctrl+Shift+Enter** keys.	
3.	A pop-up may appear that says "**Do you want to allow the following program to make changes to this computer?**" Click "**Yes**".	
4.	Use the appropriate command line based on the database type. Stop MySQL database service: Once in the command screen type in "**net stop mysql**" and press enter to stop the database service. Stop PostgreSQL database service: Once in the command screen type in "**net stop postgresql**" and press enter to stop the database service.	 

Table 3-3: Remove Database (Continued)

Step		Corresponding Graphic
5.	Use the appropriate command line based on the database type. Delete MySQL database service: Type the common "**sc delete mysql**" and press enter to remove the MySQL entry from the services.	
	Delete PostgreSQL database service: Type the common "**sc delete postgresql**" and press enter to remove the PostgreSQL entry from the services.	
6.	Delete the appropriate database folder. Find the database folder in C:\ drive: Delete the MySQL database folder: Right-click on the **MySQL** folder to highlight it, and then select "**Delete**". Delete the PostgreSQL database folder: Right-click on the **PostgreSQL** folder to highlight it, and then select "**Delete**".	

Remove InveniaWS Registry Entry

Table 3-4: Remove InveniaWS Registry Entry

Step		Corresponding Graphic
1.	Click on the Windows button (lower left corner). Type “**regedit**” in the Search programs and files area.	
2.	A pop-up may appear that says “Do you want to allow the following program to make changes to this computer?” Click “Yes”.	
3.	Locate the following folder on the left hand side of the screen. HKEY_LOCAL_MACHINE\SOFTWARE\U-Systems\Invenia WS	
4.	Click on the InveniaWS line to highlight it.	
5.	Delete the **InveniaWS** folder by right-clicking on it and selecting the **Delete** option. Then, click “Yes” to proceed.	

Rename the Image-Data Folder and Remove System Configuration Files (Presets)

Table 3-5: Rename Image-Data Folder and Remove System Configuration Files

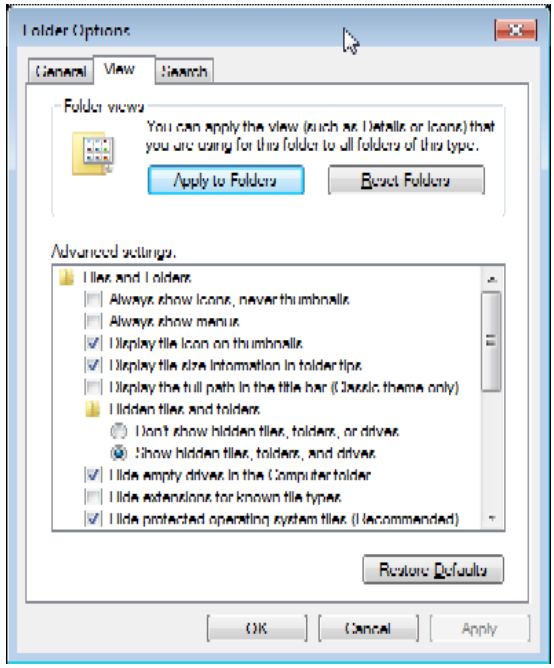
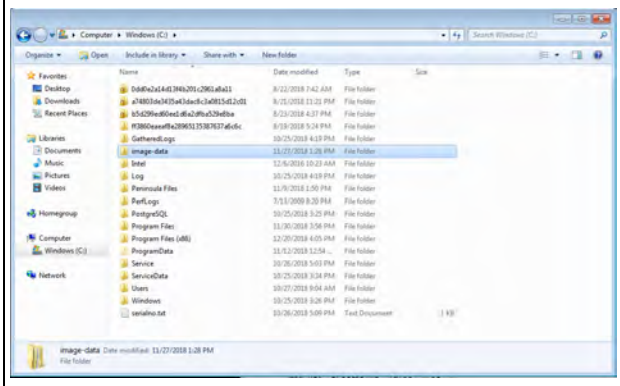
Step		Corresponding Graphic
1.	Configure the Windows OS to Show hidden Files and Folders: Press on the Windows "**Start**" icon; then press on "Computer". Select the C:\ drive. Click **Organize**, then Select **Folder Options**, then select the **View** tab. Under Advanced settings, select **Show hidden files, folders, and drives**, and then select **OK**.	
2.	Rename the "**C:\image-data**" folder to "**C:\image-data_backup**" *NOTE: This step is only required if intending to restore the patient data after the upgrade.* This step will require available disk space, otherwise copy "C:\image-data_backup" to an external drive. Depending on the amount of data, this step may take a long time. Thus, if ALL image data is backed up (PACs, NAS, etc.), and the customer agrees that the data is no longer needed on the workstation, delete the image folder.	

Table 3-5: Rename Image-Data Folder and Remove System Configuration Files

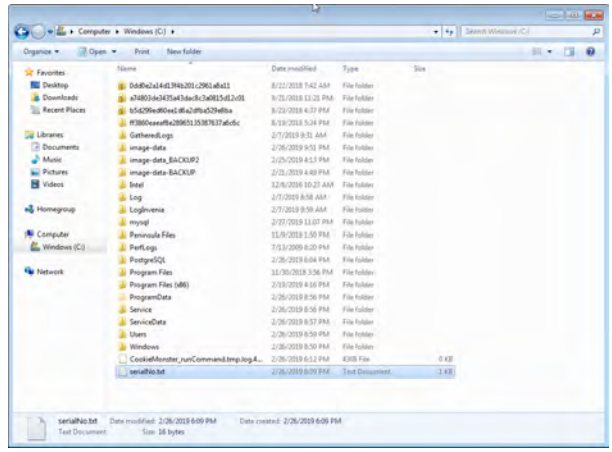
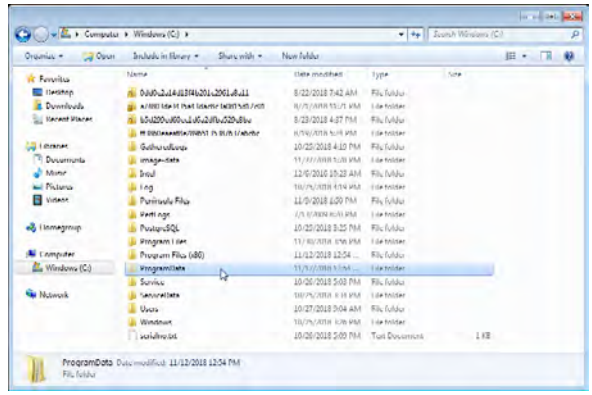
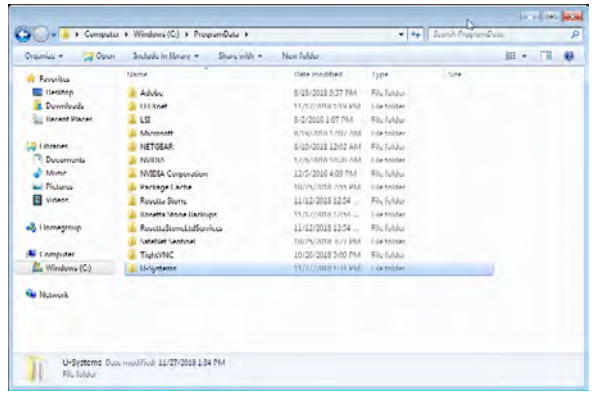
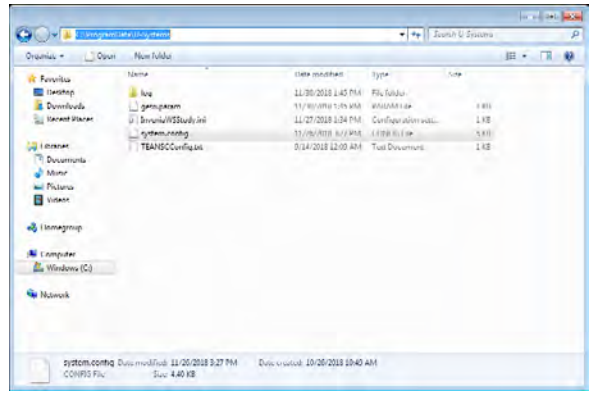
Step		Corresponding Graphic
3.	Delete the **serialNo.txt** file.	
4.	Double-click the **Program Data** folder.	
5.	Double-click the **U-System** folder.	

Table 3-5: Rename Image-Data Folder and Remove System Configuration Files

Step		Corresponding Graphic
6.	Delete the **system.config** file.	
7.	The Invenia Workstation Review Software has been completely removed from the customer's Workstation PC, and is ready for the Invenia ABUS Viewer to be loaded. Perform the 'Invenia ABUS Viewer Software Installation Procedure' on *page 3-4*. **IMPORTANT:** Once the Invenia ABUS Viewer software load is finished: 1. Manually enter the user account names (set passwords to Invenia1 and inform all users that the passwords were set to default and that they should modify the default password on the first login). 2. Manually enter the customer's settings (some of the settings are new to the Invenia ABUS Viewer - leave those as default). 3. Re-import the image data from "C:\image-data_backup" (if needed), and delete this backup folder before leaving the customer site. 4. The license update procedure is not needed for upgrades.	

Invenia ABUS Viewer Software Installation (New Software Installation)

Table 3-6: Estimated Procedure Time

Manpower / Time / Training Level	Tools
One person / 60 minutes / Invenia ABUS Instructions Lead Class	Invenia ABUS Viewer Software DVD

Table 3-7: Invenia ABUS Viewer Software Load Procedure

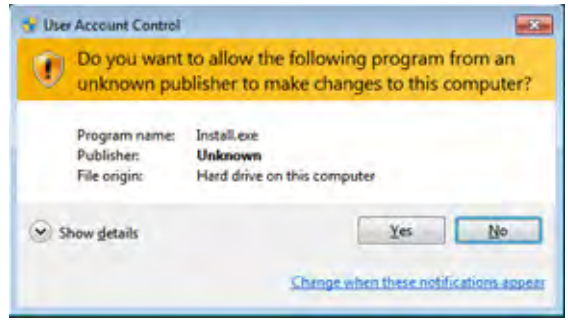
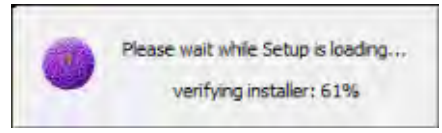
Step		Corresponding Graphic
NOTE: Check the Workstation date and time before proceeding with the Invenia ABUS Viewer Software Load Procedure. If the date and time is incorrect, perform "date and time" setup in the PSM Chapter 4.		
1.	The Invenia ABUS Viewer software is on a DVD; insert the disc into the Workstation PC DVD Drive. After a slight delay, Windows will auto-play the disc and start installation. *NOTE: Depending on the Windows configuration, the auto-run feature might be deactivated. If auto-run is disabled, manually start the software installation procedure from the CD/DVD drive.* *Click on the Windows "**Start**" icon,* *select "**Computer**",* *click on "**DVD Drive**",* *and then right-click on the Invenia ABUS Viewer installation file executable name:* *"**d:\Invenia ABUS Viewer-global-2.5.1.xxx.exe**".* *In the right-click popup, select '**Run as administrator**'.* *The installation process will now start.*	
2.	If this dialog box appears, click "Yes" to proceed. If this screen does not appear, the software will automatically start to install. (See Step 3.)	
3.	The software installation setup process will start.	

Table 3-7: Invenia ABUS Viewer Software Load Procedure (Continued)

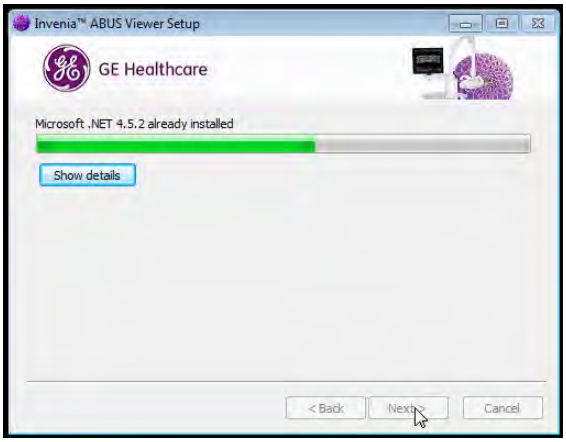
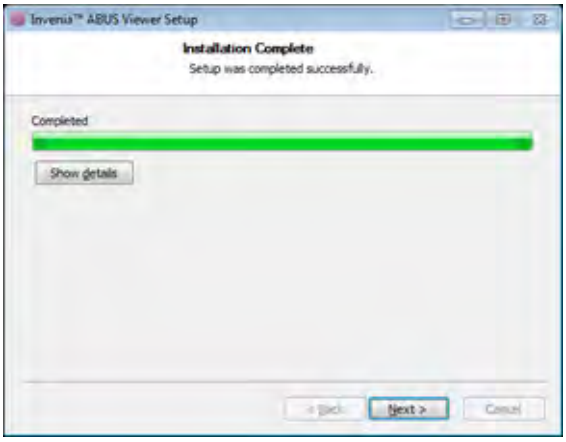
Step		Corresponding Graphic
4.	The dialog window for the Setup phase will be displayed.Click "**Install**" to begin this phase.	
5.	The installation software will begin unpacking the files.	
6.	Once the Setup extraction phase is complete, this dialog box is displayed. *NOTE: A reboot is required in order to continue the installation steps after the next installation phase is completed. IF YOU HAVE ANY OPEN APPLICATIONS WITH DATA THAT YOU DO NOT WANT TO LOSE, SAVE THE DATA NOW; then close the applications before proceeding.* When ready, click "**Next**" to proceed.	

Table 3-7: Invenia ABUS Viewer Software Load Procedure (Continued)

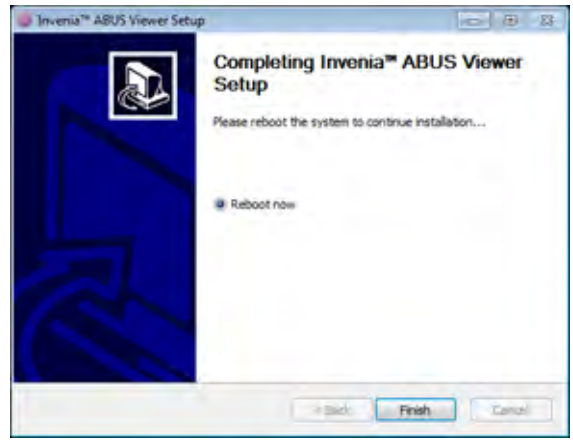
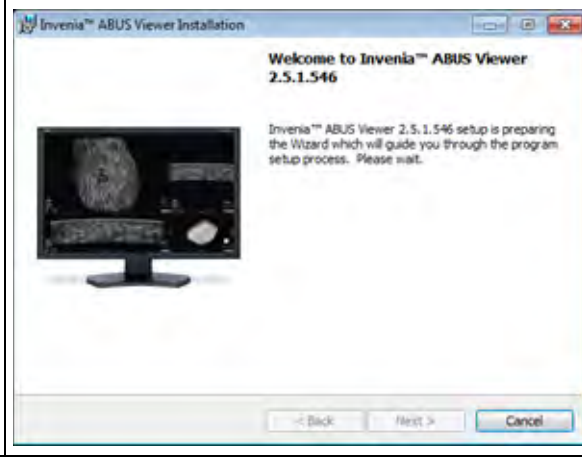
Step		Corresponding Graphic
7.	The final dialog window for the Setup phase opens. Click '**Finish**' to trigger a machine restart. This will close the Windows application and reboot the machine. *NOTE: Depending on the IT policy at your location and the machine settings, the workstation might perform a Windows update (if one is pending) before fully rebooting. This may impact the availability of the machine during that period.*	
8.	The corresponding screen is displayed briefly.	
9.	Click on "**Next**" again on the Invenia ABUS Viewer Installation window.	

Table 3-7: Invenia ABUS Viewer Software Load Procedure (Continued)

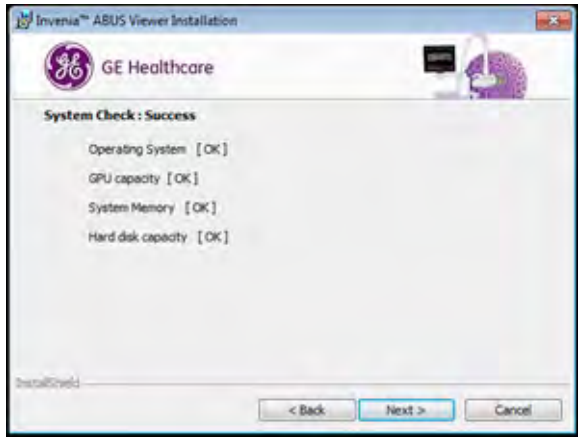
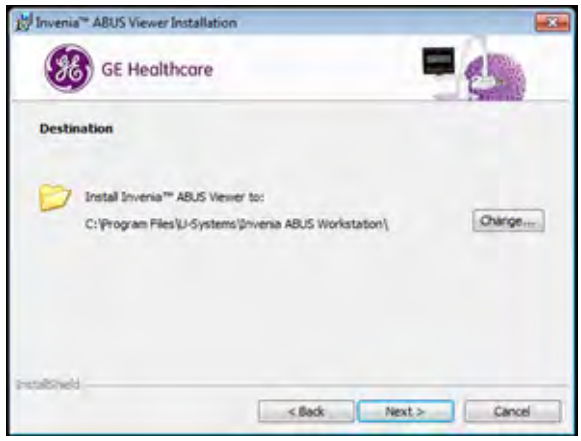
Step		Corresponding Graphic
10.	The Invenia ABUS Viewer checks the minimum hardware requirements. Click "**Next**" to proceed. *NOTE: If the system check fails, consider the following:* Case 1: Seno Iris Integration. Perform the Environmental Variables described on the Invenia ABUS Viewer PSM. Case 2: Not a Seno Iris Integration; however, the customer is using an approved hardware configuration. Perform the Environmental Variables described in the Invenia ABUS Viewer PSM. Case 3: Workstation does not have the minimum hardware required. Customer will need to provide a Workstation PC that meets the Invenia ABUS Viewer specifications.	
11.	The installer will request confirmation of a destination folder for the Invenia ABUS Viewer software. Unless the customer requests a different location, the default location does not need to be modified. Press "**Next**" to proceed.	

