



Technical Publication

Versana BalanceTM/Versana BalanceTM Vet

Basic Service Manual

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Product Information

This Manual covers the software version of R2.x.x for ***Versana Balance™/Versana Balance™ Vet*** ultrasound system.



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Revision history

Revision History

REVISION	DATE (YYYY-MM-DD)	REASON FOR CHANGE
Rev.1	2021-08-30	Initial Release
Rev.2	2021-09-10	Update replacement procedures and renewal parts
Rev.3	2021-11-08	Update Probe check and e-Delivery for software R2.0.2
Rev.4	2022-02-10	Update for software R2.0.3
Rev.5	2022-05-23	Update Probe Check per as FDA comments Add new part 5868297-5S and 5868297-6S
Rev.6	2022-06-30	Update the section "Unpacking the Versana Balance"
Rev.7	2023-01-03	Update regulatory requirement for Vet use.
Rev.8	2023-04-20	Add new part 5868297-7S and 5868297-8S Add the installation for Ferrite core assy
Rev.9	2023-10-15	Update probe check Pass/Fail criteria Add new USB stick 5863937 Add part 5868297-9S
Rev.10	2024-07-10	Add India MDM site factory information
Rev.11	2024-10-20	Add Digital Expert information
Rev.12	2025-01-20	Update FRU part list

List of Effected Pages (LOEP)

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Important precautions

Translation policy

WARNING

English
(EN)

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.

VIÐVÖRUN

Íslenska
(IS)

Þessi þjónustuhandbók er aðeins fáanleg á ensku.

- Ef þjónustuaðili viðskiptavinar þarf annað tungumál en ensku er það á ábyrgð viðskiptavinarins að veita þýðingarþjónustu.
- Ekki reyna að þjónusta búnaðinn nema þessir þjónustuhandbækur hafi verið skoðaðir og skilið.
- Ef ekki er gætt að þessari viðvörðun getur það valdið meiðslum á þjónustuaðila, stjórnanda eða sjúklingi vegna raflosts, vélrænni hættu eða annarri hættu.

AVERTISSEMENT

Français
(FR)

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

Slovensčina
(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.

ПРЕДУПРЕЖДЕНИЕ

На русском языке
(RU)

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.

OSTRZEŻENIE

Polski
(PL)

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.

ΠΡΟΕΙΔΟΠΟΙΗΣΗ

Ελληνικά
(EL)

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 ügyfélszolgálatjának 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
(TK)

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 oversættelsesydelse.
- 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 încercați să efectuați lucrări de service asupra echipamentului, în afară de cazul când ați consultat acest manual de service și l-ați înțeles.
 - 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 poštuju ovo upozorenje, može doći do ozljede serviser, operatera ili pacijenta prouzročene strujnim udarom, mehaničkim i drugim opasnostima.

ISPĖJIMAS

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 serviser, 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.

คำเตือน

PMI
(TH)

คู่มือซ่อมบำรุงนี้มีเฉพาะภาษาอังกฤษเท่านั้น

- หากผู้ให้บริการของลูกค้าต้องการจบบัญชีภาษาอื่นนอกเหนือจากภาษาอังกฤษ ลูกค้าต้องเป็นผู้รับผิดชอบในการจัดเตรียมคู่มือซ่อมบำรุงฉบับแปล
- โปรดอย่าซ่อมบำรุงอุปกรณ์โดยไม่ศึกษา และทำความเข้าใจคู่มือซ่อมบำรุงนี้
- หากไม่ปฏิบัติตามคำเตือนนี้อาจส่งผลให้ผู้ให้บริการ ผู้ใช้งานอุปกรณ์ หรือผู้พลได้บาดเจ็บจากไฟฟ้าช็อต อันตรายจากกลไกของอุปกรณ์ หรืออันตรายอื่นๆ

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

(KK) Қазақ тілінде

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.

BABALA

(T) Tagalog

Available lamang sa Ingles ang Manwal ng Serbisyon ng ito.

- Kung ang kailangan lamang ng tagabigay ng serbisyo ng kustomer ng wika maliban sa Ingles, responsibilidad ng kustomer na magbigay ng serbisyo sa pagsasalin wika nito.
- Huwag subukan na iserbisyo ang mga kasangkapan maliban kung nakonsulta ang nauunawaan itong Manwal ng Serbisyo.
- Ang pagkabigong maunawaan ang Babalang ito ay maaring maging resulta ng pinsala sa tagabigay ng serbisyo, nagpapagana o pasyente mula sa pagkakakoryente, mekanikal o iba pang peligro.

Damage in transportation

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

Certified electrical contractor statement - For USA Only

All electrical Installations that are preliminary to positioning of the equipment at the site prepared for the equipment shall be performed by licensed electrical contractors. Other connections between pieces of electrical equipment, calibrations and testing shall be performed by qualified GE personnel. In performing all electrical work on these products, GE will use its own specially trained field engineers. All of GE's electrical work on these products will comply with the requirements of the applicable electrical codes.

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

Omission and errors

If there are any omissions, errors or suggestions for improving this documentation, contact the GE Global Documentation Group with specific information listing the system type, manual title, part number, revision number, page number and suggestion details.

Mail the information to:

GE Medical Systems (China) Co., Ltd.
No.19, Changjiang Road
Wuxi National Hi-Tech Dev.Zone
214028 Jiangsu China
TEL: +86 510 85225888; FAX: +86 510 85226688

GE employees should use TrackWise to report service documentation issues.

These issues will then be in the internal problem reporting tool and communicated to the writer.

Service Safety Considerations



DANGER

DANGEROUS VOLTAGES, CAPABLE OF CAUSING DEATH, ARE PRESENT IN THIS EQUIPMENT. USE EXTREME CAUTION WHEN HANDLING, TESTING AND ADJUSTING.



WARNING

Use all Personal Protection Equipment (PPE) such as gloves, safety shoes, safety glasses, and kneeling pad, to reduce the risk of injury.

For a complete review of all safety requirements, refer to Chapter 1 in the Service Manual.

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Chapter 1

Introduction

This chapter describes important issues related to safely servicing the Ultrasound system. The service provider must read and understand all the information presented here before installing or servicing the units.

Overview

Contents in this chapter

- 'Overview' on *page 1-2*
- 'Manual Overview' on *page 1-3*
- 'Important Conventions' on *page 1-7*
- 'Product Icons' on *page 1-11*
- 'Labels Locations' on *page 1-12*
- 'Safety Considerations' on *page 1-14*
- 'Dangerous Procedure Warnings' on *page 1-22*
- 'Lockout/Tagout (LOTO) Requirements' on *page 1-23*
- 'Returning Probes and Repair Parts' on *page 1-24*
- 'EMC, EMI and ESD' on *page 1-25*
- 'Customer Assistance' on *page 1-27*

Manual Overview

This manual provides installation and service information for the Versana Balance™/Versana Balance™ Vet Ultrasound system. It is divided in ten chapters as shown below.

Contents in this manual

The manual is divided into ten chapters.

In the beginning of the manual, before chapter 1, you will find the *Revision overview*, the *Important precautions* including *Translation policy*, *Damage in transportation*, *Certified electrical contractor statement*, *Omission & errors*, *Service safety considerations* and *Legal notes*, and the *Table of Contents (TOC)*.

An Index has been included after Chapter 10.

Table 1-1: Contents in this manual

Chapter number	Chapter title	Description
1.	Introduction	Contains a content summary and warnings.
2.	Site preparations	Contains pre-setup requirements for the Versana Balance™/Versana Balance™ Vet.
3.	System Setup	Contains setup procedure with procedure checklist for the system.
4.	General Procedures and Functional Checks	Contains functional checks that must be performed as part of the installation, or as required during servicing and periodic maintenance.
5.	Components and Functions (Theory)	Contains block diagrams and functional explanations of the electronics.
6.	Service Adjustments	Contains instructions on how to make any available adjustments to the Versana Balance™/Versana Balance™ Vet.

Table 1-1: Contents in this manual (Continued)

Chapter number	Chapter title	Description
7.	Diagnostics/ Troubleshooting	Provides procedures for running diagnostic or related routines for the Versana Balance™/Versana Balance™ Vet.
8.	Replacement procedures	Provides disassembly procedures and reassembly procedures for all changeable FRU.
9.	Renewal Parts	Contains a complete list of replacement parts for Versana Balance™/Versana Balance™ Vet.
10.	Care & Maintenance	Provides periodic maintenance procedures for Versana Balance™/Versana Balance™ Vet.
N/A	Index	A quick way to the topic you're looking for.

Typical users of the Proprietary Service Manual

- GEHC Service Personnel (setup, maintenance, etc.)
- GEHC Online Center Personnel
- Licensed Hospital's Service Providers

Purpose of Operator Manual(s)

The Operator Manual(s) should be fully read and understood before operating the Versana Balance™/Versana Balance™ Vet and also kept near the unit for quick reference.

NOTE: *Probe information displayed on screen does not necessarily reflect the probes available on your ultrasound system. Please refer to the probe list for available probes and features.*

Versana Balance™/Versana Balance™ Vet models covered by this manual

Table 1-2: Versana Balance™ Model Designations

Model Name	System SW
Versana Balance™ VA	R2.x.x
Versana Balance™ VS	R2.x.x

Table 1-3: Versana Balance™ Vet Model Designations

Model Name	System SW
Versana Balance™ Vet VA	R2.x.x
Versana Balance™ Vet VS	R2.x.x

NOTE: *When not otherwise specified, the contents of this manual applies to all Versana Balance™/Versana Balance™ Vet models.*

Smart Manual Function

On each page of this Proprietary Service Manual, there is a smart manual icon to bring you back to Overview of Versana Balance™/Versana Balance™ Vet. By clicking on the system overview list, you can be brought to the FRU list directly.

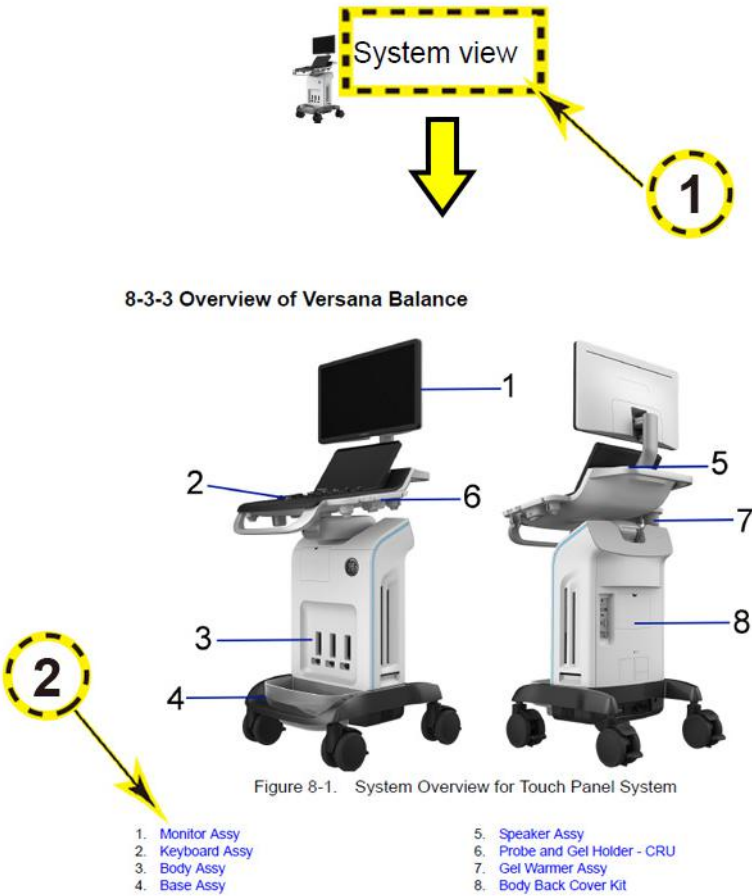


Figure 1-1. Smart Manual Icon

Important Conventions

Conventions used in book

Important conventions, used in this document, are described next.

Model designations

This manual covers the Versana BalanceTM/Versana BalanceTM Vet Ultrasound systems listed in:

[‘Versana BalanceTM/Versana BalanceTM Vet models covered by this manual’ on page 1-5.](#)

Icons

Pictures, or icons, are used wherever they will reinforce the printed message. The icons, labels, and conventions used on the product and in the service information are described in this chapter.

Safety precaution messages

Various levels of safety precaution messages may be found on the equipment and in the service information. The different levels of concern are identified by a flag word that precedes the precautionary message. Known or potential hazards to personnel are labeled in one of three ways:

- DANGER
- WARNING
- CAUTION



Danger is used to indicate the presence of a hazard that will cause severe personal injury or death if the instructions are ignored.



Warning is used to indicate the presence of a hazard that can cause severe personal injury and property damage if instructions are ignored.



Caution is used to indicate the presence of a hazard that will or can cause minor personal injury and property damage if instructions are ignored. Equipment damage possible.







NOTE: *Notes are used to provide important information about an item or a procedure.*

NOTE: *Be sure to read the notes; the information contained in a note can often save you time or effort.*

Standard hazard icons

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

Table 1-4: Standard hazard icons







	ELECTRICAL
	MECHANICAL
	RADIATION
	LASER
	HEAT
	PINCH

NOTE: *Even if a symbol isn't used on the product or in this manual, it may be included for your reference.*

Standard Icons that indicate that a special procedure is to be used

Some others icons make you aware of specific procedures that should be followed.

Table 1-5: Standard Icons that indicates that a special procedure is to be used

Avoid Static Electricity	Tag and Lock Out	Wear Eye Protection
		
Hand Protection	Foot Protection	Wear Eye Protection
		

Be sure to read the notes; the information contained in a note can often save you time or effort.

Conventions

ATTENTION: Versana Balance Vet system used for animal scanning:

1. Whenever the term “Physician” appears in this manual, it must be replaced by the term “Veterinarian”.
2. Whenever the term “Patient” appears in this manual, it must be replaced by the term “Animal”.
3. Whenever the term “Versana Balance” appears in this manual, it must be replaced by the term “Versana Balance Vet”.

Product Icons

It is important to refer to the current revision of the Ultrasound system's User Manual for a full list of product labels prior to servicing the system.

Labels Locations

It is important to refer to the current revision of the Ultrasound system’s User Manual for a full list of product labels prior to servicing the system.

Rating Plate Location

Versana Balance™/Versana Balance™ Vet labels are provided in English.

The labels are at the rear of the system. The label content may be different for different regions. Please refer to the labels on the system for the actual content.

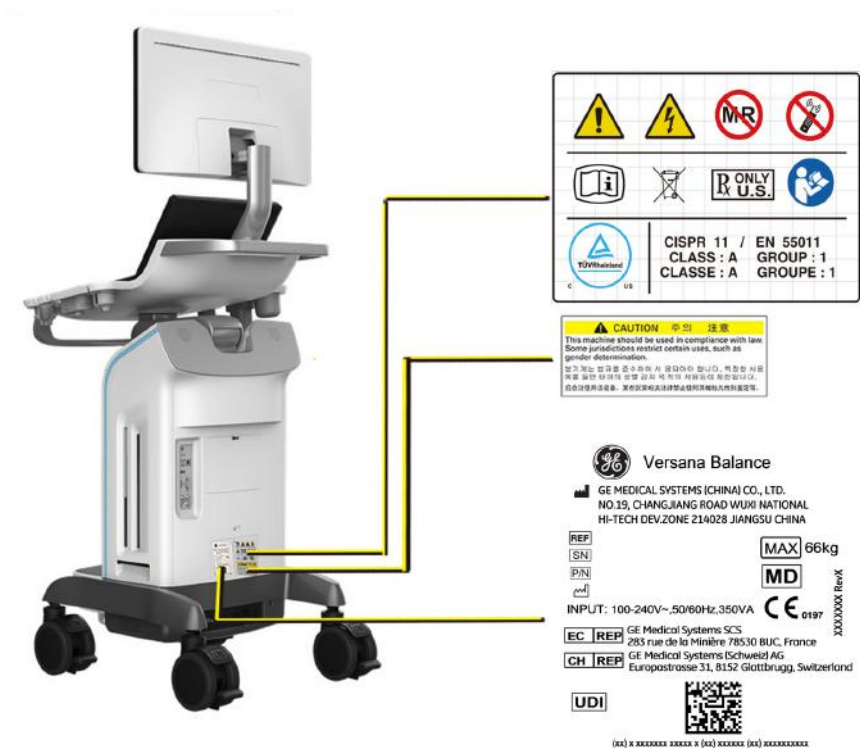
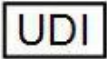



Figure 1-2. Versana Balance™/Versana Balance™ Vet Label Location

Rating Plate Location(continued)

1. Rating Plate

Table 1-6: Label Icons

Label/Icon	Purpose/Meaning	Location
	Every system has a unique marking for identification, the Unique Device Identification (UDI) Label. The UDI label consists of a series of alpha-numeric characters and barcode which uniquely identify the Versana Balance™/Versana Balance™ Vet system as a medical device manufactured by General Electric. Scan or enter the UDI information into the patient health record as required by country-specific laws.	Rating plate
	Serial Number.	Rating plate

NOTE: *If the new label is needed during the service activities, please click “Ask an Expert” to submit the case in the support central: http://supportcentral.ge.com/products/sup_products.asp?prod_id=44177. It's recommended to use Internet Explorer to open this link.*

Safety Considerations

Contents in this section

- [‘Introduction’ on page 1-14](#)
- [‘Human Safety’ on page 1-14](#)
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- [‘Electrical safety’ on page 1-20](#)

Introduction

The following safety precautions must be observed during all phases of operation, service and repair of this equipment. Failure to comply with these precautions or with specific warnings elsewhere in this manual, violates safety standards of design, manufacture and intended use of the equipment.

Human Safety

- Operating personnel must not remove the system covers.
- Servicing should be performed by authorized personnel only.

Only personnel who have participated in a Versana BalanceTM/Versana BalanceTM Vet Training Seminar are authorized to service the equipment.

Human Safety(continued)



WARNING

Because of the limited access to cabinets and equipment in the field, placing people in awkward positions, GE has limited the lifting weight for one person in the field to 16 KG (35 LBS). Anything over 16 KG (35 LBS) requires 2 people.



WARNING

Have two people available to deliver and unpack the Versana Balance™/Versana Balance™ Vet.

Attempts to move the Ultrasound system considerable distances or on an incline by one person could result in injury or damage or both.



WARNING

Ensure that the Ultrasound system is turned off and unplugged.

Wait for at least 20 seconds for capacitors to discharge as there are no test points to verify isolation. The amber light on the OP panel ON/OFF button will turn off.