Table 3-7: Invenia ABUS Viewer Software Load Procedure (Continued)

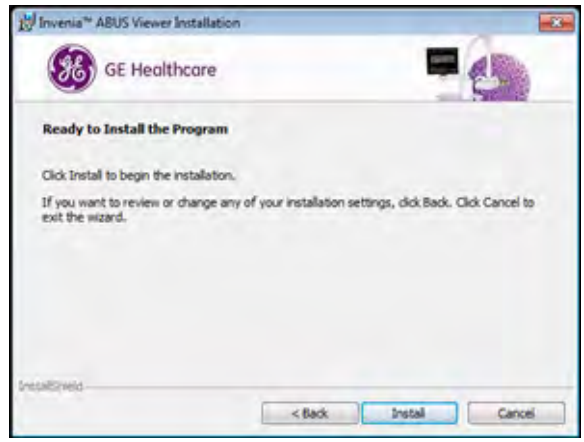
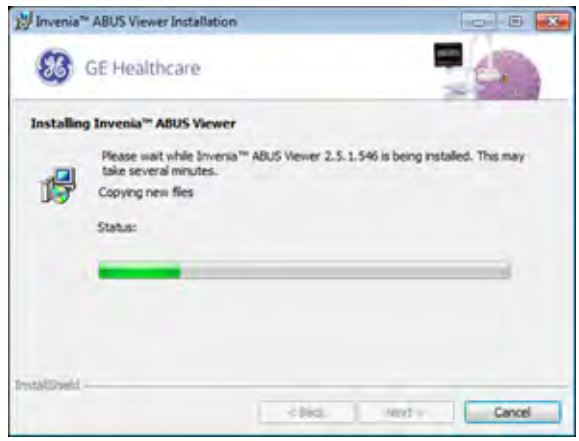
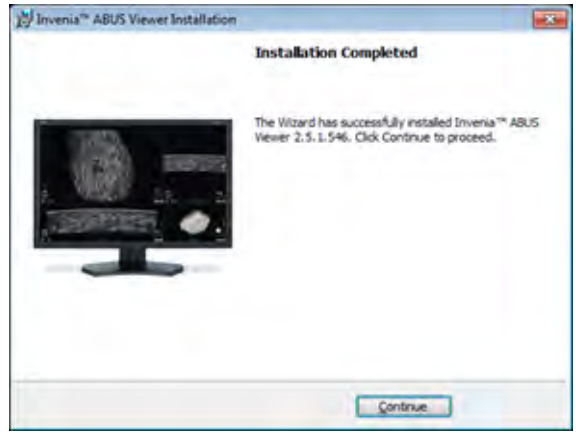
Step		Corresponding Graphic
12.	Click "**Install**" to start the installation process.	 
13.	Once the Invenia ABUS Viewer software is successfully installed, the "**Installation Completed**" dialog will be displayed. Click "**Continue**" to proceed with the installation of the Service Desktop software.	

Table 3-7: Invenia ABUS Viewer Software Load Procedure (Continued)

Step		Corresponding Graphic
14.	The corresponding screens will be displayed and the Service Desktop installation begins. *NOTE: This step may take 5-7 minutes.*	
15.	The Invenia ABUS Viewer serial number information is shipped with the software media. Type in the serial number using the following format: "**INVVxxxxxxx**" (where xxxxxxx are the serial number digits).	
16.	This step confirms that all components are installed successfully. Click "**Restart**" to close the dialog window and to restart the Workstation. *NOTE: The software is ready for use after the system has completed rebooting.* After the reboot, the user should remove the installation DVD and store it safely.	

Table 3-7: Invenia ABUS Viewer Software Load Procedure (Continued)

Step		Corresponding Graphic
17.	Double-click the Invenia ABUS Viewer icon on the Desktop, and login to the Invenia ABUS Viewer using the Service User Name and Password. Then, follow the installation checklist to ensure that the Invenia ABUS Viewer is fully configured and functional for customer use or applications testing. 1. Add the GE Service Windows user account. 2. Configure the InSite agent and verify that the system is connected to the InSite connection. A DNS may be needed to be able to complete this step. 3. Verify that the license is perpetual, if not, then perform the license update procedure.	

Creating a GEService Windows User

A software bug with the Service Desktop package was identified with the Invenia ABUS Viewer (2.5.1) and Invenia 2.0 (2.0.3): a required GEService user is not created, thus SSH and Data File transfer will not work unless this GEService user is manually created in Windows.

Instructions on creating the GEService Windows user on the Invenia ABUS Viewer

Table 3-8: Creating the GEService Windows User

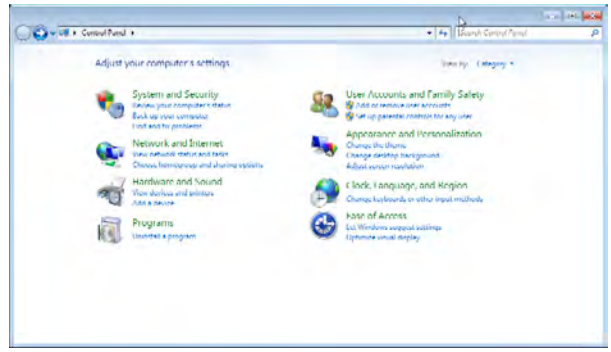
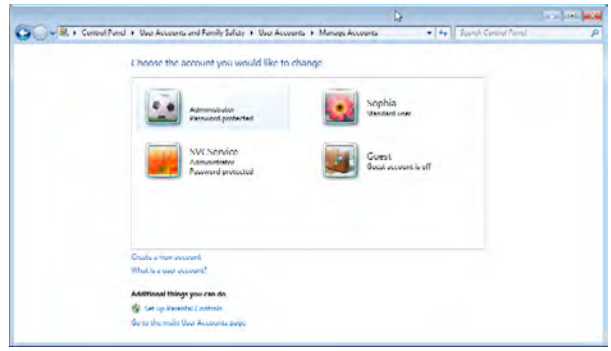
Step		Corresponding Graphic
1.	Click on Windows "**Start**" icon and then click "**Control Panel**". Under "**User Accounts and Family Safety**" click on "**Add or remove user accounts**."	
2.	Click on "**Create a new account**".	

Table 3-8: Creating the GEService Windows User (Continued)

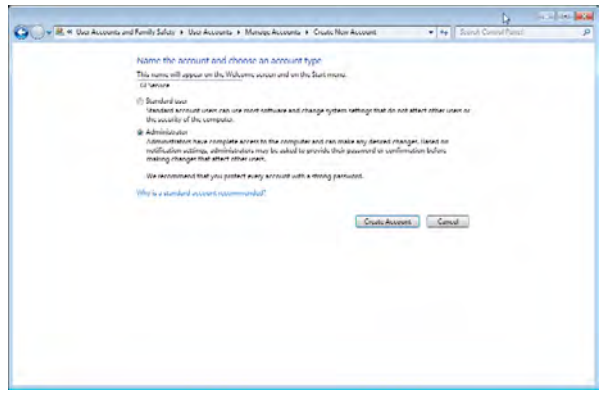
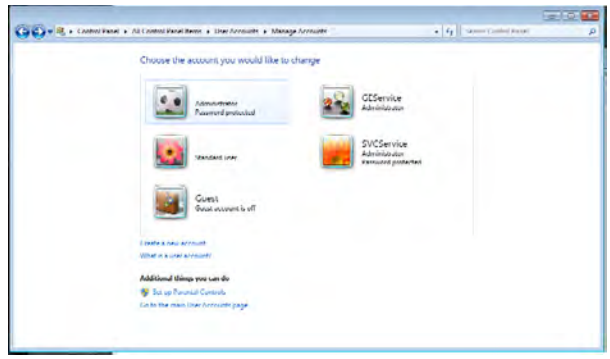
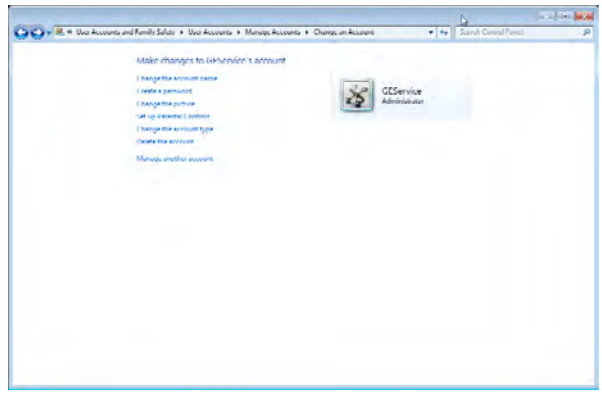
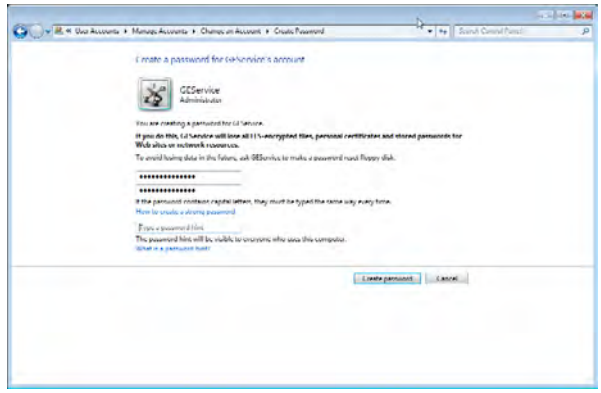
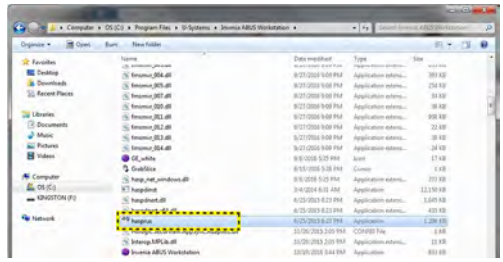
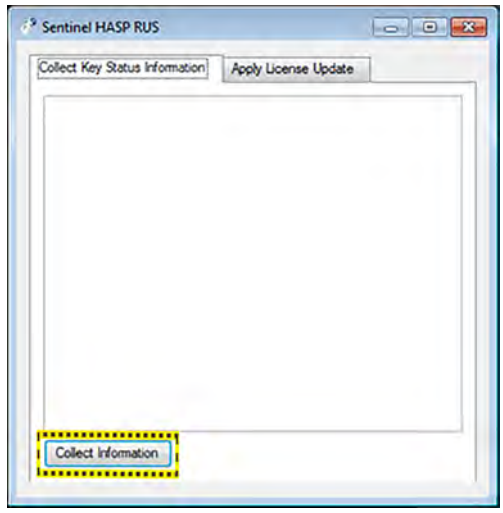
Step		Corresponding Graphic
3.	Type GEService for the account name, checkmark Administrator, and then click on the “Create Account” button.	
4.	Click on the **GEService** account icon.	
5.	Select “**Create a password**.”	

Table 3-8: Creating the GEService Windows User (Continued)

Step		Corresponding Graphic
6.	Type **SvcForward123$** for the password (on both fields), then click on the "**Create Password**" button. The Windows user name and password is now configured. The GE user should be able to use the SSH and Data File features.	

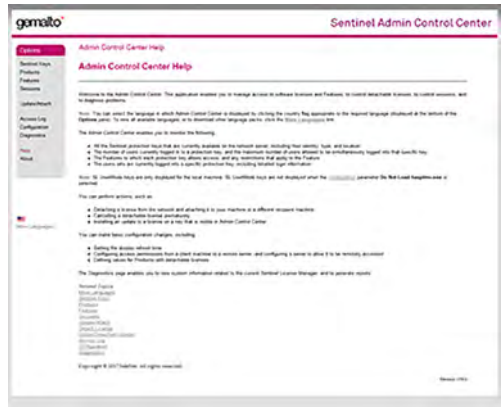
License Request Process

Table 3-9: License Request Process

Step		Corresponding Graphic
1.	Go to **Start->Computer-> (C :) Drive->Program Files->USystems->Invenia ABUS Workstation** (or the location specified during the installation process), and then double click on the **hasprus.exe** application.	
2.	At the pop up screen (Sentinel HASP RUS), select **Collect Information** button on the **Collect Key Status Information** tab.	
3.	At the **Save Key Status As** screen, enter the **serial number** of the Invenia ABUS Viewer Software from the 'GE CARES' label as the File name (sample: INVW1500010) and select **Save**. The serial number information from the product label on the Workstation must be used for this. We recommend that you also save this file to a USB thumb drive, clearly label-identify the drive and store it in a secure place in case it is needed in the future.	
4.	E-mail the file generated in Step 3 (<**serial number**>.c2v) to the following email address: Licensing.ABUS@ge.com **The serial number, site name and SID (ID from the GE CARES label) must be included in the e-mail for the request to be processed.** In the GE address book, the e-mail address is listed as: **"~Health ABUS Licensing"**	

License Check

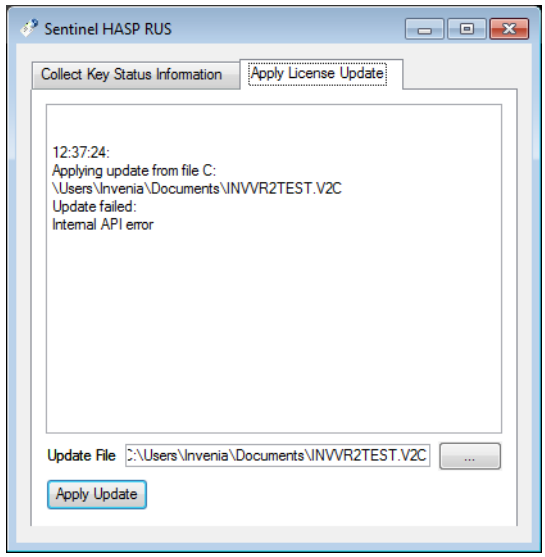
Table 3-10: License Check

Step		Corresponding Graphic
1.	Open **Internet Explorer** and in the address bar type **(http://localhost:1947)** and select **Enter**.	
2.	Select **Features** in the list at the left side of the screen.	
3.	The Sentinal Admin Control Center will open. Verify that the Workstation PC on the product column is flagged as “**Perpetual**” in the **Restrictions** column.	

License Update Process

The Invenia ABUS Viewer PSM procedure demonstrates how to update the V2C license file using the HASPRUS.exe program. The following error message may be displayed when trying to apply the V2C license using the HASPRUS.exe program.

Table 3-11: Error Message when trying to apply V2C license

Message	Corresponding Graphic
"Update failed: Internal API Error" message when using the HASPRUS.exe program to load the V2C license file.	

The following procedure demonstrates how to properly update the V2C license file using the web browser:

Table 3-12: License Update Process

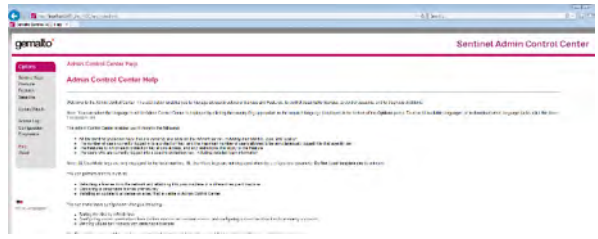
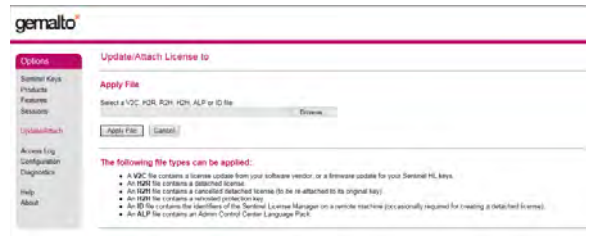
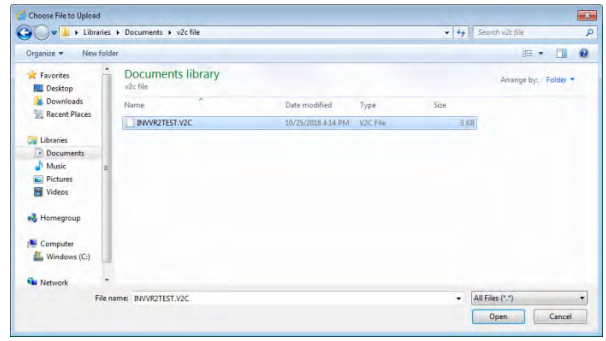
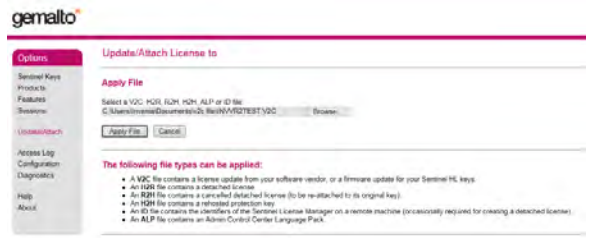
	Step	Corresponding Graphic
1.	You will get a response from "~Health ABUS Licensing" with an attached <serial number> V2C file. Copy this file to the workstation (with network transfer, InSite or USB drive), as it will be used in Step 4 below.	
2.	Open Internet Explorer. In the address bar, type: "http://localhost:1947" and press the Enter key.	

Table 3-12: License Update Process (Continued)

	Step	Corresponding Graphic
3.	Under the Options menu, click on "**Update/Attach**".	
4.	Click on the "**Browse...**" button then navigate to the location where the V2C license file is stored. Select the file and then click the "**Open**" button.	
5.	Click on the "**Apply File**" button.	
6.	"**Your update was applied successfully**" message displays on your screen. This indicates that the Invenia ABUS Viewer license update process is complete. License Check: Click on "**Features**" and then confirm that the Invenia ABUS Viewer product key is listed as "Perpetual".	

Chapter 4

Configuring Invenia ABUS Viewer Service Parameters

The GE authorized representative installing the Invenia ABUS Viewer should set up the most common administration operating parameters as described in this chapter.

Service Parameters

Date and Time Setup

Table 4-1: Date and Time Setup

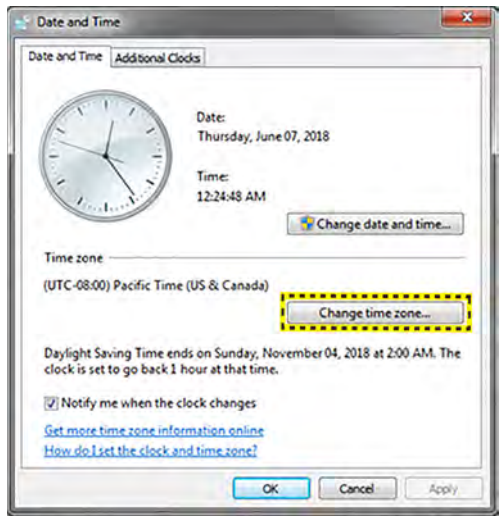
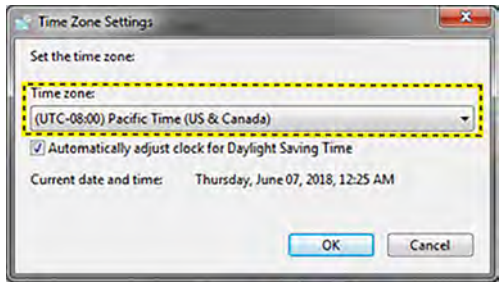
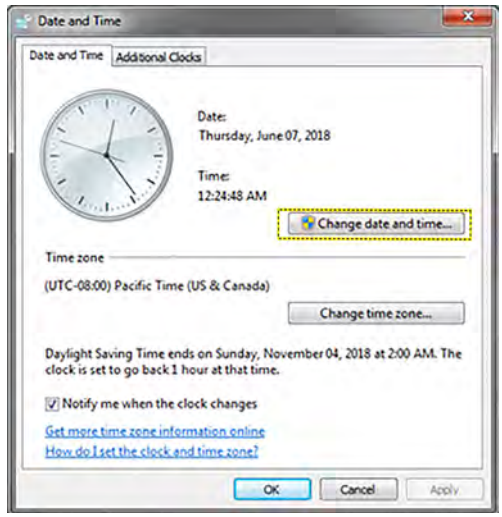
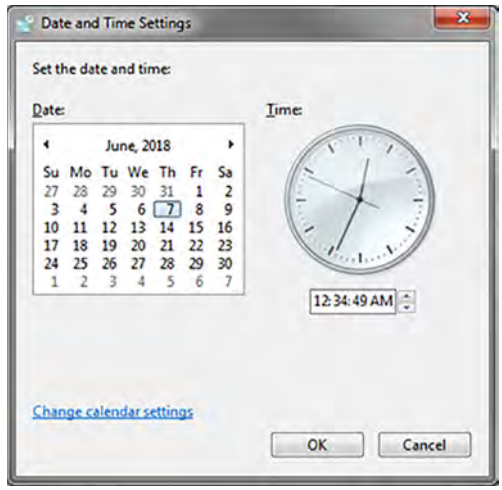
Step		Corresponding Graphic
1.	Select the Windows "**Start**" icon, select "**Control Panel**", select "**Clock, Language, and Region**", then select "**Date and Time**".	
2.	Select the "**Change time zone...**" button.	

Table 4-1: Date and Time Setup (Continued)

Step		Corresponding Graphic
3.	Select the appropriate time zone location. Select “**OK**” to close the Time Zone Settings.	
4.	If necessary, select the "**change date and time...**" Select "**OK**" to retain changes.	 

Local Network Setup

Configure the Local Area Connection per data in the Pre-Installation Site Survey Worksheet.

Table 4-2: Local Network Setup

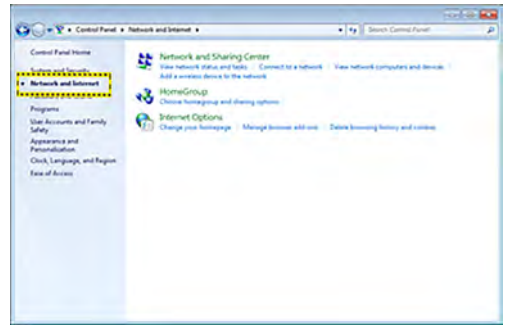
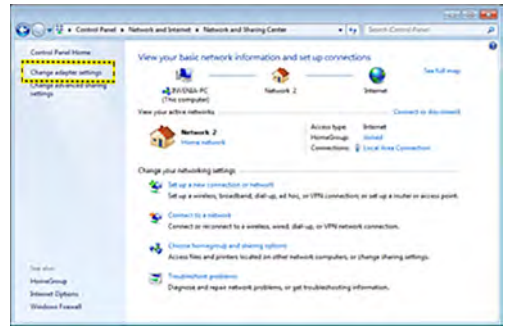
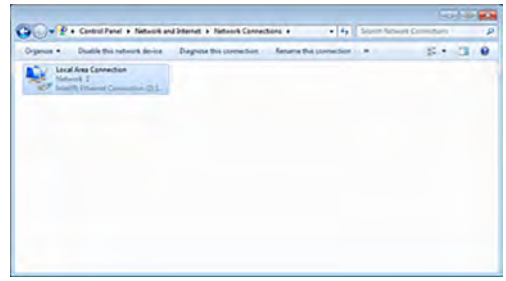
Step		Corresponding Graphic
1.	Click on the Windows "**Start**" icon, select "**Control Panel**", select " **Network and Internet** ", then select "**Network and Sharing Center**".	
2.	Select **Change Adapter Settings** (on the left side of the display).	
3.	Double click on the Local Area Connection. *NOTE: Some Workstation PCs may have multiple Local Area Connections. Configure the Local Area Connection per Pre-Installation Site Survey Worksheet.*	

Table 4-2: Local Network Setup (Continued)

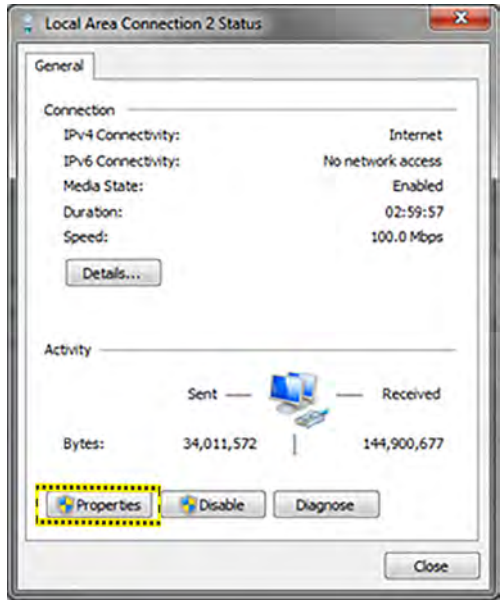
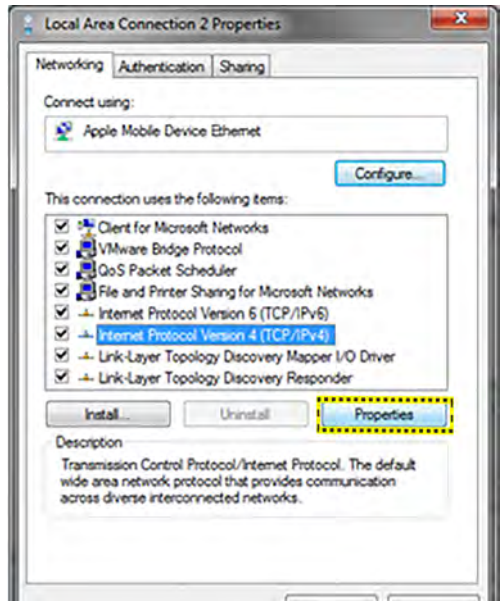
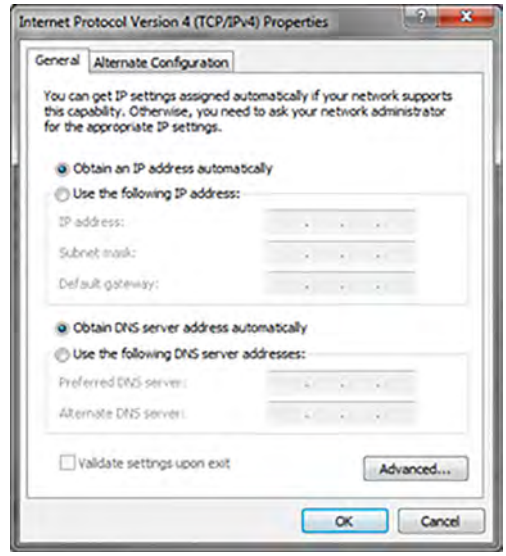
Step		Corresponding Graphic
4.	Select **Properties**.	
5.	Select **Internet Protocol 4 IPv4**, then select the Properties button.	

Table 4-2: Local Network Setup (Continued)

Step		Corresponding Graphic
6.	Set up the IP Address, and DNS (if needed) per the Pre-Installation Site Survey Worksheet. Then click on "**OK**" to retain changes.	
7.	Select Close and Close again.	

Invenia ABUS Viewer Application in a Multi-monitor review environment

The display monitor for the Invenia ABUS Viewer should always be running as the “Main Display” in Windows.

Table 4-3: Multi-Monitor Review Environment

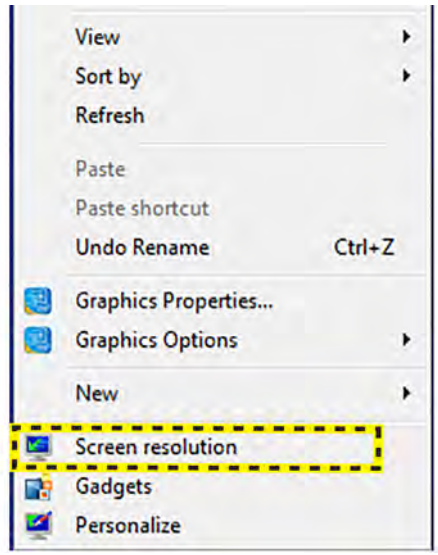
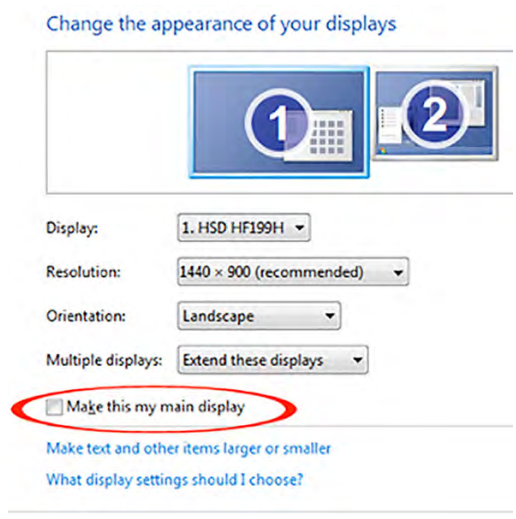
Step		Corresponding Graphic
1.	Right click on an empty space on the desktop and click on Screen Resolution. *NOTE: This step can also be accomplished:* Click on the Windows “**Start**” icon, select “**Control Panel**”, select “**Appearance and Personalization**”, select “**Display**” and then click on “**Adjust resolution**”.	
2.	Identifying the Invenia ABUS Viewer Display Monitor: Select the “**Identity**” button, then select the monitor icon number that corresponds to the number displayed on the Invenia ABUS Viewer monitor screen.	

Table 4-3: Multi-Monitor Review Environment (Continued)

Step		Corresponding Graphic
3.	Once the display device is selected, place a check mark on the "**Make this my main display**" option. Then click on OK to apply the settings change. *NOTE: The Start Menu will now be in that numbered display. You can manually move the Start Menu and Icons to any of the monitors (just drag and drop).*	

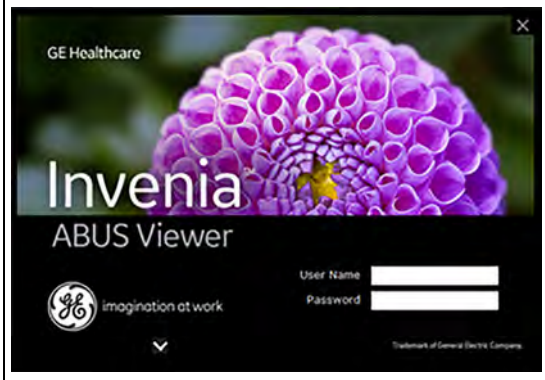
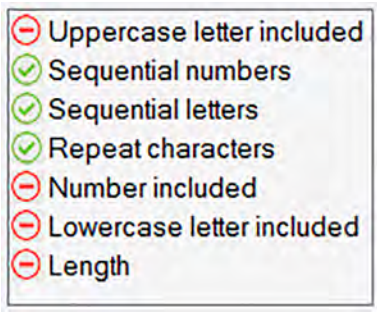
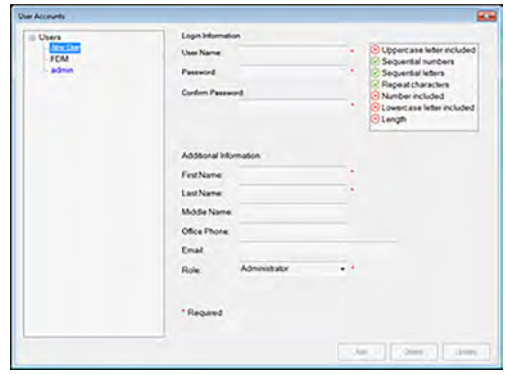
Troubleshooting cursor issue with multiple Workstation monitors

If the following issue occurs, see the Note below: In the Multi-monitor setup, a user encounters a problem with the cursor moving always to the main display when trying to place a marker or interact with the Invenia ABUS Viewer.

NOTE: The Invenia ABUS Viewer software needs to run on the primary monitor, otherwise the mouse will always move to the "main" windows display after the right click menu is used or a marker is placed. That is, Windows must be set to use the primary monitor as the main Windows display as previously described.

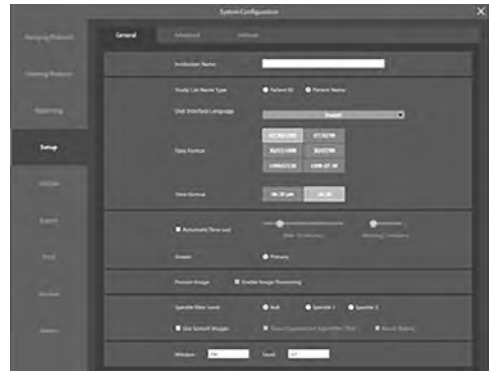
Admin Account

Table 4-4: Admin Account

Step		Corresponding Graphic
1.	The default admin account: User Name: admin Password: inveniaws	
2.	The Invenia ABUS Viewer User Accounts window will ask the admin user to modify the default password at the first login. The new password will need to satisfy all the security rule settings: A green check means the rule is satisfied. A red dash means the value must be adjusted until the parameter rule is satisfied. 	

Institution Name Setup

Table 4-5: Institution Name Setup

Step		Corresponding Graphic
1.	Click on the **Configuration Gears** icon	
2.	Select **Setup**.	
3.	Configure the customer name (Hospital Name) information under the General Tab **Institution Name** field. *NOTE: The information entered in this field will also populate the Service Desktop header.*	

Invenia ABUS Viewer AE Title and Port Number Network

Table 4-6: AE Title and Port Number Network

Step		Corresponding Graphic
1.	Click on the **Configuration Gears** icon	
2.	Select **DICOM** and then select the “**Edit**” button under the “**Local Settings**” section.	
3.	Select the button and navigate to the drive location where the customer wants to store the image data, then select “**Select Folder**”. For example: from “c:\image-data” to “x:\image-data” (x should be the drive letter assigned for the dedicated Invenia ABUS hard drive). Select the “OK” button to save changes.	 **Default Settings:** AE Title: INVENIAWS Port: 104

Invenia ABUS Viewer Image Folder

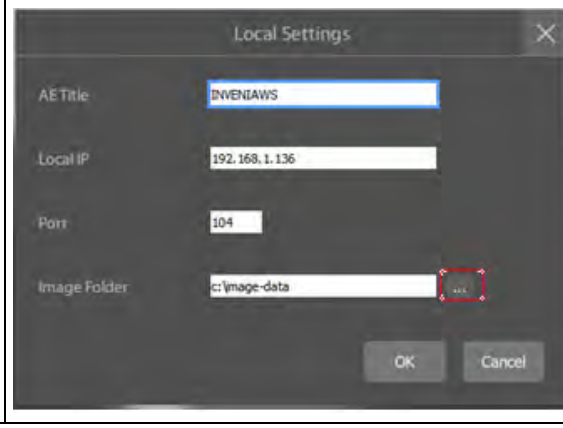
Changing Image Folder location to a different drive location

The default location of the Image Folder (or image-data) is C:\image-data; however, customers may want to set up the Image Folder on a different (larger) disk drive. The following procedure describes the necessary steps to change the Image Folder location to a different drive location. This procedure also includes the workaround needed to fix the drive path: Invenia ABUS Viewer software 2.5.1.546 software bug.

Table 4-7: Image Folder

Step		Corresponding Graphic
1.	Click on the **Configuration Gears** icon	
2.	Select **DICOM** and then click on the "**Edit**" button to configure the "**Local Settings**" section.	

Table 4-7: Image Folder (Continued)

Step		Corresponding Graphic
3.	Click the "**...**" button and navigate to the drive location where the customer will store the image data.Select "**Select Folder**". For example, from "c:\image-data" to "x:\image-data" (x should be the drive letter assigned for the dedicated Invenia ABUS Viewer hard drive). Press "**OK**" to save the changes.	