Ultrasound system components may be energized. Always refer to the Ultrasound system's Proprietary Service Manual for LOTO warnings and cautions.

Human Safety(continued)



WARNING

Risk of electrical shock, Ultrasound system must be turned off and disconnected from power source. Cord must be controlled at all times.

Wait for at least 20 seconds for capacitors to discharge as there are no test points to verify isolation. The amber light on the OP panel on/off button will turn off.

Ultrasound System components may be energized. Always refer to the Ultrasound system's Proprietary Service Manual for LOTO warnings and cautions



WARNING

Use all Personal Protection Equipment (PPE) such as gloves, safety shoes, safety glasses, and kneeling pad, to reduce the risk of injury.



WARNING

Beware of possible sharp edges on all mechanical parts. If sharp edges are encountered, the appropriate PPE should be used to reduce the risk of injury.



WARNING

Wear all PPE including gloves as indicated in the chemical MSDS.

Mechanical safety



WARNING

While the software install procedure is designed to preserve data, you should save any patient data, images, system setups to removable media or hardcopy before doing a software upgrade.



WARNING

Ultrasound probes are highly sensitive medical instruments that can easily be damaged by improper handling. Use care when handling and protect from damage when not in use. **Do NOT** use a damaged or defective probe. Failure to follow these precautions can result in serious injury and equipment damage.



WARNING

Never use a probe that has fallen to the floor. Even if it looks OK, it may be damaged.



WARNING

When the Ultrasound system is raised for a repair or moved along any incline, use extreme caution since it may become unstable and tip over.



CAUTION

Take extra care when moving the system.

The Versana Balance™/Versana Balance™ Vet weighs approximately 70kg (150 lbs) or more, depending on installed peripherals, when ready for use. To avoid possible injury and equipment damage when transporting from one area of use to another:

- Be sure the pathway is clear.
- Limit movement to a slow careful walk.
- Use two or more persons to move the equipment on inclines or long distance.



CAUTION

Before you move or transport the Ultrasound system, make sure to lock the monitor arm firmly and flip down the monitor to prevent damage to the Ultrasound system.

Mechanical safety(continued)



CAUTION

To avoid injury when you move the monitor and the monitor arm, do not put your finger, hand, or object on the joint of the monitor or the monitor arm.



CAUTION

Ensure that nobody touches the console arm when moving the operator panel.



CAUTION

Do not move the Ultrasound system if the Operator Panel is in unlocked position.



CAUTION

Do not transport Versana Balance™/Versana Balance™ Vet in a vehicle without locking the casters (wheels) and securing it as described in chapter 4.



CAUTION

Use protective glasses during drilling, filing smooth surfaces, and during all other work where eyes need protection.



CAUTION

Use safety shoes when doing work where there is any chance of foot injury.



Mechanical safety(continued)



CAUTION

Use protective gloves when working with sharp edges or when directed to wear PPE during a removal/replacement procedure.



CAUTION

Be careful not to pinch any of the cables.

NOTE: *Special care should be taken when transporting the Ultrasound system in a vehicle:*

- Before transporting, place the system in its special storage case.
- Lock the wheels (brake).
- Ensure that the system is firmly secured while inside the vehicle.
- Secure system with straps or as directed otherwise to prevent motion during transport.
- Prevent vibration damage by driving cautiously. Avoid unpaved roads, excessive speeds, and erratic stops or starts.

Electrical safety

Safe practices

Follow these guidelines to minimize shock hazards whenever you are using the Ultrasound system:

- To minimize shock hazard, the equipment chassis must be connected to an electrical ground.
- The Ultrasound system is equipped with a three-conductor AC power cable. This must be plugged into an approved electrical outlet with safety ground.
- The power outlet used for this equipment should not be shared with other types of equipment.
- Both the system power cable and the power connector must meet international electrical standards.



Connecting a Versana Balance™/Versana Balance™ Vet to the wrong voltage level will most likely destroy it.



DO NOT SERVICE OR DISASSEMBLE PARTS UNDER FRU UNIT LEVEL AT ANY CIRCUMSTANCES.

Probes

Follow these guidelines before connecting a probe to the Ultrasound system:

- Inspect the probe prior to each use for damage or degradation to the:
 - housing
 - cable strain relief
 - lens
 - seal
 - connector pins
 - locking mechanism
- Do not use a damaged or defective probe.
- Never immerse the probe connector or adapter into any liquid.
- The system has more than one type of probe port. Use the appropriate probe port designed for the probe you are connecting.



CAUTION

The system will do probe check procedure during active the probes.


Peripherals

Refer to the Patient Safety Environment section of the User's Manual for peripheral isolation information.

Dangerous Procedure Warnings

Warnings, such as the example below, precede potentially dangerous procedures throughout this manual. Instructions contained in the warnings must be followed.



 DANGEROUS VOLTAGES, CAPABLE OF CAUSING DEATH, ARE PRESENT IN THIS EQUIPMENT. USE EXTREME CAUTION WHEN HANDLING, TESTING AND ADJUSTING.



If the covers are removed from an operating Versana Balance™/Versana Balance™ Vet, some metal surfaces may be warm enough to pose a potential heat hazard if touched, even while in shutdown mode.



Explosion Warning

DO NOT operate the equipment in an explosive atmosphere. Operation of any electrical equipment in such an environment constitutes a definite safety hazard.



DO NOT substitute parts or modify equipment

Because of the danger of introducing additional hazards, ONLY install GE approved parts. DO NOT perform any unauthorized modification of the equipment.



SHUT DOWN FORCEDLY OR PLUG IN/OUT ACDC INVALID MAY CAUSE THE DAMAGE OF SYSTEM FILES.



AFTER UNPLUG POWER CORD, WAIT FOR AT LEAST 20 SECONDS FOR CAPACITORS TO DISCHARGE AS THERE ARE NO TEST POINTS TO VERIFY ISOLATION.

Lockout/Tagout (LOTO)

Requirements

Follow Lockout/Tagout requirements by ensuring you are in total control of the AC power plug at all times during the service process.

To apply Lockout/Tagout (LOTO):

1. Plan and prepare for shutdown.
2. Shutdown the equipment.
3. Isolate the equipment.
4. Remove/disconnect the battery, if present.
5. Apply Lockout/Tagout Devices.
6. Control all stored and residual energy.
7. Verify isolation.

All potentially hazardous stored or residual energy is relieved.



Energy Control and Power Lockout for Versana Balance™/Versana Balance™ Vet.

When servicing parts of the Ultrasound system where there is exposure to voltage greater than 30 volts:

1. Follow LOCK OUT/TAG OUT procedures.
2. Turn off the breaker.
3. Unplug the Ultrasound system.
4. Maintain control of the Ultrasound system power plug.
5. Wait for at least 30 seconds for capacitors to discharge as there are no test points to verify isolation.

Ultrasound System components may be energized.



Returning Probes and Repair Parts

Equipment being returned must be clean and free of blood and other infectious substances. GE policy states that body fluids must be properly removed from any part or equipment prior to shipment. GE employees, as well as customers, are responsible for ensuring that parts/equipment have been properly decontaminated prior to shipment. Under no circumstance should a part or equipment with visible body fluids be taken or shipped from a clinic or site (for example, body coils or an ultrasound probe).

The purpose of the regulation is to protect employees in the transportation industry, as well as the people who will receive or open this package.

NOTE: *The US Department of Transportation (DOT) has ruled that “items that were saturated and/or dripping with human blood that are now caked with dried blood; or which were used or intended for use in patient care” are “regulated medical waste” for transportation purposes and must be transported as a hazardous material.*

NOTE: *The USER/SERVICE staff should dispose of all the waste properly, per federal, state, and local waste disposal regulations.*

The Ultrasound system is not meant to be used for long-term storage of patient data or images. The user is responsible for the data on the system and a regular backup is highly recommended.

If the system is sent for repair, please ensure that any patient information is backed up and erased from the system before shipping. It is always possible during system failure and repair to lose patient data. GE is not responsible for the loss of this data.

If PHI (Patient Healthcare Information) data needs to be sent to GE employees for service purposes, GE will ascertain agreement from the customer. Patient information shall only be transferred by approved service processes, tools and devices restricting access, protecting or encrypting data where required, and providing traceability in the form of paper or electronic documents at each stage of the procedure while maintaining compliance with cross-border restrictions of patient information transfers.

EMC, EMI and ESD

Electromagnetic Compatibility (EMC)

Electromagnetic compatibility describes a level of performance of a device within its electromagnetic environment. This environment consists of the device itself and its surroundings including other equipment, power sources and persons with which the device must interface. Inadequate compatibility results when a susceptible device fails to perform as intended due to interference from its environment or when the device produces unacceptable levels of emission to its environment. This interference is often referred to as radio-frequency or electromagnetic interference (RFI/EMI) and can be radiated through space or conducted over interconnecting power or signal cables. In addition to electromagnetic energy, EMC also includes possible effects from electrical fields, magnetic fields, electrostatic discharge and disturbances in the electrical power supply.

CE Compliance

Versana Balance™/Versana Balance™ Vet conforms to all applicable conducted and radiated emission limits and to immunity from electrostatic discharge, radiated and conducted RF fields, magnetic fields and power line transient requirements.

For applicable standards, refer to the Safety Chapter of the Ultrasound system User's Manual.

NOTE: *For CE Compliance, it is critical that all covers, screws, shielding, gaskets, mesh, clamps, are in good condition, installed tightly without skew or stress. Proper installation following all comments noted in this service manual is required in order to achieve full EMC performance.*

Electrostatic discharge (ESD) prevention



WARNING

DO NOT touch any boards with integrated circuits prior to taking the necessary ESD precautions.