Workaround needed to fix the drive path

Invenia ABUS Viewer software 2.5.1.546 drive path software bug: The Invenia ABUS software 2.5.1.546 places a "/" slash instead of "\" when modifying the Image Folder drive path location. The wrong slash creates a problem when the Invenia ABUS Viewer software, which tries to save the images, since it does not properly recognize the drive path.

Table 4-8: Fix Drive Path Workaround

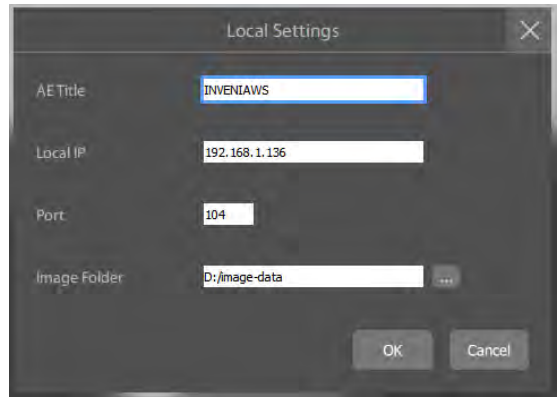
Step		Corresponding Graphic
1.	The following steps are only necessary if changing the Image Folder location on the Invenia ABUS Viewer 2.5.1.546. Once the Image Folder location is configured, click on the "**OK**" button.	
2.	Select Service and then click on the "**Export System Settings**" button.	

Table 4-8: Fix Drive Path Workaround (Continued)

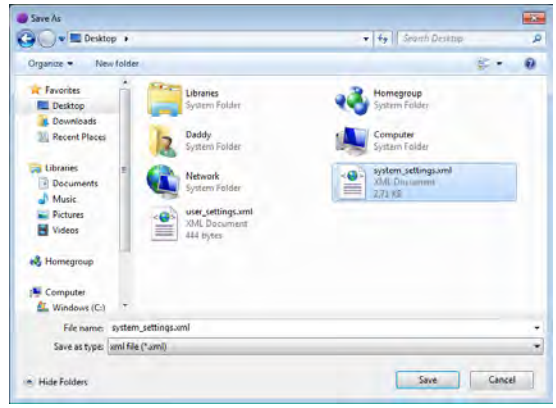
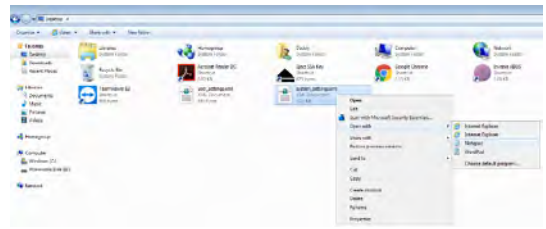
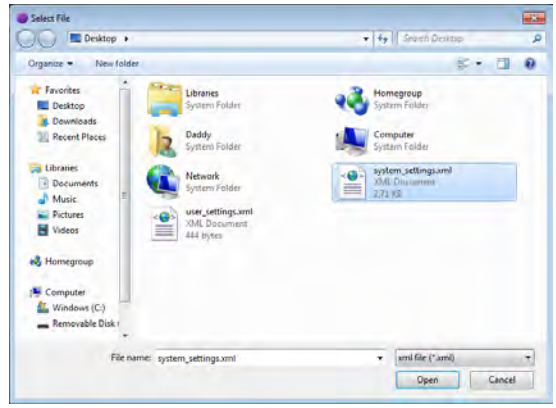
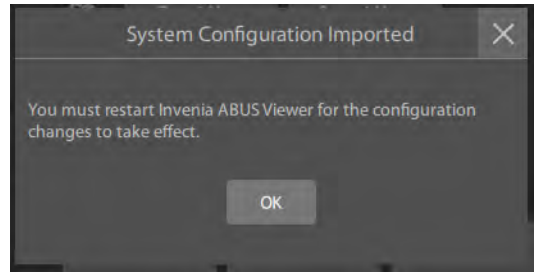
Step		Corresponding Graphic
3.	Navigate to the Windows Desktop and then type a file name (i.e. system_settings). Click on the Save button.	
4.	Navigate to the Windows Desktop and right-click on the system setting file created in Step 3. Select “Open with” and then click on the “Notepad” icon.	
5.	Find the “<localScpSettings” html code line, and then edit the “rootDir=” by replacing the “/” with “\”. Once the file path has been corrected, Save and then close the file. For example: <localScpSettings aetitle=”INVENIAWS port=”104” rootDir=”D:/image-data”/> Replace the “/” with “\”.; <localScpSettings aetitle=”INVENIAWS port=”104” rootDir=”D:\image-data”/>	

Table 4-8: Fix Drive Path Workaround (Continued)

Step		Corresponding Graphic
6.	Return to the Invenia ABUS Viewer Service configuration screen. Click on the "**Import System Settings**" button.	
7.	Navigate to the Windows Desktop.Select the system settings file saved in Step 5. Press on the "Open" button.	
8.	A "System Configuration Imported" message window will display on your screen.Press "OK", then log out of the Invenia ABUS Viewer.	
	Login to the Invenia ABUS Viewer and verify that the file path to the Image Folder is correct.	

Invenia ABUS Viewer Software DICOM Configuration (Outputs)

The Invenia ABUS dataflow configuration varies from basic Invenia ABUS 2.0 to Workstation to more advanced and complex dataflows that include multiple network devices (i.e. Modality Worklist, Multiple Workstations, Enterprise Archive (EA), and PACs). Therefore, a complete understanding of the customer dataflow and network configuration is important for the success of the ABUS installation as well as for troubleshooting dataflow/DICOM/network problems at a customer site.

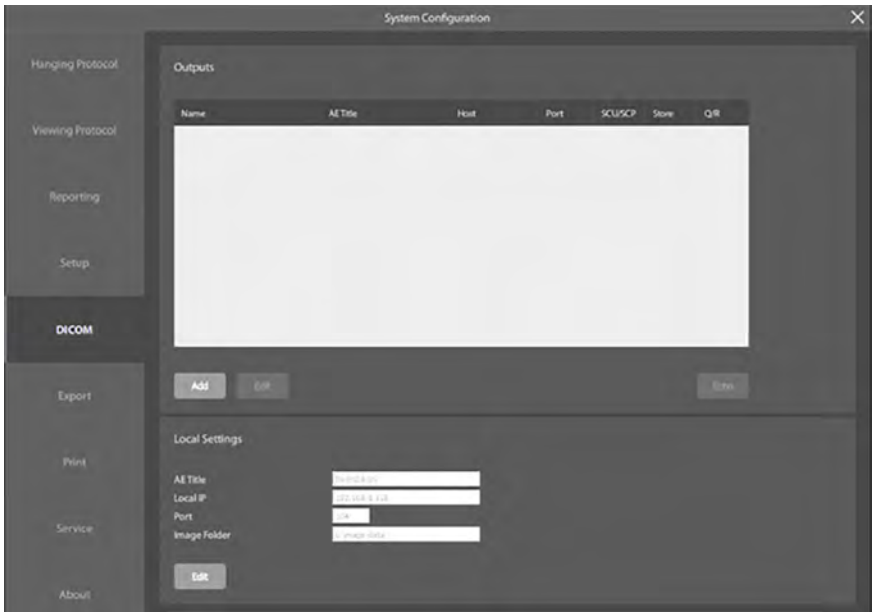
NOTE: The customer dataflow is discussed during GE pre-sales meetings with customers, and the agreed configuration should be recorded to an Invenia Pre-Installation Site Survey Worksheet form (see Chapter 2). Then, use that record to guide the set up.

Table 4-9: Software DICOM Configuration (Outputs)

The "**DICOM**" page enables customization of the DICOM storage devices as well as changes to the local Workstation settings.

1. Click on "Add" to create a DICOM output destination
2. Select a DICOM device and click on "Edit" to check and modify the DICOM device settings
3. Select a DICOM device and click on "Echo" to verify communication status between the ABUS Viewer and device.
4. Click on "Edit" to customize the ABUS Viewer local settings (AE Title, Port Number, and Image Folder).

NOTE: The Workstation IP Address field cannot be modified via the ABUS user interface. The Workstation IP Address must be configured via the network settings in the Windows Operating System.

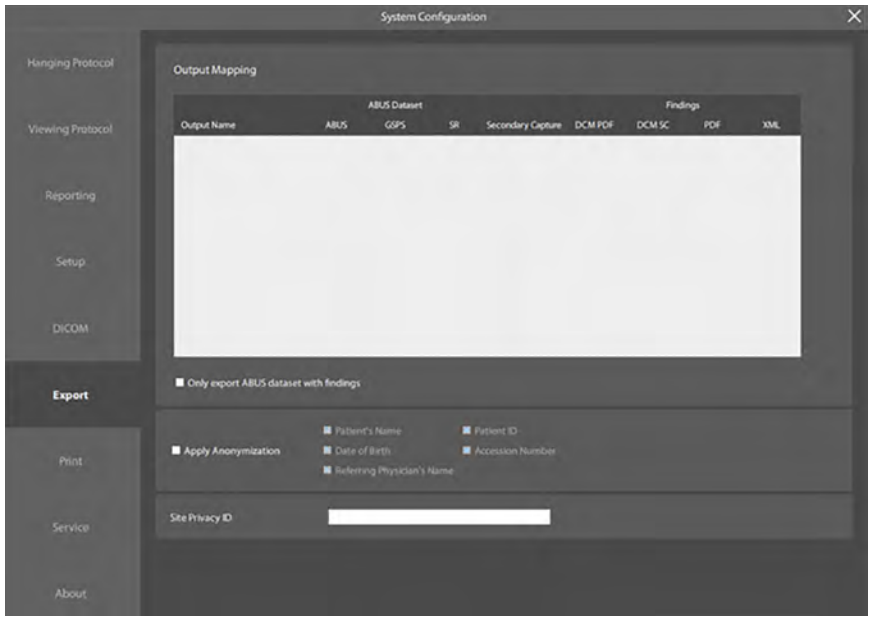


ABUS Viewer Software DICOM Configuration (Output Mapping)

Table 4-10: Software DICOM Configuration

The "**Export**" page enables customization of the Output Mapping. This allows the user to set multiple destinations in which information goes to each location. The Invenia ABUS dataset and findings are automatically exported when a report is signed or the study is marked as reviewed.

1. Anonymization is applied to manually exported images and studies. The selected anonymized fields (Patient's Name, ID, Date of Birth, Accession Number, or Referring Physician's Name) are removed from the DICOM data.
   NOTE: Captured images with the Patient Name and ID as part of the image (screen capture) still retain the patient information in the image itself.



Sample DICOM Configuration (Outputs and Output Maps)

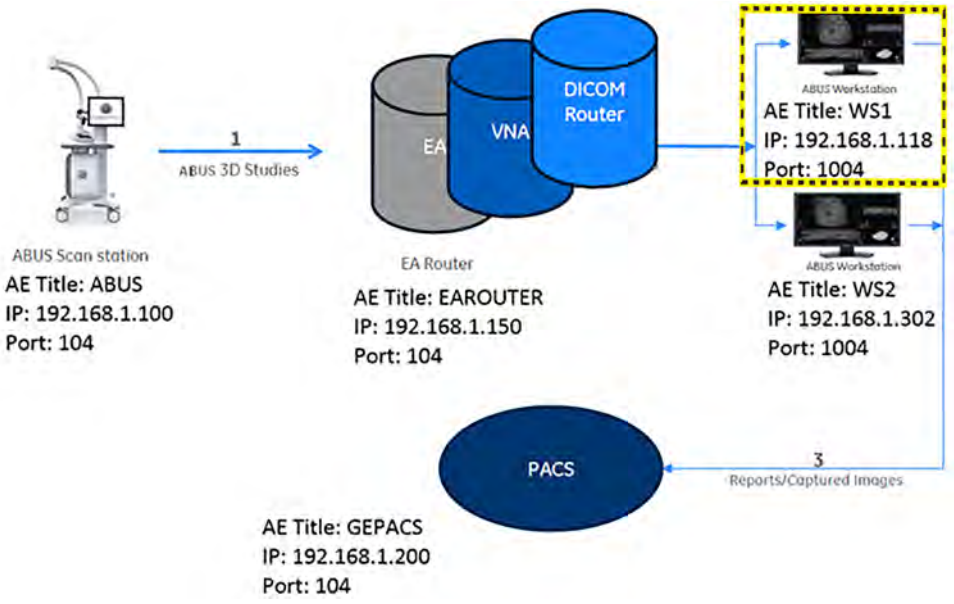


Table 4-11: Sample DICOM Configuration (Outputs and Output Maps)

Step		Corresponding Graphic
1.	Click on the Configuration Gears icon	
2.	Select the DICOM page and then click on the Edit button to configure the Invenia ABUS Viewer Local Settings.	

Table 4-11: Sample DICOM Configuration (Outputs and Output Maps)

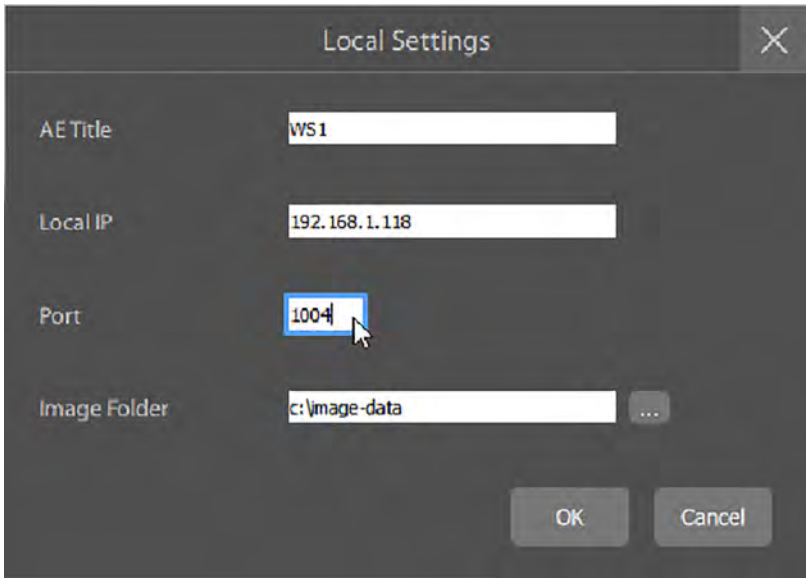
Step		Corresponding Graphic
3.	Configure the Local AE Title and Port Number according to the information provided by customer: *NOTE: The IP Address can only be modified at the Windows Operating System.*  Click "**OK**" to save and exit.	
4.	Use the Add and/or Edit buttons to create and/or modify the DICOM Service Destinations (Outputs).	

Table 4-11: Sample DICOM Configuration (Outputs and Output Maps)

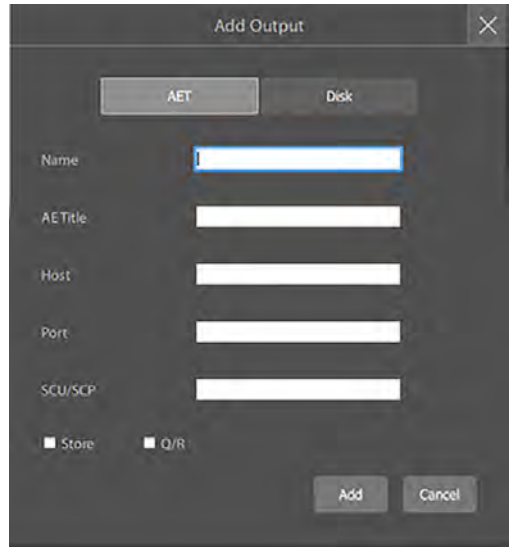
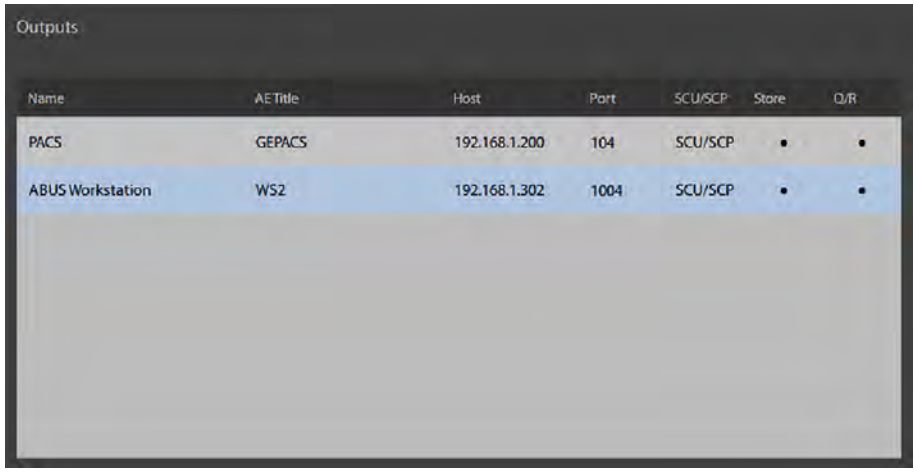
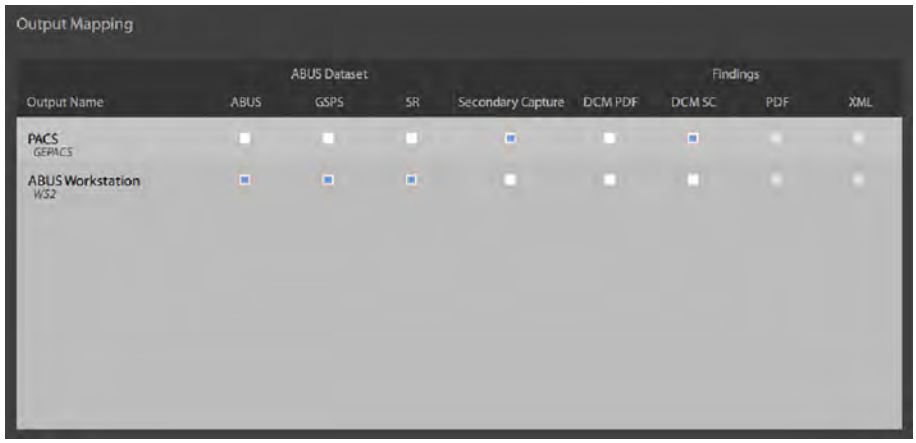
Step		Corresponding Graphic
5.	Configure the appropriate information: Name, AE Title, Host (IP Address), Port Number, SCU/SCP (Service Class User/Service Class Provider), STORE, and Q/R.	
6.	Add the DICOM destinations according to the information provided by the customer: 	

Table 4-11: Sample DICOM Configuration (Outputs and Output Maps)

Step		Corresponding Graphic
7.	Click on **the Export** tab, and then configure the Output Mapping according to the information provided by the customer:	
8.	Perform a complete dataflow check to ensure the Invenia ABUS Viewer is sending and receiving all appropriate data.	

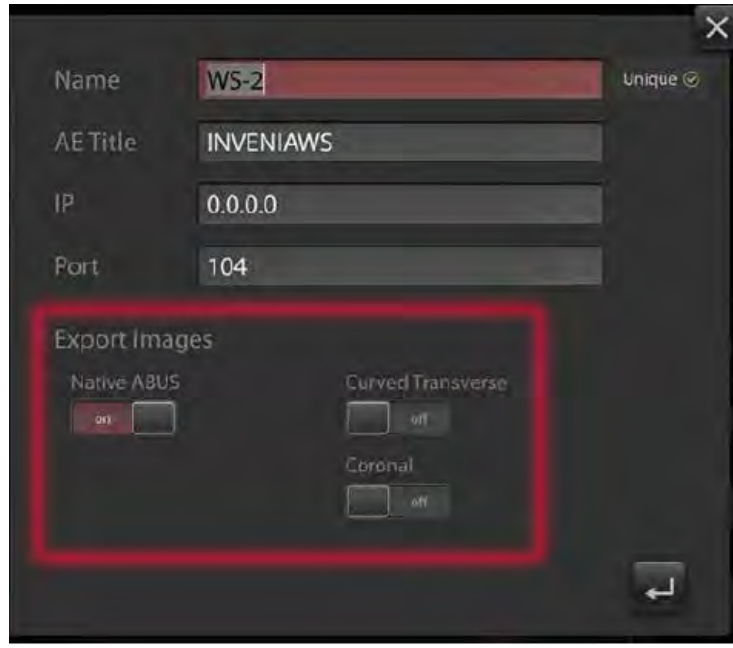
NOTE: The default configuration is to send native ABUS images only. If the customer is planning to view images on PACS or other viewers, do not modify the default settings.

Invenia ABUS Viewer Common Workflow Configurations

Invenia ABUS 2.0

The Invenia ABUS 2.0 software allows the user to export the Invenia ABUS Volumes in 3 different formats:

- Native ABUS: Original/Legacy ABUS data format to be used when sending to the Invenia ABUS Viewer(s)
- Curved Transverse: Pre-rendered transverse view, for display on 3rd Party viewers (as multiframe)
- Coronal: Pre-rendered coronal projection, for display on 3rd Party viewers (as multiframe)

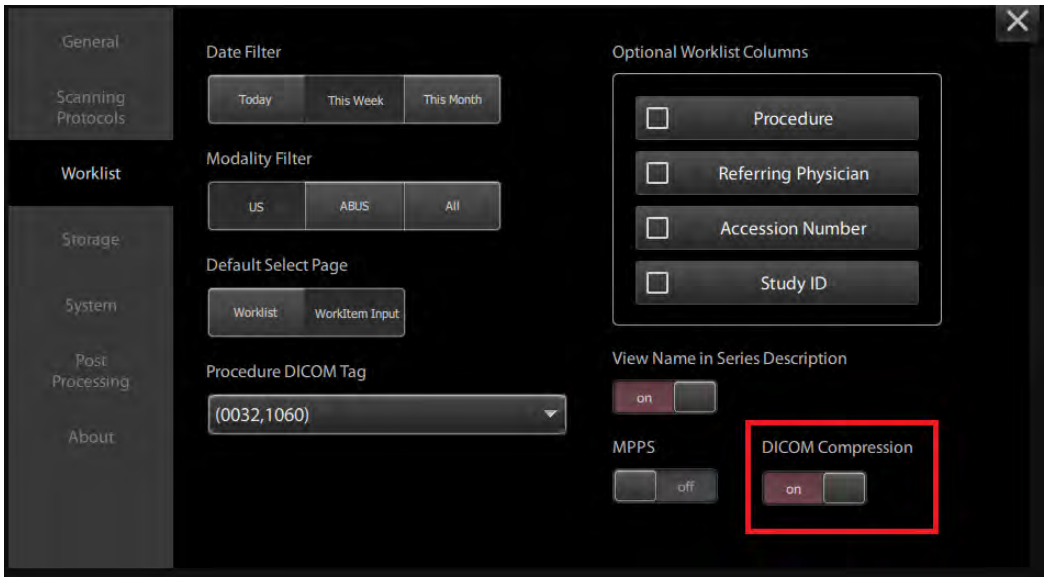


NOTE: The default configuration is to send native ABUS images only. If the customer is planning to view images on PACS or other viewers, do not modify the default settings.

Invenia ABUS 2.0 (continued)

IMPORTANT: The Invenia 2.0 now allows for DICOM compression.

The DICOM compression default is ON.



Invenia ABUS Viewer Export

The Invenia ABUS Viewer has a new “Export” configuration page (Output Mapping) that allows the user to configure each output destination separately..

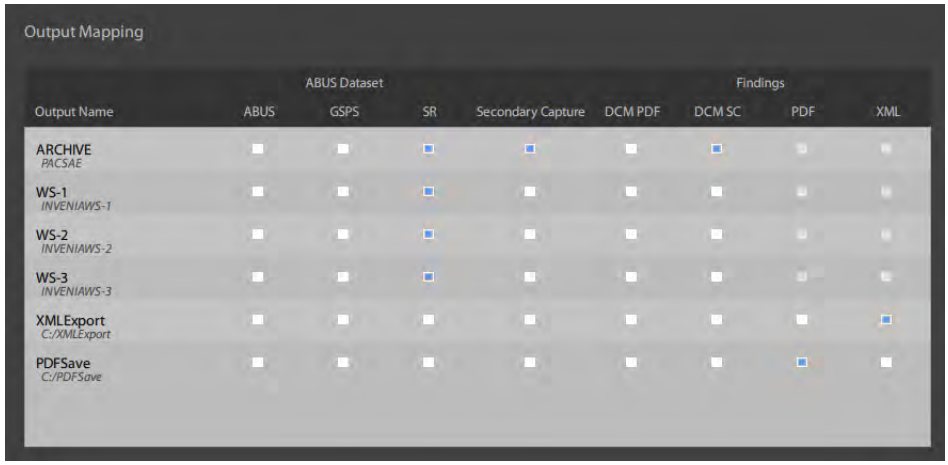


Table 4-12: Invenia ABUS Viewer Export

	Object	DICOM Modality	Format	Description	Suggested Settings
Invenia ABUS Dataset	ABUS	US	DICOM Ultrasound Multiframe	Legacy ABUS data format (3D). One Volume per view acquired. Typical exam contains 6 views.	Send if images are not already archived in PACS
	GSPS	PR	DICOM Grayscale Softcopy Presentation State	**Optional in Invenia 2.0: Contains View presentation information (Breast Border Detection, Nipple Shadowing, etc.)** *NOTE: These objects will only be available if exams are from previous generations of ABUS systems, or if Invenia 2.0 Scan Station is configured to output these files (not default behavior).*	Send only if handling exams from previous generations of ABUS or if Export GSPS is turned on, on ABUS 2.0.
	SR	SR	DICOM Basic Text SR (Structured Report)	Contains all Review/ Report Information, including Exam Status, Markers Info, etc.)	Send to PACS/ Archive and other ABUS Viewer(s)

Table 4-12: Invenia ABUS Viewer Export (Continued)

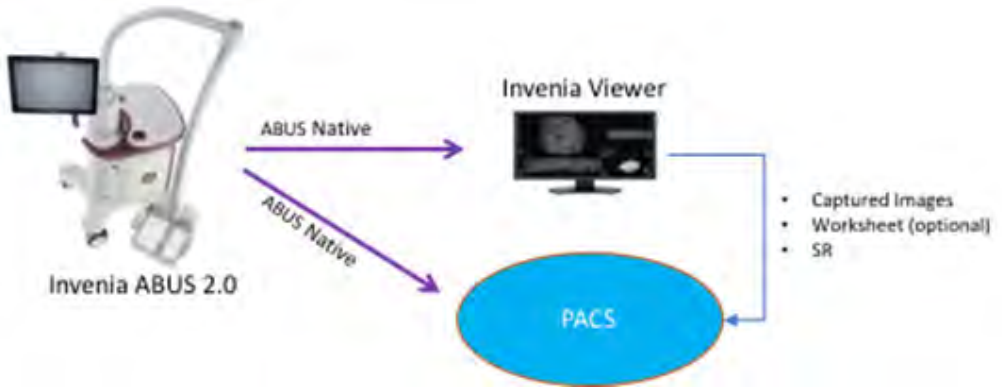
	Object	DICOM Modality	Format	Description	Suggested Settings
Secondary Captures	SC	US	DICOM Secondary Capture	Captured images selected by the user on the workstation	Send to PACS/ Archive
Findings	DICOM PDF	OT	DICOM Encapsulated PDF	Invenia Worksheet saved as DICOM Encapsulated PDF	Send to PACS/ Archive*
	DICOM SC	OT	DICOM Secondary Capture	Invenia Worksheet saved as DICOM Secondary Capture	Send to PACS/ Archive*
	PDF	N/A	PDF file	Invenia Report save as PDF file	Save if an additional copy of the report is needed in PDF file format
	XML	N/A	XML file	Invenia SR save as XML file	Save if a copy of the Structured Report (SR) is needed in XML file format. Generally used for integration with Reporting Systems.
*The Invenia Worksheet can be saved as either a DICOM Secondary Capture or a DICOM Encapsulated PDF. Select one of these 2 formats when sending to PACS. The default selection should be Secondary Capture.					

Invenia ABUS 2.0 Workflows

Invenia ABUS 2.0 with Single ABUS Viewer (Workflow 1)

Description: The customer has one or more Invenia ABUS 2.0 scan stations and a single viewer. The ABUS exams are read on the Invenia ABUS Viewer and stored in iPACS for long-term archive.

Table 4-13: Workflow 1 (Recommended)



Configuration	
Invenia ABUS 2.0 (Scan Stations)	**Invenia ABUS Viewer**
Send to PACS	Send to PACS
- Native data	- Secondary Captures (SC)
Send to Invenia Viewer	- Worksheet (in SC or DCM PDF)
- Native data	- SR

Invenia ABUS 2.0 with Single ABUS Viewer (Workflow 1) (Alternative)

Table 4-14: Workflow 1 (Alternative)

Configuration	
Invenia ABUS 2.0 (Scan Stations)	**Invenia ABUS Viewer**
Send to Invenia Viewer	Send to PACS
- Native data	- Invenia ABUS Native (ABUS)
	- Secondary Captures (SC)
	- Worksheet (in SC or DCM PDF)
	- SR

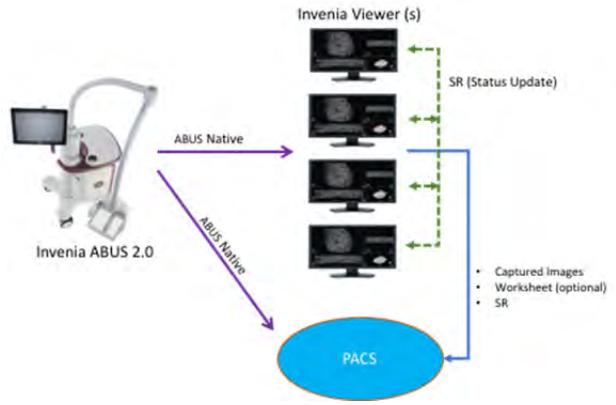
Invenia ABUS 2.0 with Multiple ABUS Viewers (Workflow 2)

Less than 5 destinations

Description: The customer has one or multiple scan stations and multiple viewers. The ABUS exams are read on the Invenia ABUS Viewer(s) and stored in PACS for long-term archive. Exam status update is shared by sending SR Files to all Invenia ABUS Viewers.

NOTE: The Invenia ABUS 2.0 supports automatically sending to a maximum of 5 DICOM destinations. The destinations can be a combination of Invenia ABUS Viewers and other DICOM destinations (e.g. PACS, VNA, ...). However, if a DICOM router is available, consider using the DICOM Router to send images to multiple destinations (as described in Workflow 3).

Table 4-15: Workflow 2 (Recommended)



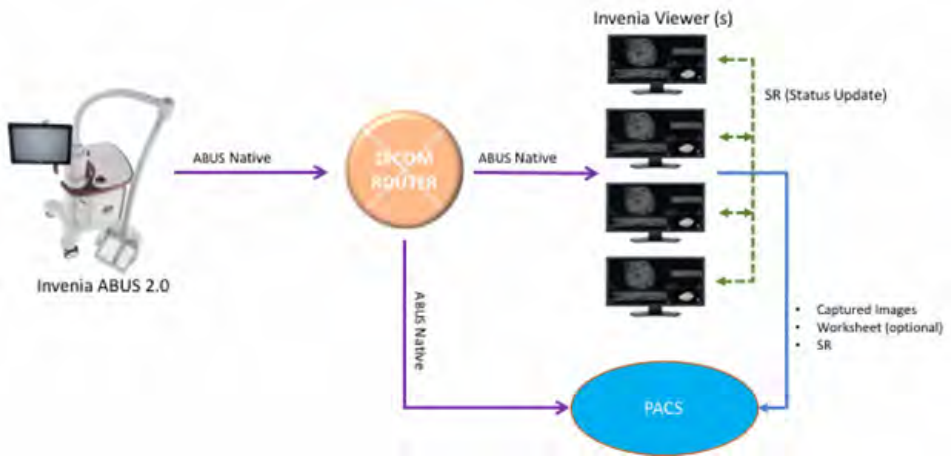
Configuration	
Invenia ABUS 2.0 (Scan Stations)	**Invenia ABUS Viewer**
Send to PACS	Send to PACS
- Native data	- Secondary Captures (SC)
Send to Invenia Viewer(s)	- Worksheet (in SC or DCM PDF)
- Native data	- SR
	Send to Invenia Viewer(s)
	- SR

Invenia ABUS 2.0 Scan Station(s) and Multiple Invenia ABUS Viewers (More than 5 destinations - Workflow 3)

Description: The customer has one or multiple scan stations and needs to automatically send to more than 5 destinations including viewers and other DICOM devices. The ABUS exams are read on the Invenia ABUS Viewer(s) and stored in PACS for long-term archive. Exam status update is shared by sending SR Files to all Invenia ABUS Viewers.

NOTE: The Invenia ABUS 2.0 supports automatically sending to a maximum of 5 DICOM destinations. In this workflow scenario, a DICOM router is required to be able to automatically send to more than 5 destinations. The DICOM Router is to be provided by the customer or purchased from GE as a separate option (GE Enterprise Archive). Multiple systems could be used as a DICOM Router including PACS, VNA, Imaging Routers, Prefetch Engines, etc.

Table 4-16: Workflow 3 (Recommended)



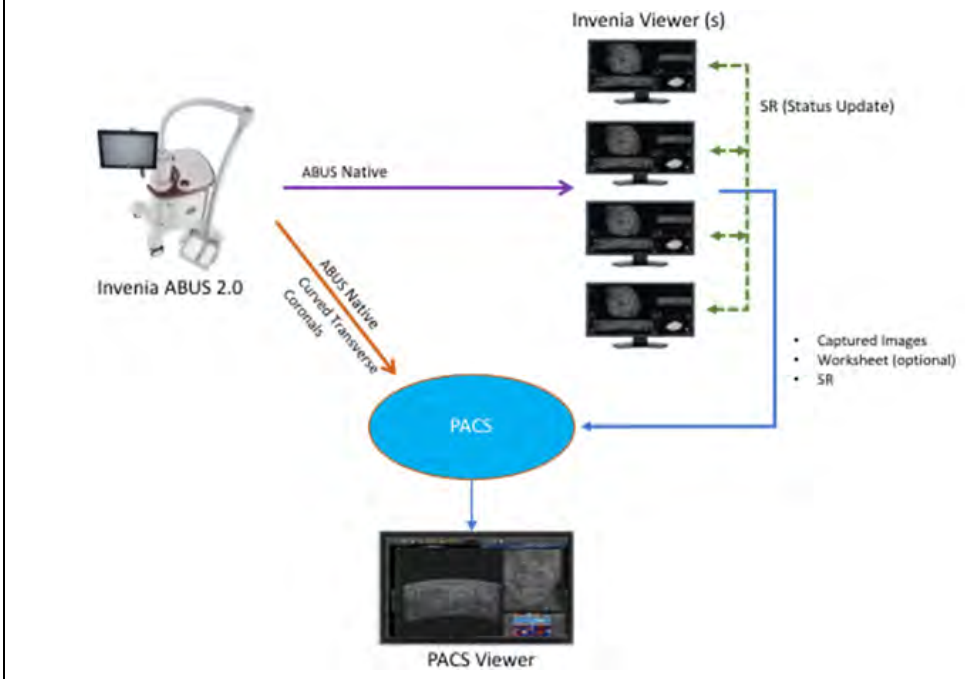
Configuration		
ABUS 2.0 (Scan Stations)	**DICOM Router**	**Invenia ABUS Viewer**
Send to DICOM Router	Send to Invenia Viewer	Send to PACS
- Native data	- Native data	- Secondary Captures (SC)
	Send to PACS	- Worksheet (in SC or DCM PDF)
	- Native data	- SR
		Send to Invenia Viewer
		- SR
ABUS 2.0 (Scan Stations)	DICOM Router	Invenia ABUS Viewer

Invenia ABUS 2.0 scan station(s), Invenia ABUS Viewer(s) and view on PACS (Workflow 4)

Description: The customer has one or multiple scan stations, Invenia ABUS Viewers, and needs to display ABUS images on a PACS Viewer(s). The ABUS exams are read on the Invenia ABUS Viewer(s) and stored on PACS for long-term archive. The Exam status update is shared by sending SR Files to all Invenia ABUS Viewers.