Always connect yourself, via an arm-wrist strap, to the advised ESD connection point located on the rear of the Ultrasound system (near the power connector).



Follow general guidelines for handling of electrostatic sensitive equipment.



WARNING

Risk of electrical shock, Ultrasound system must be turned off. Avoid all contact with electrical contacts, conductors and components. Always use non-conductive handles designed for the removal and replacement of ESD sensitive parts. All parts that have the potential for storing energy must be discharged or isolated before making contact.

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 the local distributor or appropriate support resource, as listed below.

Before you call, identify the following information, and acquire log (Alt+D) to send to the Customer Care team:

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?
6. Imaging mode, probe, preset/application.
7. Media brand, speed, capacity, type.
8. Save secondary image capture, cine loop.

NOTE: *Restart the application before resuming clinical scanning.*

NOTE: *The serial number can be found at the rear of the system.*

Phone numbers for Customer Assistance

Table 1-7: Phone numbers for Customer Assistance

LOCATION	PHONE NUMBER	
USA GE Healthcare - GE Medical Systems Ultrasound Service Engineering 9900 Innovation Drive Wauwatosa, WI 53226	Service: On-site	1-800-437-1171
	Service Parts	1-800-558-2040
	Application Support	1-800-682-5327 or 1-262-524-5698
Canada	Phone:	1-800-668-0732
Latin America	Service Application Support	1-800-321-7937 1-262-524-5698
Europe (OLC-EMEA) GE Healthcare GmbH Peter-Müller-Straße 24-26 40468 Düsseldorf Germany	OLC - EMEA Phone:	+49 (0) 211 73744789 +33 1 3083 1300
	Fax:	+49 (0) 211 73744685
Online Services Ultrasound Asia	Phone: • Australia • China • India • Japan • Korea • Singapore	+ (61) 1-800-647-855 + (86) 800-810-8188 + (91) 1800-425-8025 + (81) 42-648-2940 + (82) 2620 13585 + (95) 6277-3444


System manufacturer

Table 1-8: System manufacturer

MANUFACTURER	PHONE NUMBER	FAX NUMBER
GE Medical Systems (China) Co., Ltd. No.19 Changjiang Road WuXi National Hi-Tech Dev.Zone 214028 Jiangsu China	+86 510 85225888	+86 510 85226688

Authorized Representative

Table 1-9: Authorized Representative

AUTHORIZED REPRESENTATIVE	
The location of the CE marking is shown in the Safety chapter of the User Manual.	
	
Authorized EU Representative: GE Medical Systems SCS 283 rue de la Minière 78530 BUC, France	

Factory Sites

GE Medical Systems (China) Co., Ltd.
No. 19, Changjiang Road
Wuxi National Hi-Tech Dev.Zone
214028 Jiangsu China
TEL: +86 510 85225888; FAX: +86 510 85226688

The product from below factory site only can be available in India:
Wipro GE Medical Device Manufacturing Private Limited
No.4 Kadugodi Industrial Area, Sadarmangala,
Whitefield, Bangalore, Kamataka, 560067 INDIA

Chapter 2

Site Preparations

This chapter provides the information required to plan and prepare for the setup of an Ultrasound system. Included the descriptions of the facility and electrical needs to be met by the purchaser of the units.

Overview

Contents in this chapter

- 'Overview' on *page 2-2*
- 'General Ultrasound System Requirements' on *page 2-3*
- 'Facility Needs' on *page 2-11*
- 'Environmental Dangers' on *page 2-20*

General Ultrasound System Requirements

Contents in this section

- 'Ultrasound system environmental requirements' on [page 2-3](#)
- 'Electrical requirements' on [page 2-6](#)
- 'EMI limitations' on [page 2-8](#)
- 'Probes environmental requirements' on [page 2-10](#)
- 'Time and manpower requirements' on [page 2-10](#)

Ultrasound system environmental requirements

If the Ultrasound system is very cold or hot

When unpacking the Ultrasound system, allow the temperature of the Ultrasound system to stabilize before powering up. The following table describes guidelines for reaching operational temperatures from storage or transport temperatures.



CAUTION

If the Ultrasound system is very cold or hot, do not turn on its power until it has had a chance to acclimate to its operating environment.

Table 2-1: System Acclimation Time Chart

Degree C	-4.5	-2	0.5	3	40	42.5	45	47.5	50	55	60
Degree F	23.9	28.4	32.9	37.4	104	108.5	113	117.5	122	131	140
hours	3	2	1	0	0	1	2	3	4	6	8

Environmental specifications for Ultrasound system

The system should be operated, stored, or transported within the parameters outlined below. Either its operational environment must be constantly maintained or the unit must be turned off.

Table 2-2: System Environmental Requirements

	Operational (Versana Balance with probe)	Storage (Versana Balance)	Transport (Versana Balance)
Temperature	3 - 40° C (without battery) 37.4 - 104° F	-5 - 50° C 23 - 122° F	-5 - 50° C 23 - 122° F
	10 - 30° C (with battery) 50 - 86° F		
Humidity	30 - 85% non-condensing	10 - 90% non-condensing	10 - 90% non-condensing
Pressure	700 - 1060hPa	700 - 1060hPa	700 - 1060hPa



CAUTION

Ensure that the probe face temperature does not exceed the normal operation temperature range.



CAUTION

The Versana Balance™/Versana Balance™ Vet system and probe connector is not waterproof. Do not expose the device to water or any kind of liquid.

Cooling

The cooling requirement for a console Ultrasound system with monitor and on board peripherals, is up to 3800 BTU/h. This figure does not include cooling needed for lights, people, or other equipment in the room.

NOTE: *Each person in the room places an additional 300 BTU/h demand on the cooling system.*

Lighting

Bright light is needed for Ultrasound system installation, updates and repairs. However, operator and patient comfort may be optimized if the room light is subdued and indirect. Therefore a combination lighting system (dim/bright) is recommended. Keep in mind that lighting controls and dimmers can be a source of EMI which could degrade image quality. These controls should be selected to minimize possible interference.

Electrical requirements

General requirements

NOTE: GE requires a dedicated power and ground for the proper operation of its Ultrasound equipment. This dedicated power shall originate at the last distribution panel before the Ultrasound system.

Sites with a mains power system with defined Neutral and Live:

The dedicated line shall consist of one phase, a neutral (not shared with any other circuit), and a full size ground wire from the distribution panel to the Ultrasound outlet.

Sites with a mains power system without a defined Neutral:

The dedicated line shall consist of one phase (two lines), not shared with any other circuit, and a full size ground wire from the distribution panel to the Ultrasound outlet.

NOTE: Please note that image artifacts can occur, if at any time within the facility, the ground from the main facility's incoming power source to the Ultrasound system is only a conduit.

Electrical requirements for the Ultrasound system

In the table below, the electrical specifications for the Ultrasound system includes monitor and on board peripherals.

Table 2-3: Electrical Specifications for Versana Balance™/Versana Balance™ Vet system

Voltage	Tolerance	Power Consumption	Frequency
100-240 VAC	±10%	Max. 350VA	50/ 60HZ

Site circuit breaker

It is recommended that the branch circuit breaker for the Ultrasound system be readily accessible.



CAUTION

POWER OUTAGE MAY OCCURE.

The Versana Balance™/Versana Balance™ Vet requires a dedicated single branch circuit. To avoid circuit overload and possible loss of critical care equipment, make sure you DO NOT have any other equipment operating on the same circuit.

Site power outlets

A dedicated AC power outlet must be within reach of the Ultrasound system without extension cords. Other outlets adequate for the external peripherals, medical and test equipment needed to support this Ultrasound system must also be present within 1 m (3.2 ft.) of the Ultrasound system. Electrical installation must meet all current local, state, and national electrical codes.

Unit power plug

If the Ultrasound system arrives without a power plug, or with the wrong plug, you must contact your GE dealer or the installation engineer must supply what is locally required.

Power stability requirement

Table 2-4: Power stability requirement

IEC 61000-4-11 Voltage dips, short interruptions and voltage variations on mains supply	< 5%T (> 95% dip) for 0.5 cycle;	< 5%T (> 95% dip) for 0.5 cycle;	Mains power quality should be that of a typical commercial or hospital environment.
	40%T (60% dip) for 5 cycles;	40%T (60% dip) for 5 cycles;	
	70%T (30 dip) for 25 cycles;	70%T (30 dip) for 25 cycles;	
	< 5%T (>95% dip) for 5 sec	< 5%T (>95% dip) for 5 sec	

EMI limitations

Ultrasound systems are susceptible to Electromagnetic Interference (EMI) from radio frequencies, magnetic fields, and transients in the air or wiring. They also generate EMI. The Ultrasound system complies with limits as stated on the EMC label. However there is no guarantee that interference will not occur in a particular installation.

Possible EMI sources should be identified before the Ultrasound system is installed.

Electrical and electronic equipment may produce EMI unintentionally as the result of a defect. Some of these sources include:

- medical lasers
- scanners
- cauterizing guns
- computers
- monitors
- fans
- gel warmers
- microwave ovens
- light dimmers
- mobile phones
- in-house wireless phones (DECT phones)
- wireless computer keyboard and mouse
- air conditioning system
- High Frequency (HF) surgery equipment
- general AC/DC adapters
- portable phones

The presence of a broadcast station or broadcast van may also cause interference.

See: '[EMI prevention/abatement](#)' on [page 2-9](#) for EMI prevention tips.

EMI prevention/abatement

Table 2-5: EMI prevention/abatement

EMI RULE	DETAILS
Be aware of Radio Frequency sources	<ul style="list-style-type: none"> • Keep the Ultrasound system at least 5 meters (15 feet) away from other EMI sources. • Special shielding may be required to eliminate interference problems caused by high frequency, high powered radio or video broadcast signals.
Ground the Ultrasound system	Poor grounding is the most likely reason an Ultrasound system will have noisy images. Check grounding of the power cord and power outlet.
Replace all screws, Radio Frequency gaskets, covers, cores	<ul style="list-style-type: none"> • After you finish repairing or updating the Ultrasound system, replace all covers and tighten all screws. • Any cable with an external connection requires a magnet wrap at each end. • Install all covers. Loose or missing covers or Radio Frequency gaskets allow radio frequencies to interfere with the ultrasound signals.
Replace broken Radio Frequency gaskets	If more than 20% or a pair of the fingers on an Radio Frequency gasket are broken, replace the gasket. Do not turn on the Ultrasound system until any loose metallic part is removed.
Do not place labels where Radio Frequency gaskets touch metal	Where applicable, never place a label where Radio Frequency gaskets meet the Ultrasound system. Otherwise, the gap created will permit Radio Frequency leakage. Or, if a label has been found in such a position, move the label.
Use GE specified harnesses and peripherals	The interconnect cables are grounded and require ferrite beads and other shielding. Also, cable length, material, and routing are all important; do not change from what is specified.
Take care with cellular phones	Cellular phones may transmit a 5 V/m signal; that could cause image artifacts.
Properly route peripheral cables	Where applicable, do not allow cables to lie across the top of the Card Rack or hang out of the peripheral bays. Loop the excess length for peripheral cables inside the peripheral bays. Attach the monitor cables to the frame.

Probes environmental requirements

Operation, storage and transport temperatures for probes

Probes should be operated, stored, or transported within the parameters outlined below.



CAUTION

Ensure that the probe face temperature does not exceed the normal operation temperature range.

Table 2-6: Probe Environmental Requirements

	Operational	Storage	Transport
Temperature	10° - 35° C 50° - 95° F	-5° - 50° C 23° - 122° F	-5° - 50° C 23° - 122° F
Humidity	35- 75% non-condensing	30 - 90% non-condensing	30 - 90% non-condensing
Pressure	700 - 1060hPa	700 - 1060hPa	700 - 1060hPa



CAUTION

Check the room temperature before you use the probe.



CAUTION

Ensure that the probe face temperature does not exceed the normal operation temperature range.

NOTE: Refer to [Table 2-1 on page 2-3](#) to determine the needed settlement time.

Time and manpower requirements

Site preparation takes time. Begin site preparation checks as soon as possible, if possible, six weeks before delivery, to allow enough time to make any changes.

Facility Needs

Contents in this section

- 'Purchaser responsibilities' on *page 2-12*
- 'Required facility needs' on *page 2-13*
- 'Desirable features' on *page 2-14*
- 'Minimal floor plan suggestion' on *page 2-15*
- 'Recommended floor plan suggestion' on *page 2-16*
- 'Suggested floor plan, Ultrasound system, and PC in same room' on *page 2-17*
- 'Networking setup requirements' on *page 2-18*

Purchaser responsibilities

The work and materials needed to prepare the site is the responsibility of the purchaser. Delay, confusion, and waste of manpower can be avoided by completing pre-installation work before delivery. Purchaser responsibility includes:

- Procuring the materials required
- Completing the preparations before delivery of the Ultrasound system
- Paying the costs for any alterations and modifications not specifically provided in the sales contract

NOTE: *All electrical installations that are preliminary to the positioning of the equipment at the site prepared for the equipment must be performed by licensed electrical contractors. Other connections between pieces of electrical equipment, calibrations, and testing must also be performed by qualified personnel. The products involved (and the accompanying electrical installations) are highly sophisticated and special engineering competence is required. All electrical work on these products must comply with the requirements of applicable electrical codes. The purchaser of GE equipment must only utilize qualified personnel to perform electrical servicing on the equipment.*

The desire to use a non-listed or customer provided product or to place an approved product further from the Ultrasound system than the interface kit allows, presents challenges to the installation team. To avoid delays during installation, such variances should be made known to the individuals or group performing the installation at the earliest possible date (preferably prior to the purchase).

The ultrasound suite must be clean prior to delivery of the Ultrasound system. Carpet is not recommended because it collects dust and creates static. Potential sources of EMI (electromagnetic interference) should also be investigated before delivery. Dirt, static, and EMI can negatively impact Ultrasound system reliability.

Required facility needs

NOTE: GE requires a dedicated power and ground for the proper operation of its Ultrasound equipment. This dedicated power shall originate at the last distribution panel before the Ultrasound system.

Sites with a mains power system with defined Neutral and Live:

The dedicated line shall consist of one phase, a neutral (not shared with any other circuit), and a full size ground wire from the distribution panel to the Ultrasound outlet.

Sites with a mains power system without a defined Neutral:

The dedicated line shall consist of one phase (two lines), not shared with any other circuit, and a full size ground wire from the distribution panel to the Ultrasound outlet.

Required facility needs(continued)

NOTE: *Please note that image artifacts can occur, if at any time within the facility, the ground from the main facility's incoming power source to the Ultrasound unit is only a conduit.*

- Dedicated single branch power outlet of adequate amperage meeting all local and national codes which is located less than 2.5 m (8 ft.) from the unit's proposed location
- Door opening is at least 76 cm (30 in) wide
- Proposed location for unit is at least 0.5m (1.5 ft.) from the wall for cooling
- Power outlet and place for any external peripheral are within 2 m (6.5 ft.) of each other with peripheral within 1 m of the unit to connect cables.
- Power outlets for other medical equipment.
- Power outlets for test equipment within 1 m (3.2 ft.) of Ultrasound system.
- Clean and protected space to store probes (in their cases or on a rack)
- Material to safely clean probes (done with a plastic container, never metal)

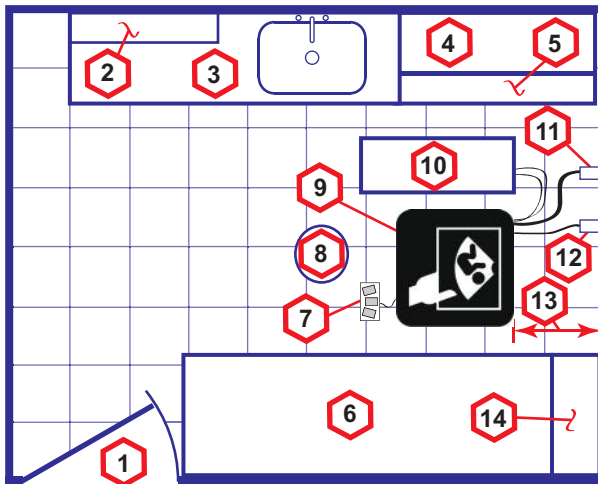
For the amperage requirements, see: '[Electrical requirements](#)' on [page 2-6](#).

Desirable features

- Door is at least 92 cm (3 ft.) wide
- Circuit breaker for dedicated power outlet is easily accessible
- Sink with hot and cold water
- Receptacle for bio-hazardous waste, like used probe sheaths
- Emergency oxygen supply
- Storage for linens and equipment
- Nearby waiting room, lavatory, and dressing room
- Dual level lighting (bright and dim)
- Lockable cabinet ordered by GE for its software and proprietary manuals

Minimal floor plan suggestion

CSI 8x10



Scale:

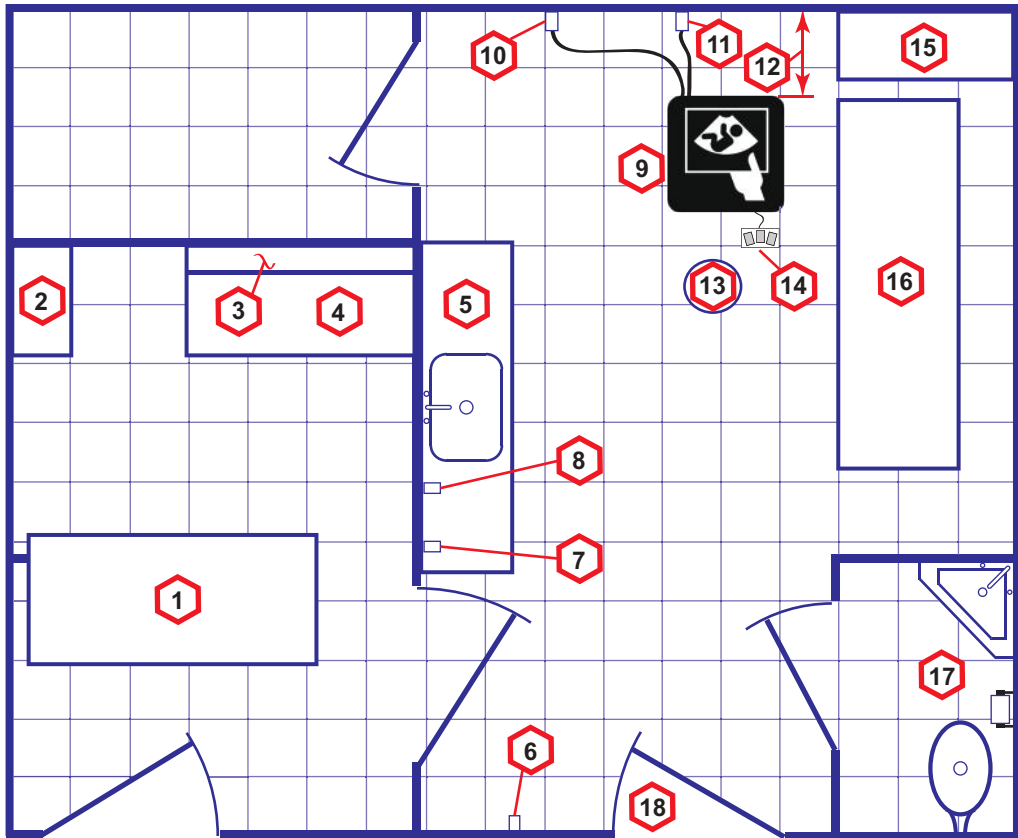
Each square equals one square foot (app. 31 x 31 cm)