NOTE: Although multiple destinations can be added, the scan station supports automatically sending to a maximum 5 destinations. Refer to Workflow 3 if more than 5 destinations are required.

Table 4-17: Workflow 4 (Recommended)



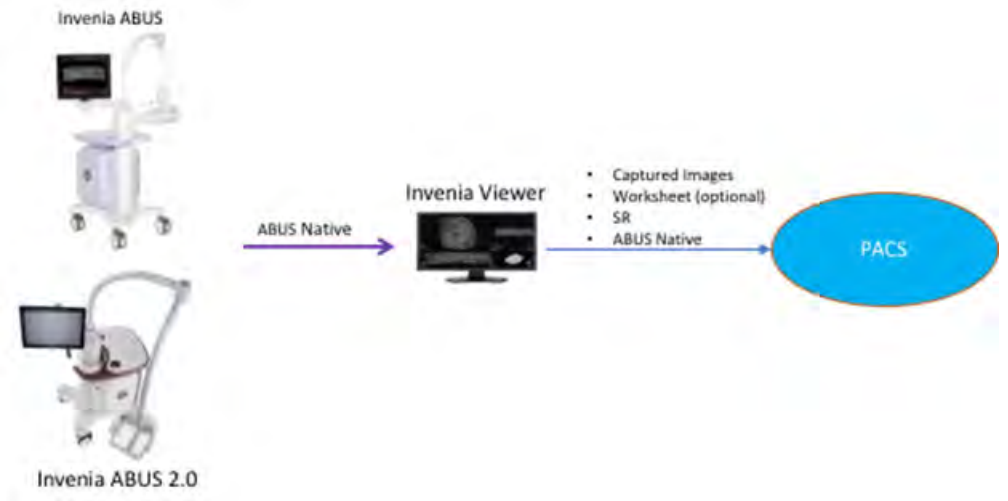
Configuration	
Invenia ABUS 2.0 (Scan Stations)	**Invenia ABUS Viewer**
Send to Invenia ABUS Viewer	Send to PACS
- Native data	- Secondary Captures (SC)
Send to PACS	- Worksheet (in SC or DCM PDF)
- Native data (for long term archive)	- SR
- Curved Transvers (for display on PACS Viewer)	Send to Invenia ABUS Viewer
- Coronal (for display on PACS Viewer)	- SR

ABUS scan station(s) with single Invenia ABUS Viewer (Workflow 5)

Description: The customer has multiple scan stations, and a single viewer. The ABUS exams are read on the Invenia ABUS Viewer and stored on PACS for long-term archive.

NOTE: Invenia ABUS 2.0 images are compatible only with the new Invenia ABUS Viewer. When adding an Invenia 2.0 system to an existing Invenia ABUS site, all viewers are required to be upgraded to the Invenia ABUS Viewer (2.5.x).

Table 4-18: Workflow 5 (Recommended)



Configuration	
Invenia R1 and Invenia ABUS 2.0 (Scan Stations)	**Invenia ABUS Viewer**
Send to Invenia ABUS Viewer	Send to PACS
- Native data	- ABUS Native (ABUS)
	- Secondary Captures (SC)
	- Worksheet (in SC or DCM PDF)
	- SR

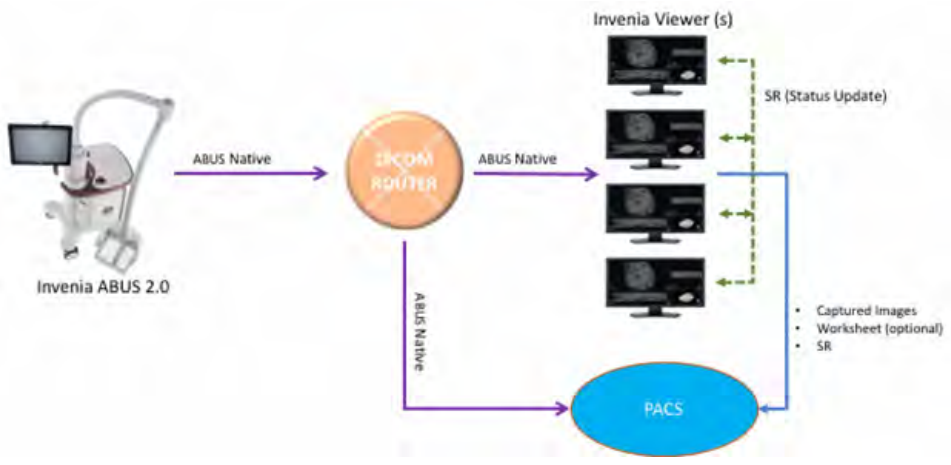
ABUS scan station(s) with Multiple Invenia ABUS Viewers (Workflow 6)

Description: The customer has multiple scan stations from different ABUS revisions and needs to automatically send to all Invenia ABUS Viewers and/or other DICOM destinations. The ABUS exams are read on the Invenia ABUS Viewer(s) and stored on PACS for long-term archive. The Exam status update is shared by sending SR Files to all ABUS Viewers.

In this workflow scenario a DICOM router is required to be able to send automatically to multiple destinations on the DICOM Router to be provided by the customer or purchased from GE as a separate option (GE Enterprise Archive). Multiple systems could be used as a DICOM Router including PACS, VNA, Imaging Routers, Prefetch Enginers, etc.

NOTE: Invenia ABUS 2.0 images are compatible only with the new Invenia ABUS Viewer. When adding an Invenia 2.0 system to an existing Invenia ABUS site, all viewers need to be upgraded to the Invenia ABUS Viewer (2.5.x).

Table 4-19: Workflow 6 (Recommended)



Configuration		
ABUS 2.0 (Scan Stations)	**DICOM Router**	**Invenia ABUS Viewer**
Send to DICOM Router	Send to Viewer(s)	Send to PACS
- Native data	- Native data	- Secondary Captures (SC)
	Send to PACS	- Worksheet (in SC or DCM PDF)
	- Native data	- SR
		Send to Invenia ABUS Viewer(s)
		- SR

Minimum Free Space (Auto-Delete)

The Invenia ABUS Viewer software can be configured to maintain 10, 20, 30, 40, or 50 percent of the available disk space free to ensure good workstation performance. The Invenia ABUS Viewer software starts to delete studies (see note below) when free space reaches a percentage under the configured limit specified by the user.

Old reviewed studies are deleted (oldest first) overnight or when the workstation is powered up the next time. Transfers from the Invenia ABUS Viewer are rejected by the Workstation PC if free disk space falls below 5%. Suspended or unreviewed studies are never automatically deleted in this manner. Deleted studies can only be redisplayed if the whole study was stored to PACS or external storage and reimported.

Rules to delete studies:

NOTE: Before starting, organize studies by: study.created_time (aka import date/time), listing the oldest first.

If the studies are:

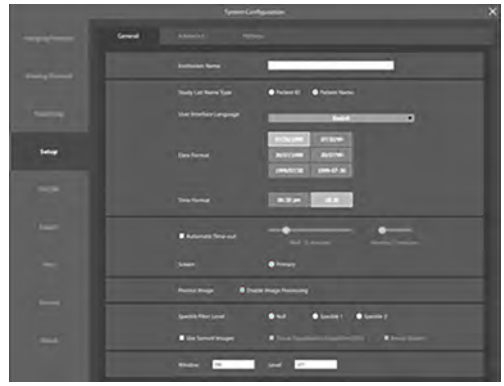
- within the latest Day0 (default 30 days, configurable), keep the study and all related studies even though some prior studies are “Reviewed” and Non-ABUS.
- beyond 30 days, DELETE ALL:
- non-ABUS studies in order (by import date) that are older than Day1 (configurable, default 30 days).
- Reviewed studies and export SUCCESS studies in order (order by import date) that are older than Day 1.
- Un-Reviewed studies, study date is older than Day2 (configurable, default 365 days) in order (order by study date).
- Reviewed studies and export FAILED studies in order (order by import date) whose import date is older than Day 1.

Day0, Day1 & Day2 are all configurable in UsysDiskClean.exe.config

In item 2, deleting studies follows a) -> b) -> c) -> d)

Minimum Free Space (Auto-Delete) (continued)

Table 4-20: Minimum Free Space (Auto-Delete)

Step		Corresponding Graphic
1.	Click on the Configuration Gears icon	
2.	Select **the Setup** page.	
3.	Select the **Advanced** tab, then use the slide button to set the Minimum Free Space.	**Default Settings:** Disk Space 30% (Free Space)

InSite Agent Configuration

For additional information on InSite, see Chapter 7.

Table 4-21: InSite Agent Configuration

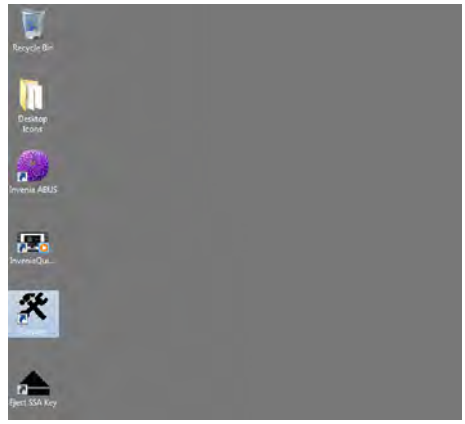
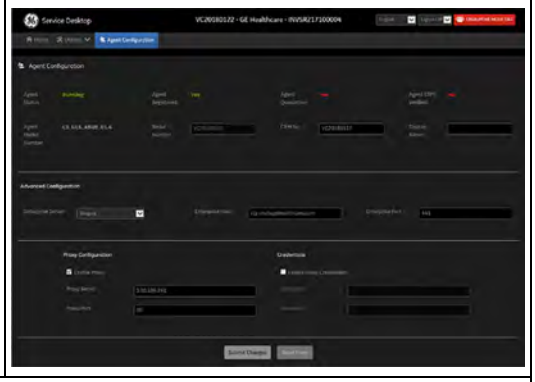
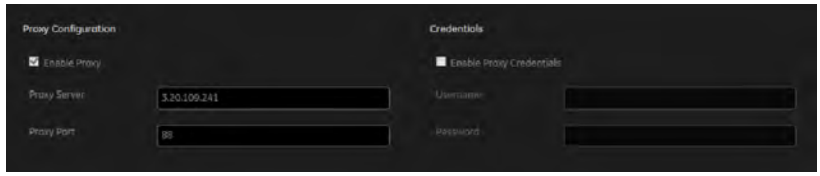
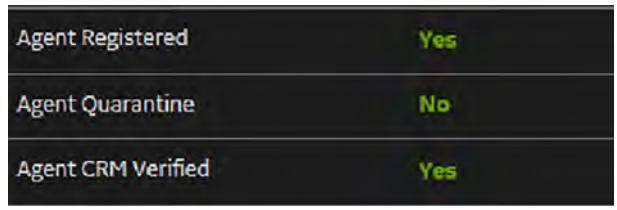
Step		Corresponding Graphic
1.	Double click the Service Desktop icon *NOTE: The Service Desktop can also be launched from the Invenia ABUS Viewer application. Use the CSD button on the bottom righthand corner.*	
2.	Click on **the Agent Configuration tab**.	
3.	Configure the CRM No (System ID) and Display Name fields: 	
4.	Configure the Advanced Configuration settings: Enterprise Server: **Production** 	

Table 4-21: InSite Agent Configuration (Continued)

Step		Corresponding Graphic
5.	If necessary, configure the Proxy Configuration and Credentials settings: 	
6.	Click the Submit Changes button.	
7.	When the Invenia ABUS Viewer has been successfully configured with the back office, these elements will have the corresponding values: 	

Functional Checks

Invenia ABUS Viewer

For the Invenia ABUS Viewer, ensure the following:

- System powers On.
- Keyboard and mouse are properly connected and functional.
- Verify the Invenia ABUS Viewer starts without problems/ error codes.
- Verify the Invenia ABUS Viewer software license is permanent (“perpetual”).
- Verify connectivity to configured DICOM storage devices.
- Confirm the Study transferred from Invenia ABUS 2.0 to the Workstation.
- Confirm PACS operation.

Workstation PC Display

For the Workstation PC, ensure the following::

- System powers On.
- System displays the Windows Desktop correctly, in an undistorted manner.
- System dsplays the Invenia ABUS Viewer correctly, in an undistorted manner.
- Display doesn’t drop any pixels.

Chapter 5

Configuring Invenia ABUS Viewer Application Parameters

The GE authorized representative installing the Invenia ABUS Viewer should set up the default user-related operating parameters as described in this chapter.

Customizing the Invenia ABUS Viewer

Overview

Many functions of the Invenia ABUS Viewer can be customized through the Invenia ABUS Viewer System Configuration screens. The main screen can be displayed by clicking the Configuration icon (two gears) in the Viewer System Pane on the right side of the screen.

The System Configuration screen has two parts, the vertical left column which has nine buttons which invoke the various configuration pages, and the right side which shows the selected configuration page with its settings.

To edit configuration settings, select a page type in the left column, then enter settings as needed in the contents of the page on the right side. Once all changes have been made click the X button to save the page and exit.

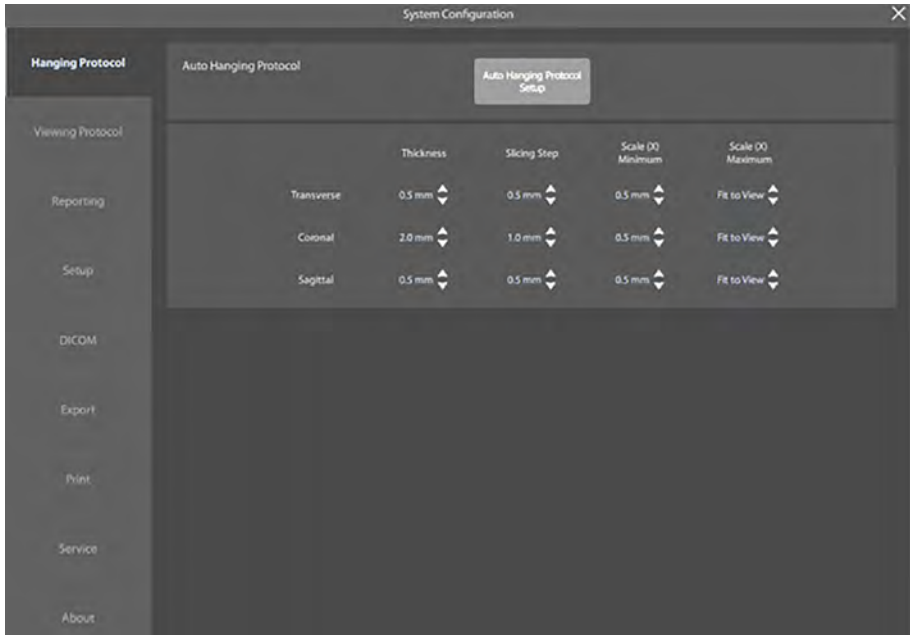
The sections in this chapter describe use of each configuration page type.

System Configuration Hanging Protocol

Table 5-1: System Configuration - Hanging Protocol

The “**Hanging Protocol**” page enables customization of the following information:

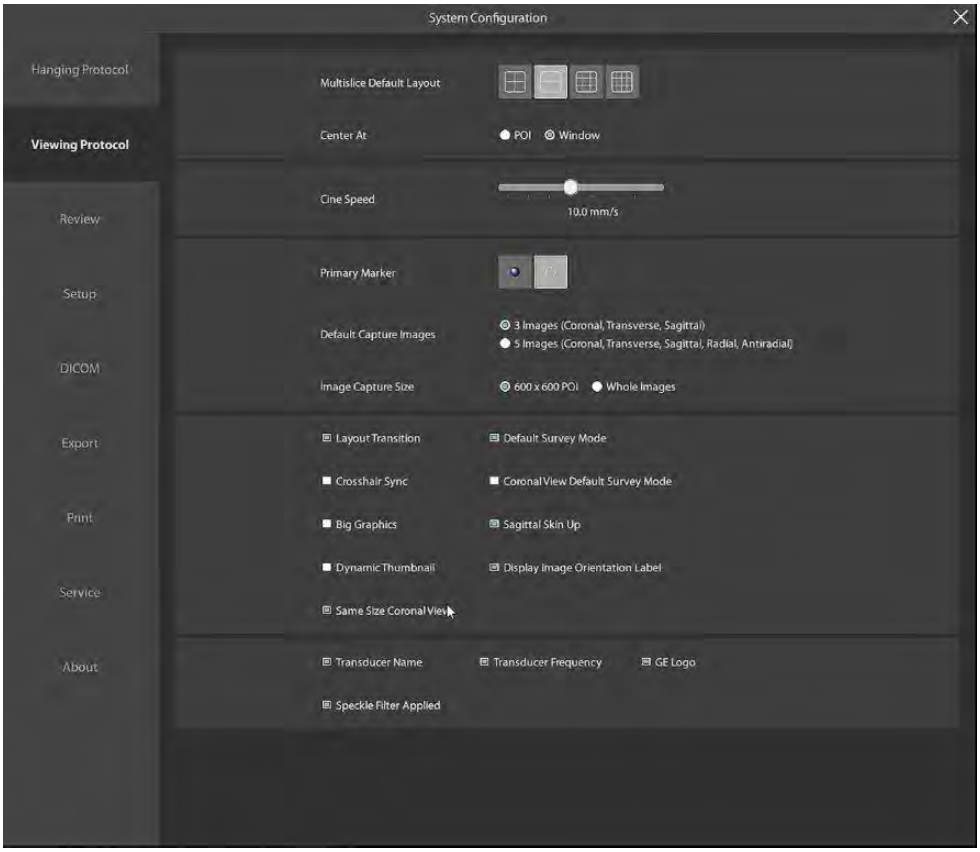
1. Auto Hanging Protocol Setup.
2. Default scale for images.
3. Orientation labels on displayed images.
4. Slice thickness for all views.
5. Slicing step, or distance between consecutive slices, when scrolling through a plane.