- | | | |
|---|--|---|
| 1. Door – at least 762 mm (30 inches) | 6. Examination Table – 1930 x 610 mm (76 x 24 inches) | 12. Network Interface |
| 2. Film Viewer | 7. Footswitch | 13. 457 mm (18 inches) distance of Ultrasound system from wall or objects |
| 3. Counter Top, Sink with hot and cold water and Supplies Storage | 8. Stool | 14. GE Cabinet for Software and Manuals |
| 4. Linen Supply | 9. Ultrasound system | |
| 5. Probes/Supplies | 10. External Peripherals | |
| | 11. Dedicated Power Outlet - Circuit Breaker protected and easily accessible | |

Figure 2-1. Minimal floor plan, 2.5 m x 3 m (8 by 10 foot)

Recommended floor plan suggestion

CSI 14x17



Scale: Each square equals one square foot (app. 31 x 31 cm)

- | | | |
|--|--|--|
| 1. Secretaries or Doctors Desk | 8. Suction Line | 14. Footswitch |
| 2. File Cabinet | 9. Ultrasound system | 15. Storage for Linens and Equipment |
| 3. Film Viewer | 10. Dedicated Power Outlet - Circuit Breaker protected and easily accessible | 16. Examination Table – 1930 x 610 mm (76 x 24 inches) |
| 4. Counter Top | 11. Network Interface | 17. Lavatory and Dressing Room |
| 5. Counter Top and Sink with hot and cold water | 12. 457 mm (18 inches) distance of Ultrasound system from wall or objects | 18. Door – at least 762 mm (30 inches) |
| 6. Overhead Lights Dimmer - Dual Level Lighting (bright and dim) | 13. Stool | |
| 7. Emergency Oxygen | | |

Figure 2-2. A 14 by 17 foot recommended floor plan

Suggested floor plan, Ultrasound system, and PC in same room

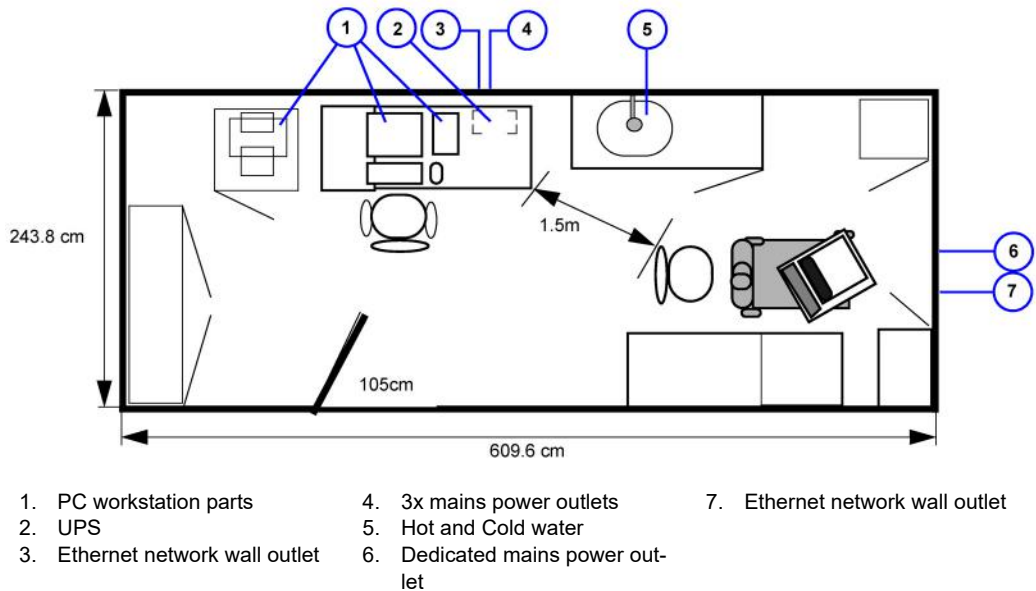


Figure 2-3. Suggested Room with EchoPAC PC workstation and Ultrasound Scanner

Networking setup requirements

Stand alone Ultrasound system (without network connection)

None.

Scanner connected to hospital's network

Supported networks:

100/1000 Mbit Ethernet/DICOM network (option)

InSite requirements

InSite requires an Ethernet connection via:

- 100/1000 Mbit Interface

Purpose of the DICOM network function

DICOM services provide the operator with clinically useful features for moving images and patient information over a hospital network.

Examples of DICOM services include the transfer of images to workstations for viewing or transferring images to remote printers.

As an added benefit, transferring images in this manner frees up the on-board monitor and peripherals, enabling viewing to be done while scanning continues.

With DICOM, images can be archived, stored, and retrieved faster, easier, and at a lower cost.

DICOM option setup requirements

To configure the Ultrasound system to work with other network connections, the site's network administrator must provide information to complete the form "Worksheet for DICOM Network Information". Ensure that there are no spaces in any field of the form.

See:

Entries must include:

- A host name, local port number, AE Title, IP address and Net Mask for the Ultrasound system.
- The IP addresses for the default gateway and other routers at the site for ROUTING INFORMATION.
- The host name, IP address, port and AE Title for each device the site wants connected to the Ultrasound system for DICOM APPLICATION INFORMATION. A field for the make (manufacturer) and the revision of the device, is also included. This information may be useful for error solving.

The screenshot displays the 'Service' configuration tab in a software interface. At the top, there are several tabs: TCP/IP, Device, Service (selected), Dataflow, Button, Removable Media, Miscellaneous, Bluetooth, and Tricify. The main area is divided into several sections. The 'Destination Device' is set to 'NewDevice'. Below this is a 'Dicom Worklist' section with a 'Verify' button and a 'Verify Timeout (sec)' dropdown menu set to 10. To the right of the 'Dicom Worklist' is a 'Search Criteria' section with a list of tags: '00080060 Modality' and '00400002 Scheduled Procedure Step Start Date'. Below the 'Search Criteria' is a 'Properties' section with fields for Name, AE Title, Port Number, Maximum Retries (3), Retry Interval (sec) (10), Timeout (sec) (120), Maximum Results (100), and an 'Enable Encryption' checkbox.

Figure 2-4. Worksheet for DICOM Network Information

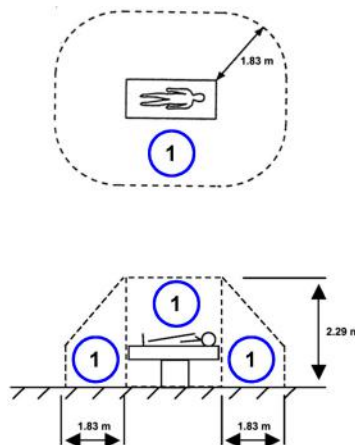
Environmental Dangers

Commercial devices such as laser cameras, printers, VCRs and external monitors, usually exceed allowable leakage current limits and, when plugged into separate AC outlets, are in violation of patient safety standards. Suitable electrical isolation of such external AC outlets, or providing the device with extra protective earth, will be required in order to meet UL60601-1 and IEC60601-1 / IEC60601-1-1 standards for electrical leakage.

Patient Vicinity UL60601-1 (USA)

2.12.20DV (UL60601-1:2003)

In area in which patients are normally cared for, the patient vicinity is the space with surfaces likely to be contacted by the patient or attendant who can touch the patient. This encloses a space within the room 1.83 m (6 ft.) beyond the perimeter of the bed (examination table, dental chair, treatment booth, and the like) in its intended location, and extending vertically 2.29 m (7.5 ft.) above the floor.



1. Patient environment

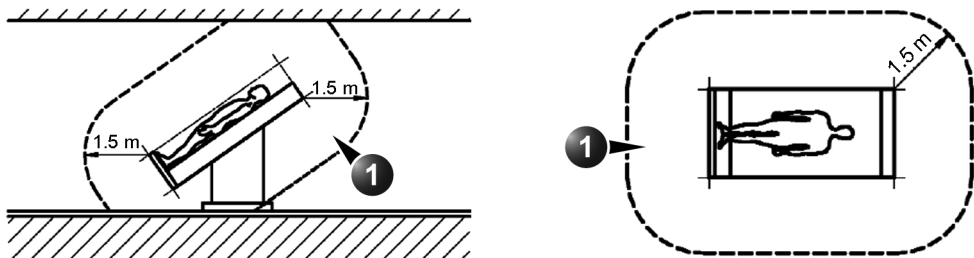
Patient Environment IEC60601-1 and ANSI AAMI ES60601-1

Sub Clause 3.79 and figure A.9 (IEC60601-1:2005 and ANSI AAMI ES60601-1:2005)

Such an area is an environment in which medical diagnosis, monitoring or treatment is carried out. It is very difficult to attach unique dimensions to the PATIENT ENVIRONMENT.