System Configuration Viewing Protocol

Table 5-2: System Configuration - Viewing Protocol

The “Viewing Protocol” page enables customization of a variety of image parameters and user view parameters.



System Configuration Worksheet

Table 5-3: System Configuration - Worksheet

The “**Report**” tab’s page enables customization of the customer’s worksheet.

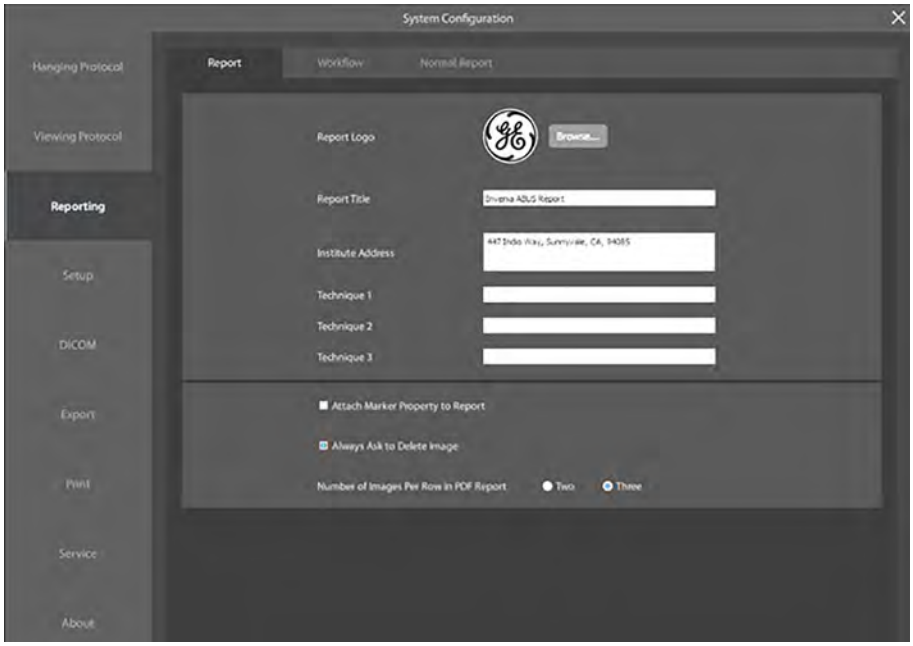
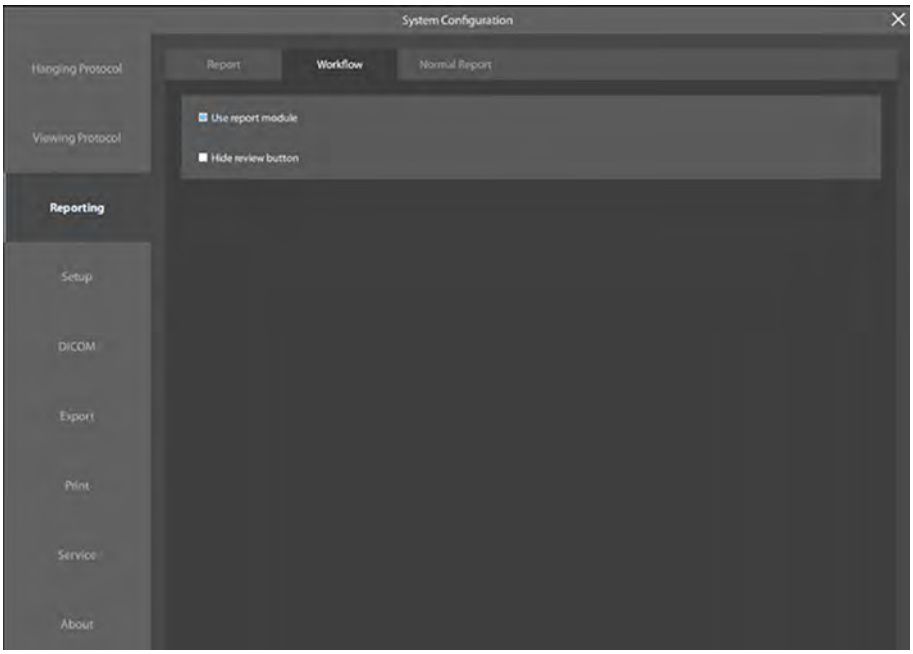


Table 5-3: System Configuration - Worksheet (Continued)

The “**Report**” page “**Workflow**” tab enables customization of the report module and/or to hide the review button.



The “**Report**” page “**Normal Report**” tab enables customization of the worksheet for normal results.

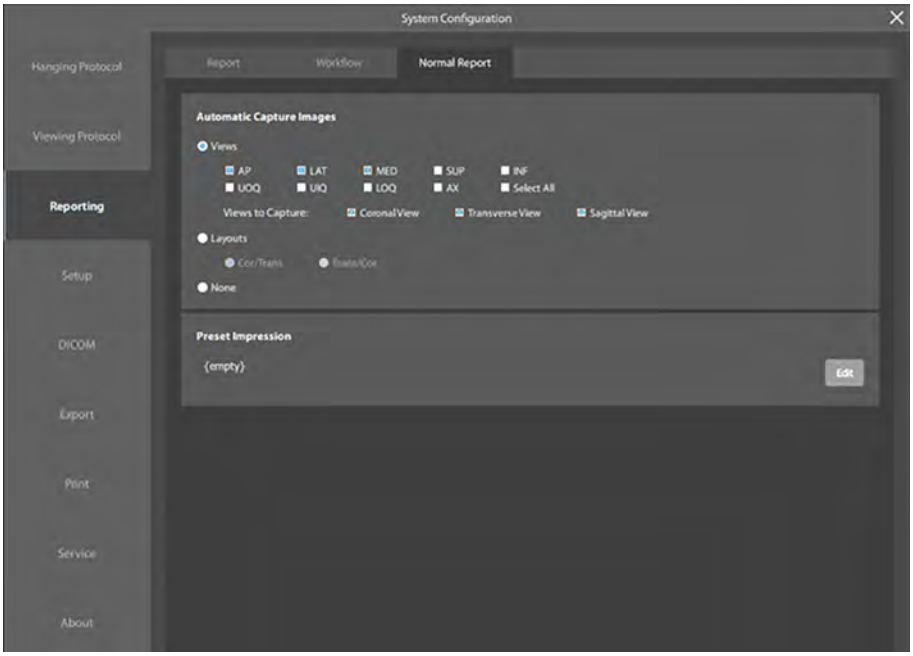


Table 5-3: System Configuration - Worksheet (Continued)

Sample Worksheet:

System Configuration Setup

Table 5-4: System Configuration - Setup

General Setup Tab

The "**Setup**" page enables customization of the following information:

1. Institution name for DICOM images.
2. Patient Name or ID displayed in the Study Pane.
3. User Interface Language displayed when using the system.
4. Date and Time format settings.
5. Auto Log-Off time and warning timeout.
6. Screen where the Invenia ABUS Viewer will be displayed (Primary, Secondary, etc.).
7. Enable Image Processing.
8. Speckle Filter Level. When you send an image from the Invenia ABUS 2.0, or import it through the Study Browser, it will apply a speckle reduction:
   - Null = No Smoothing
   - Speckle 1 = Less Smoothing
   - Speckle 2 = More Smoothing
9. Use SomoV Images, Tissue Equalizer Algorithm, and Breast Border as well Window and Level settings.

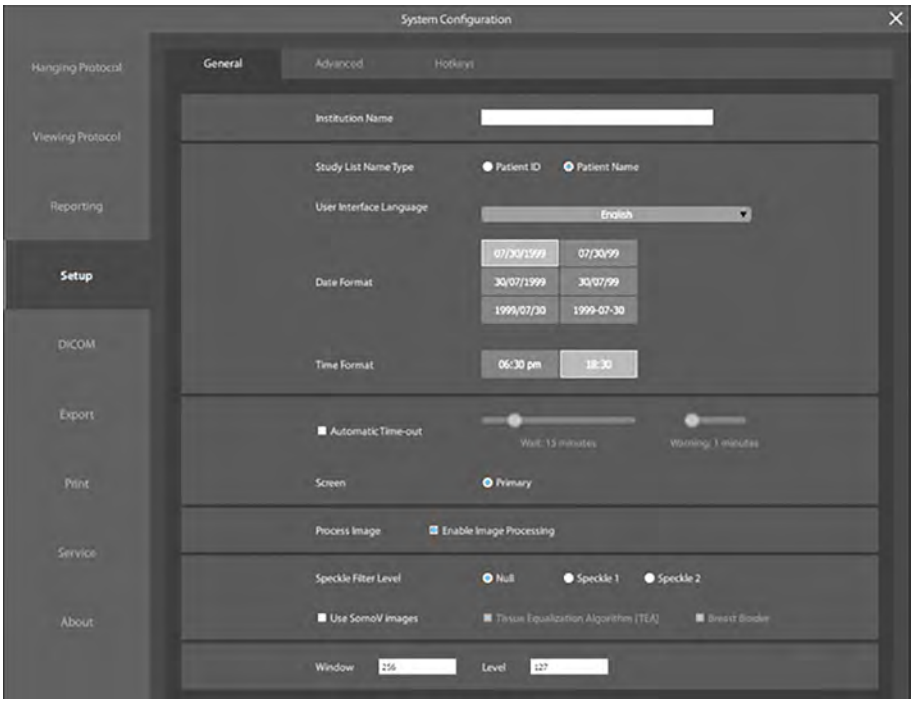
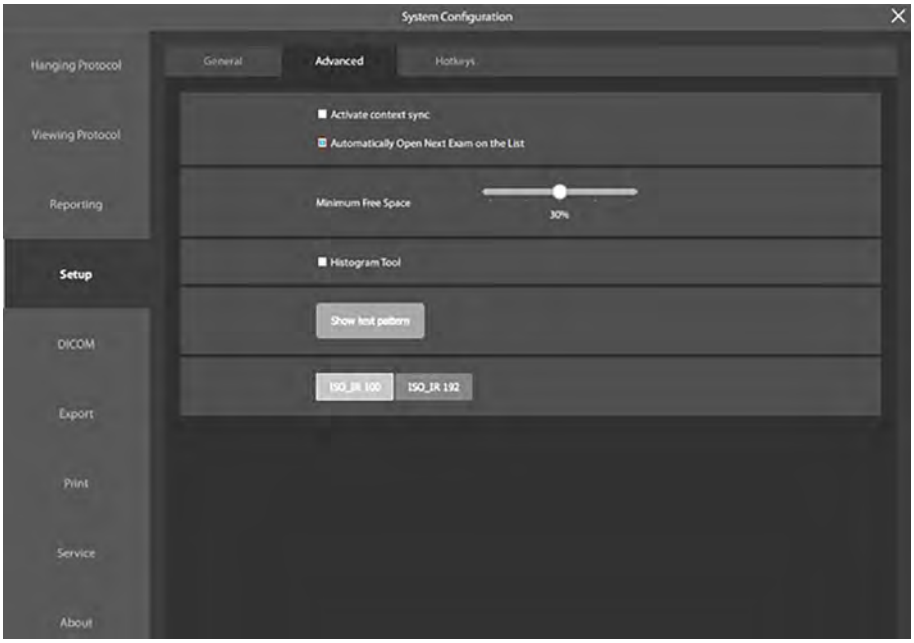


Table 5-4: System Configuration - Setup (Continued)

Advanced Setup Tab

The "**Setup**" page enables customization of the following information:

1. Activation of context sync.
2. Automatically Open Next Exam on the list.
3. Minimum Free Space percentage (auto delete functionality).
4. Histogram Tool.
5. Test pattern.
6. ISO



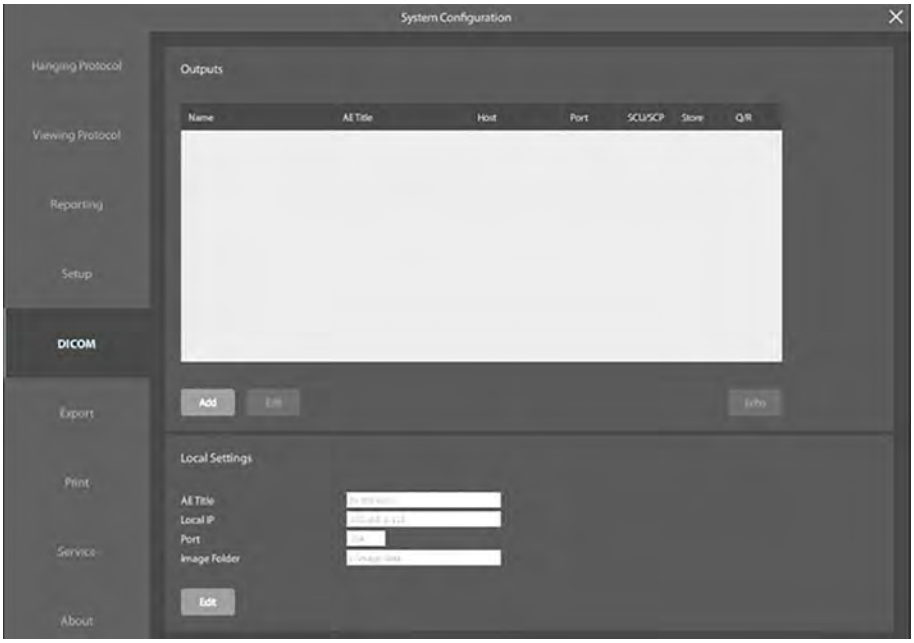
System Configuration DICOM

Table 5-5: System Configuration - DICOM

The “**DICOM**” page enables customization of the DICOM storage devices as well as changes to the local Workstation settings.

1. Click on “Add” to create a DICOM output destination (Name, AE Title, Host (IP Address), Port Number, SCU/SCP (Service Class User/Service Class Provider), STORE, and Q/R).
2. Select a DICOM device and click on “Edit” to check and modify the DICOM device settings.
3. Select a DICOM device and click on “Echo” to verify communication status between the Invenia ABUS Viewer and device.
4. Click on “Edit” to customize the Invenia ABUS Viewer local settings (AE Title, Port Number, and Image Folder)

NOTE: The Workstation IP Address field cannot be modified via the Invenia ABUS user interface. The Workstation IP Address must be configured via the network settings in the Windows Operating System.



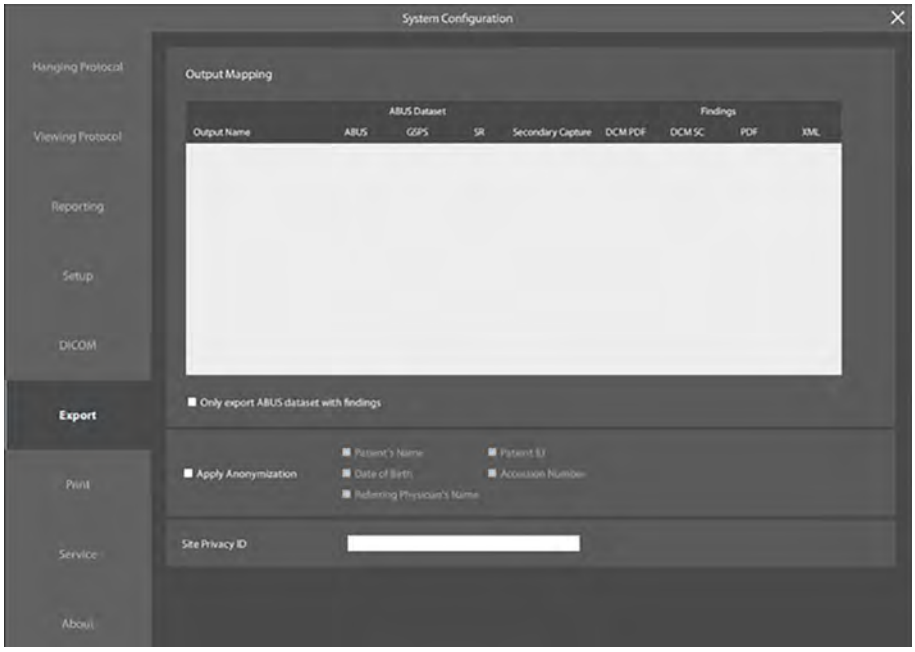
System Configuration Export

Table 5-6: System Configuration - Export

The “**Export**” page enables customization of the Output Mapping. This allows the user to set multiple destinations and configure which information goes to each location. The Invenia ABUS dataset and findings are automatically exported when a report is signed or the study is marked as reviewed.

1. Anonymization is applied to manually exported images and studies. The selected anonymized fields (Patient’s Name, ID, Date of Birth, Accession Number, or Referring Physician’s Name) are removed from the DICOM data.

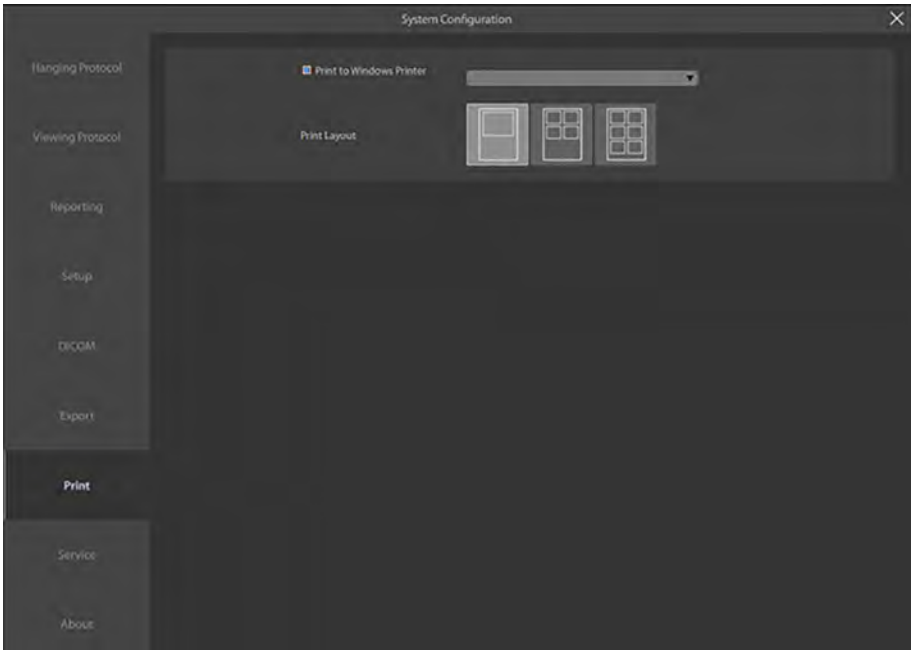
NOTE: Captured images with the Patient Name and ID as part of the image (screen capture) still retain the patient information in the image itself.



System Configuration Print

Table 5-7: System Configuration - Print

The Print page enables customization of image printing to Windows or local printers.

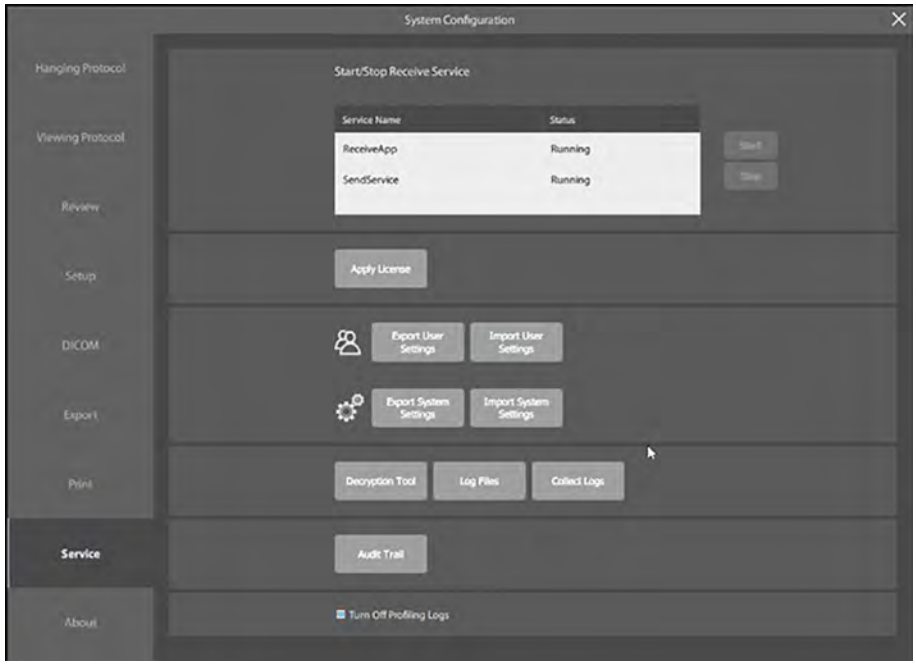


System Configuration Service

Table 5-8: System Configuration - Service

The "**Service**" page enables customization of the following information:.

1. The user can check the ReceiveApp and SendService status, and is allowed to Start or Stop the DICOM Services.
2. The user can use the “Apply License” button to navigate to the HASP License browser (More Information on the Invenia ABUS Viewer License).
3. The user can backup/restore the “User” and “System” configuration settings by using the “Export and Import” buttons.
   NOTE: The Invenia ABUS Viewer does not allow the user to load the wrong configuration files as the previous software versions.
4. Access to the Decryption Log Tool.
5. Simple Access to the Log Files.
6. Collect the Error Logs
   (*NOTE: This task can also be done via Service Desktop using the Gather logs utility*).
7. Access to the system Audit Trail.



System Configuration About

Table 5-9: System Configuration - About

The “**About**” page enables customization of the following information:

1. Invenia ABUS Viewer Software System ID.
2. Information on Software Version, Make Center, REF, Serial Number, and UDI.
3. License Information button provides a link to the HASP License Web Interface.

Chapter 6

Service Desktop

The Service Desktop provides a number of service-related functions.

Common Service Desktop (CSD)

Introduction

The Common Service Desktop (CSD), or Service Desktop, provides a number of service-related functions. It is also used with other GE Ultrasound products.

This section describes the features of the Service Desktop.

Service Basic access (Class A) provides a user locally logged into the machine with Local Service Access privilege.

To open the Service Desktop. see the section in this chapter: Accessing the Service Desktop.

Service Desktop — Class A

With Service Basic Access (Class A), the following options are available:

- HOME
- Utilities
  - Data Transfer
  - Gather Logs
  - SSA License
  - Third Party Licenses
- Agent Configuration

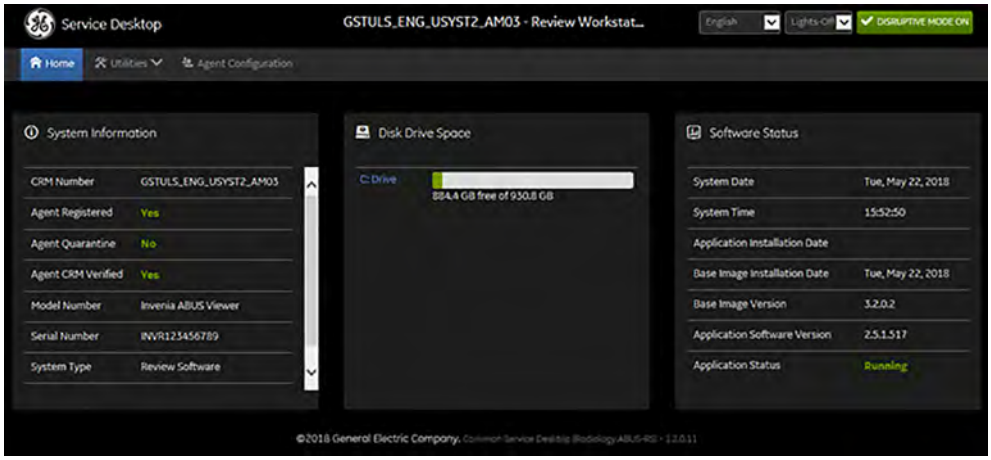


Figure 6-1. Service Desktop Limited Access (Class A)

System Information

System Information displays general information about the Invenia ABUS Viewer. When the Invenia ABUS Viewer has been successfully configured with the back office, these elements will have the corresponding values:

- **Agent Registered** will be **Yes**
- **Agent Quarantine** will be **No**
- **Agent CRM Verified** will be **Yes**

The information on **System Information** is available to both Class A and Class M service access level. To access **System Information**, navigate to Home Page:

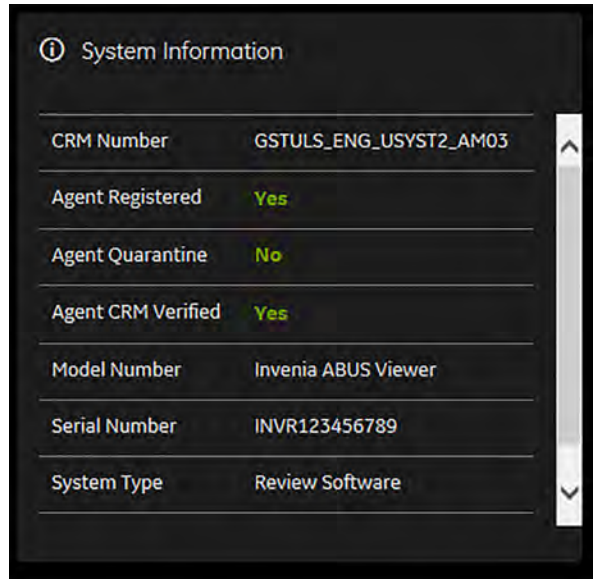


Figure 6-2. Home Page - System Information

This table shows all the elements available on **System Information** with descriptions.

Table 6-1: System Information

Description	Additional information
CRM Number	Customer Relationship Management (CRM) number. System identifier assigned to the customer unit by the service region.
Agent Registered	Registered status of the agent. Valid values are: Yes - The agent is registered in the back office. No -The agent is not registered in the back office. Not Available - The agent is not running or has not been configured.

Table 6-1: System Information (Continued)

Description	Additional information
Agent Quarantine	Quarantine status of the agent. Valid values are: Yes - The agent has more than one device registered with the same CRM Number in the back office. No -The agent has one device registered with the listed CRM Number in the back office. Not Available - The agent is not running or has not been configured.
Agent CRM Verified	CRM verified status of the agent. Valid values are: Yes - The agent is verified in the back office. No - The agent is not verified in the back office. Not Available - The agent is not running or has not been configured
Model Number	GE part number for the Invenia ABUS Viewer. The same number as listed on the rating plate.
Serial Number	Serial number of the Invenia ABUS Viewer. The same number as listed on the rating plate.
System Type	Product name of the Invenia ABUS Viewer.
Facility	Name of the hospital or facility where the Invenia ABUS Viewer is installed.

Accessing the Service Desktop

To enter the Invenia ABUS Viewer Service Desktop on a Workstation PC:

Table 6-2: Accessing the Service Desktop

Step		Corresponding Graphic
1.	Double click on the Service Desktop icon *NOTE: The Service Desktop can also be launched from the Invenia ABUS Viewer. Use the CSD button on the bottom right corner*.	

Chapter 7

InSite and Remote Connectivity

This chapter describes the configuration of InSite.

InSite

Overview

InSite functionality is installed during the Invenia ABUS Viewer installation as part of the Service Desktop. A GE Service Engineer configures the authorization that ensures the customer will be recognized by the appropriate GE server.

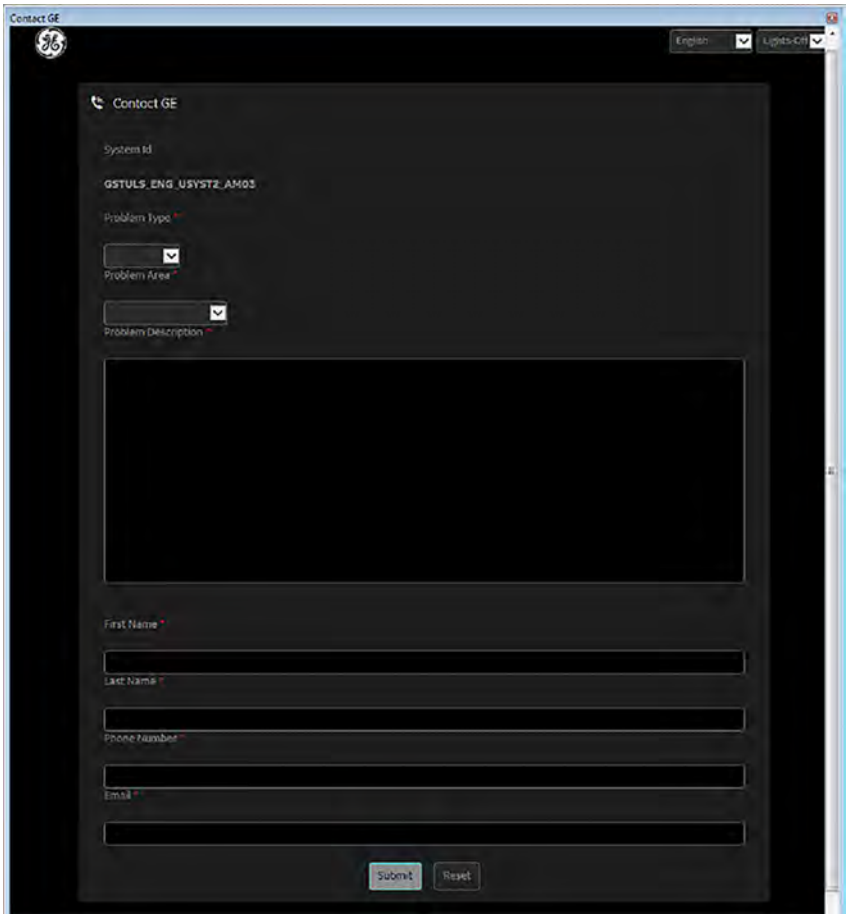
InSite provides the customer with a direct link to a GE Online Service Engineer, and allows a direct request for access to a GE server.

InSite Setup

InSite functionality requires both a network connection and GE authorization for the customer to use remote connectivity to a GE server. The authorization must be initially set up by a GE Service Engineer to ensure that the customer will be recognized by the appropriate GE server.

InSite Setup (continued)

Table 7-1: Service Request

Contact GE - Placing a Service Request from the Invenia ABUS Viewer
The customer may be able to place a service call from the Invenia ABUS Viewer (provided the Agent Configuration and GE back office is properly configured) using the Contact GE form (CSD -> Envelope): ***NOTE:*** *SW2.5.1 has a bug that affects this function. This will work ONLY if the customer's system is connected via Proxy. This function will be fixed with SW2.5.3.* *Until then, Service should instruct the customer to call GE CARES for service.* 1. Drop down menu to select a Problem Type (Service or Application) 2. Drop down menu to select a Problem Description (Hardware Electrical, Hardware Mechanical, Software, Network, Image Quality, Peripherals, or Others) 3. Type a Problem Description 4. Type First and Last Name Fields 5. Type Phone number and email address 6. Click on Submit   

Chapter 8

Troubleshooting

This chapter describes how to setup and successfully run the software that helps to maintain image quality.

Troubleshooting Issues

Resetting the Invenia ABUS Viewer System Configuration File

Table 8-1: Resetting the System Configuration File

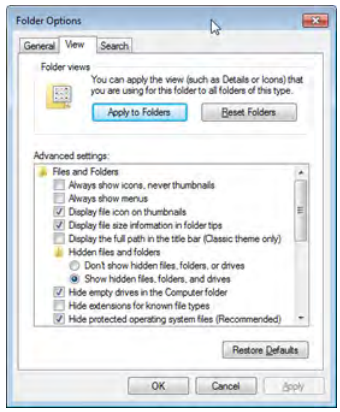
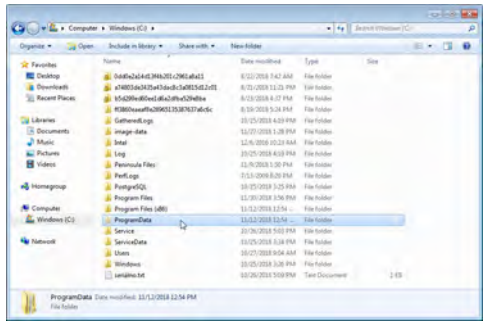
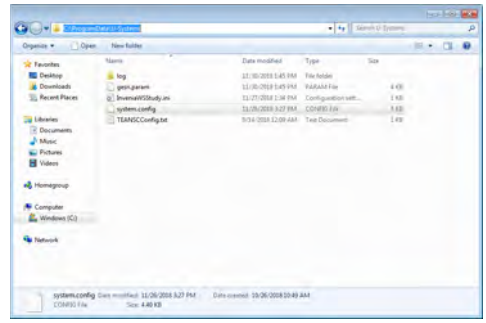
Step		Corresponding Graphic
1.	Windows Operating System "Folder Options" must be configured to "Show hidden files, folders and drives." Select the Start button, then select "Control Panel > Appearance and Personalization". Select "**Folder Options**", then select the "View" tab. Under Advanced settings, select "**Show hidden files, folders and drives**", and then select "**OK**".	
2.	Navigate to C:\ProgramData\U-systems The ProgramData folder is only displayed if Windows is configured to display hidden folders (See Step 1).	

Table 8-1: Resetting the System Configuration File (Continued)

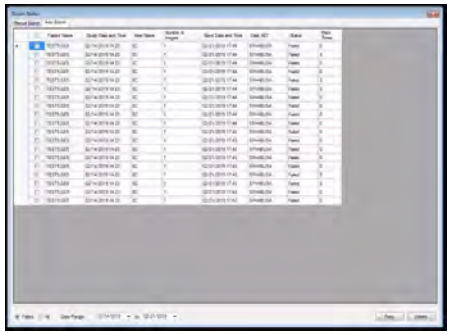
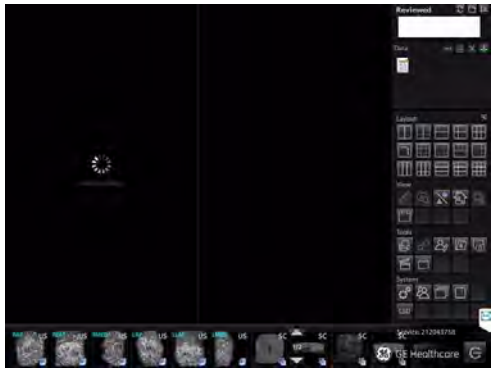
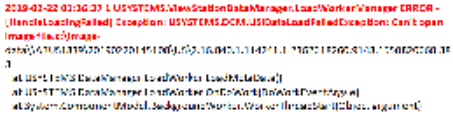
Step		Corresponding Graphic
3.	Delete the system.config file, and then close the window. Then restart the Invenia ABUS Viewer application. Deleting the "**system.config**" file forces the Invenia ABUS Viewer to create a new system.config file to launch again. This procedure resets the system configuration to the default settings.	

Images not sending to PACS

Problem: Customers are unable to review Secondary Captures (SC) on an Invenia ABUS Viewer.

Solution: Test the ENTIRE Customer data workflow as shown below

Table 8-2: Successfully send images to PACS

Step		Corresponding Graphic
1.	Check the DICOM Status (spooler) for any failed items. The corresponding graphic shows that all secondary captures (SC) failed.	
2.	Try reopening the exam and verify if the Viewer is able to display the secondary capture (SC) images BEFORE troubleshooting a possible DICOM communication issue. For this problem, the exam will open and you should be able to verify if the ABUS native images display correctly BUT when trying to review the SC images, the following message will appear. The SC images will NEVER display.	
3.	Look deep into the WS error logs - the system is not able to open these images.	
4.	Following the procedure for cleaning the database and reinstalling the software seems to fix the issue. For details, go to “Remove the Database”.	