In practice a distance of 2,5 m (8.2 ft.) above the floor on which the medical personnel stand and a horizontal distance of 1,5 m (4.9 ft.) have justified themselves as indicative of the dimensions of the Patient Environment.

The patient environment/vicinity will be depicted as a dashed line in this procedure. See example below.



1. Patient environment

Figure 2-5. Patient environment

Chapter 3

System Setup

This chapter contains information needed to install Versana Balance™/Versana Balance™ Vet system.

Included is a procedure that describes how to receive and unpack the equipment and how to file a damage or loss claim.

How to prepare the facility and unit of the actual installation, and how to check and test the unit, probes, and external peripherals for electrical safety are also included in this procedure.

Overview

Contents in this chapter

- 'Overview' on *page 3-2*
- 'Setup Reminders' on *page 3-3*
- 'Receiving and Unpacking the Equipment' on *page 3-6*
- 'Packing Materials - Recycling Information' on *page 3-17*
- 'Preparing for Setup' on *page 3-18*
- 'Completing the Setup' on *page 3-19*
- 'System Configuration' on *page 3-26*
- 'Peripherals Installation' on *page 3-29*
- 'Probe Check' on *page 3-63*
- 'Connectivity setup' on *page 3-77*
- 'Option Setup' on *page 3-109*
- 'Paperwork after setup' on *page 3-112*

Setup Reminders

Average setup time

- Unpacking the Versana Balance™/Versana Balance™ Vet: 30 minutes
- Set up Versana Balance™/Versana Balance™ Vet options: 30 minutes
- DICOM Network Configuration: 30 minutes or more, depending on the configuration
- Install Insite: 0.5 hour

The Versana Balance™/Versana Balance™ Vet installation and functional checkout will take approximately 1 hour. Versana Balance™/Versana Balance™ Vet consoles with optional equipment may take slightly longer.

Setup warnings



WHEN USING ANY TEST INSTRUMENT THAT IS CAPABLE OF OPENING THE AC GROUND LINE (I.E., METER'S GROUND SWITCH IS OPEN), DON'T TOUCH THE ULTRASOUND SYSTEM!



To prevent electrical shock, connect the unit to a properly grounded power outlet. **DO NOT** use a three to two prong adapter. This defeats safety grounding.



DO wear the ESD wrist strap when you work on circuits.



DO NOT operate this unit unless all board covers and frame panels are securely in place. System performance and cooling require this.

Setup warnings(continued)

1. There are no operator serviceable components. To prevent shock, do not remove any covers or panels. Should problems or malfunctions occur, unplug the power cord. Only qualified service personnel should carry out servicing.

NOTE: *For information regarding packing labels, refer to LABELS ON PACKAGE.*

2. After being transported, the unit may be very cold or hot. If this is the case, allow the unit to acclimate before you turn it on. It requires one hour for each 2.5°C increment it's temperature is below 3°C or above 40°C.



DANGER

Equipment damage possibility. Turning the system on without acclimation after arriving at site may cause the system to be damaged.



CAUTION

If the Ultrasound system is very cold or hot, do not turn on its power until it has had a chance to acclimate to its operating environment.

The following table describes guidelines for reaching operational temperatures from storage or transport temperatures.

Table 3-1: System Acclimation Time Chart

Degree C	50	45	40	35	30	25	20	15	10	5	0	-5
Degree F	122	113	104	95	86	77	68	59	50	41	23	23
hours	4	2	0	0	0	0	0	0	0	2	4	6

Setup warnings(continued)



CAUTION

Operator Manual(s)

The User Manual(s) should be fully read and understood before operating the Versana Balance™/Versana Balance™ Vet and kept near the Ultrasound system for quick reference.



CAUTION

Acoustic Output Hazard

Although the ultrasound energy transmitted from the Versana Balance™/Versana Balance™ Vet probe is within AIUM/ NEMA standards, avoid unnecessary exposure. ultrasound energy can produce heat and mechanical damage.



Receiving and Unpacking the Equipment

Purpose of this section

This section describes how to receive and unpack Versana Balance™/Versana Balance™ Vet.

Contents in this section

- 'Warnings for receiving and unpacking' on [page 3-6](#)
- 'The Tilt indicator' on [page 3-7](#)
- 'Receiving the Versana Balance™/Versana Balance™ Vet' on [page 3-8](#)
- 'Unpacking the Versana Balance™/Versana Balance™ Vet' on [page 3-14](#)

Warnings for receiving and unpacking



CAUTION

Two people are needed to unpack the Ultrasound system because of its weight. Attempts to move the Ultrasound system considerable distances or on an incline by one person could result in injury or damage or both.

Two people are required whenever a part weighing 16 KG (35 LBS) or more must be lifted.



CAUTION

Remember to use relevant personal protecting equipment (PPE) during packing and unpacking. Check with your local EHS representative.


The Tilt indicator

Overview

Improper handling during transportation may harm the equipment inside the package even if the package itself is undamaged.

To make it easier to detect if the handling during transportation has been improper, a set of Tilt indicator has been attached to the transportation box.

Table 3-2: Tilt Watch

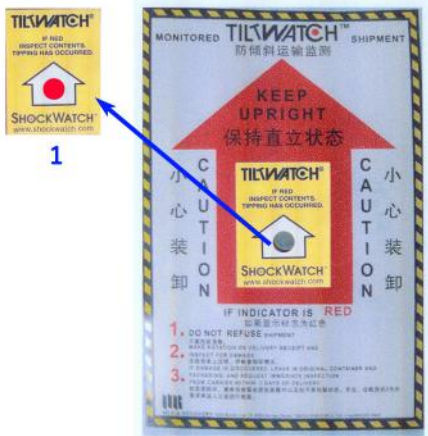
Description	Illustration
Tilt Watch	

Receiving the Versana Balance™/Versana Balance™ Vet

Examine all packages

Examine package closely at time of delivery, as described in the procedure below.

Table 3-3: Examine all packages

Step	Task	Illustrations
1.	Is damage apparent? <ul style="list-style-type: none"> If YES; continue with the instructions in 'Damage in transportation' on page 3-11. If NO; continue with the next step. 	
2.	Is the Tilt Indicator red colored inside the middle of the indicator? <ul style="list-style-type: none"> If YES: The Tilt Indicator has been activated. Continue with the instructions in 'Damage in transportation' on page 3-11 before you continue with the next step. If NO: continue with the next step. 	 <p>1 - Red Color</p>
3.	Continue with the instructions in 'Unpacking the Versana Balance™/Versana Balance™ Vet' on page 3-14 .	

Position of the Tilt indicator

The Tilt indicator has been attached to the transportation box as illustrated in the figure below.

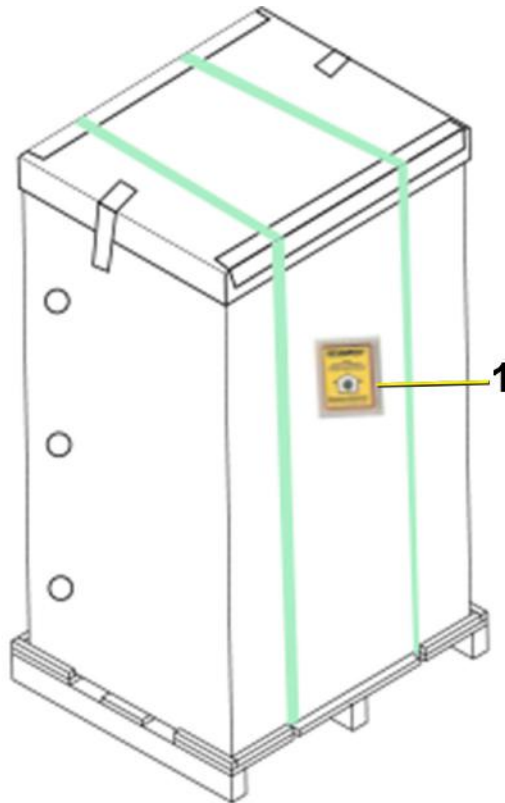


Figure 3-1. Tilt indicator

1. Tilt Indicator

NOTE: *Before cutting the straps, check Tilt Tag to make sure it has not been triggered. If damaged, report it to the carrier. If not, then cut the straps around the crate.*

If Tilt Indicator has triggered or is missing

The purpose of the tilt indicator label is to alert people handling a product that it is sensitive to tipping and it must remain upright at all times. It is basically an active "Up Arrow" that changes color if the package is tipped 89 degrees or more from horizontal. These labels can be false activated if tipped less than 89 degrees, and shocked or vibrated at the same time. This event does occur, but is considered uncommon. If a package is received with an activated tilt indicator label, there is high degree of certainty it tipped 89 degrees or more from horizontal during shipment.

An activated tilt indicator label does not indicate if the package was simply "Tipped" (laid down with no impact shock) or "Tipped Over" (free fall, with an impact shock). Using both shock indicator labels and tilt indicator labels will help identify if a Tip Over impact shock occurred.

Table 3-4: Tilt Indicator has triggered or is missing

Step	Task
1.	<p>If the Tilt Indicator is missing:</p> <p>Note on the shipping papers at the time of receipt that the Tilt Indicator label is missing.</p> <p>If the Tilt Indicator has triggered:</p> <p>Note on the shipping papers at the time of receipt that the Tilt Indicator label was activated.</p>
2.	Inspect the product for possible concealed damage.

Damage in transportation

Follow this procedure if damage is apparent:

1. Write “Damage In Shipment” on ALL copies of the freight or express bill **BEFORE** delivery is accepted or “signed for” by a GE representative or hospital receiving agent.
2. Report the damage to the carrier.
 - Whether noted or concealed, damage **MUST** be reported to the carrier immediately upon discovery, or in any event, within 14 days after receipt, and the contents and containers held for inspection by the carrier.
 - A transportation company will not pay a claim for damage if an inspection is not requested within this 14 day period.

Versana Balance™/Versana Balance™ Vet transportation box label

The Versana Balance™/Versana Balance™ Vet transportation box label is located at the front of the transportation box.



Figure 3-2. Versana Balance™/Versana Balance™ Vet transportation box label 1

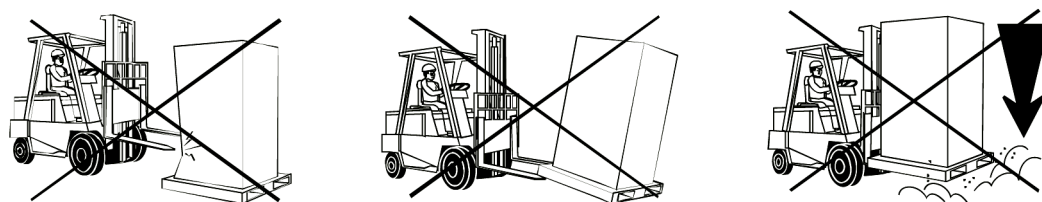


Figure 3-3. Versana Balance™/Versana Balance™ Vet transportation box label 2

Versana Balance™/Versana Balance™ Vet transportation box label(continued)

Table 3-5: Package Label Icons

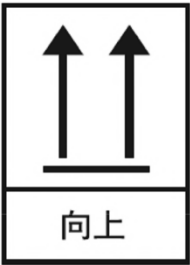


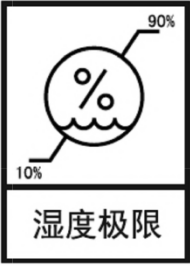
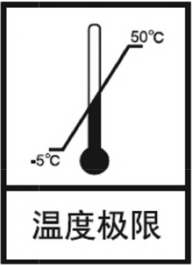
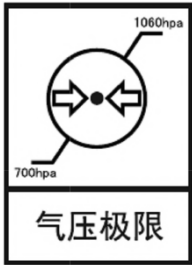
Label/Icon	Purpose/Meaning	Location
	Keep this way up.	Package
	Fragile.	Package
	Keep it away from rain.	Package
	Humidity Limitation	Package

Table 3-5: Package Label Icons

Label/Icon	Purpose/Meaning	Location
	Temperature Limitation	Package
	Pressure Limitation	Package

Unpacking the Versana Balance™/Versana Balance™ Vet

When a new system arrives, check that any components are not damaged and are not in short supply. If shipping damage or shortage occurs, contact the address shown in Chapter 1.



Please carefully unpack the system, and do not dispose the package of Versana Balance™/Versana Balance™ Vet, so that it can be reused for service.



Do not lift the unit by the Keyboard. Equipment damage may result.



The crate with the Versana Balance™/Versana Balance™ Vet weighs approximately 50kg. Be prepared for a sudden shift of weight as the unit is removed from its base (pallet).

NOTE: Please check the Versana Balance™/Versana Balance™ Vet console is well assembly after unpacking the system.

Table 3-6: Unpacking the Versana Balance™/Versana Balance™ Vet



Step	Description	Corresponding Graphic
1	Cut off the two packing straps around the crate. <i>Note: To avoid injury, hold the strap clasp with one hand when cutting the strap.</i>	
2	Remove the top cover.	
3	Remove the outside shipping box.	

Table 3-6: Unpacking the Versana Balance™/Versana Balance™ Vet




Step	Description	Corresponding Graphic
4	<p>Remove the barrier bag from the unit.</p> <p><i>Note: Remove the PE bag if the system is transported by air.</i></p> <p><i>Note: The system may have different wrap film packaging status, refer to the graphics on the right.</i></p>	
5	<p>Cut the cable ties around the four wheels.</p>	

Table 3-6: Unpacking the Versana Balance™/Versana Balance™ Vet

Step	Description	Corresponding Graphic
6	Remove the foams beside the monitor.	
7	Remove any additional packing material surrounding the system.	
8	Unlock the wheels, and then 2 people hold the front handle and rear handle to move the whole system on the ground.	

Moving into Position

Please refer to User Manual on how to move the system.

Packing the Equipment

Please pack Versana Balance™/Versana Balance™ Vet in the reverse order of unpacking.

Packing Materials - Recycling Information

The packing materials for Versana Balance™/Versana Balance™ Vet are recyclable:

- The Transportation Box is made of spruce or similar material. ("PHYTOSANITARY CERTIFICATE" included in all shipments to The People's Republic of China.)
- Lever lockings (hinges) are made of zinc plated steel.
- The inner reinforcements are made of Ethafoam (Polyethylene foam).
- The plastic foil is made of LDPE (Low Density Polyethylene).

Preparing for Setup

Verify customer order

Compare items received by the customer to that which is listed on the delivery order. Report any items that are missing, back ordered, or damaged.

Physical inspection

Verify that the system arrived intact (visual inspection).

If the system has been damaged, please refer to '[Damage in transportation](#)' on [page i-16](#) in the beginning of this manual.

EMI protection

The Versana BalanceTM/Versana BalanceTM Vet has been designed to minimize the effects of Electro-Magnetic Interference (EMI). Many of the covers, shields, and screws are provided primarily to protect the system from image artifacts caused by this interference. For this reason, it is imperative that all covers and hardware are installed and secured before the unit is put into operation.

See '[EMI limitations](#)' on [page 2-8](#) for more information about EMI protection.

Completing the Setup

Purpose of this section

This section describes how to complete the installation of Versana Balance™/Versana Balance™ Vet.

Contents in this section

- 'System specifications' on *page 3-20*
- 'Electrical specifications' on *page 3-21*
- 'Peripherals/Accessories Connector Panel' on *page 3-22*
- 'Connections on the I/O Rear Panel' on *page 3-25*
- 'Connecting probes' on *page 3-25*
- 'Powering the system' on *page 3-25*

System specifications

System requirements verification

- Verify that the site meets the requirements listed in Chapter 2.
(See: '[Facility Needs](#)' on page 2-11.)
- Verify that the specifications below don't conflict with any on-site conditions.

Console Weight

- Weight: less than. 70 kg (145.5 lbs)

Physical dimensions

Table 3-7: Physical dimensions of Versana Balance™/Versana Balance™ Vet

Height	Width	Depth	Unit
1325 ± 30	660 ± 30	800 ± 30	mm
52.2 ± 1.2	26 ± 1.2	31.5 ± 1.2	Inches

Electrical specifications



WARNING

Connecting a Versana BalanceTM/Versana BalanceTM Vet to the wrong voltage level will most likely destroy it.

Verification of the system's voltage setting

Verify that the mains voltage specified for the Versana BalanceTM/Versana BalanceTM Vet is available on-site.

Refer to the latest revision of the User Manual for a full list of product labels prior to serving the system.

Electrical specifications for Versana BalanceTM/Versana BalanceTM Vet

In the table below, the electrical specifications for Versana BalanceTM/Versana BalanceTM Vet includes monitor and on board peripherals.

Table 3-8: Electrical specifications for Versana BalanceTM/Versana BalanceTM Vet

Model Name	Voltage	Tolerances	Power consumption	Frequency
Versana Balance TM / Versana Balance TM Vet VA	100-240V	±10%	Max.350VA	50/60 Hz
Versana Balance TM / Versana Balance TM Vet VS				

Table 3-9: Power consumption for Versana BalanceTM/Versana BalanceTM Vet

Working Scenario	Power Consumption (Typical Values for reference)
normal working	130VA
Standby mode (from normal working)	110VA
normal working with battery charging	170VA

Peripherals/Accessories Connector Panel

Versana Balance™/Versana Balance™ Vet peripherals and accessories can be properly connected using the side connector panel.



Figure 3-4. Rear Connector Panel

	Electronic Interface	Description	Interface standards/data rate or bandwidth
1.	Power out port DC 12V 1.5A Out	DC 12V 1.5A Out	Not Applicable
2.	Diagnostic LED	Diagnostic LED 1, Diagnostic LED 2, Diagnostic LED 3	Not Applicable
3.	USB 2.0 port	USB for use	USB 2.0 Max 480 Mbps
4.	Ethernet 1000MBase-T for net connectivity	Ethernet 1000MBase-T for net connectivity	IEEE 802.3 10 Base-T, 100 Base-TX and 1000 Base-T
5.	USB 3.0 port USB	USB for use	USB 3.0 Max 5.0 Gbps
6.	HDMI port	For video port	HDMI 1.4
7.	VGA	VGA Video Out	VGA
8.	Audio Out	Audio Out	RCA
9.	S-Video	S-Video Out	S-Video
10.	Composite Out	Composited Video Out	RCA

11.	Supply Mains Switch	Supply Mains Switch	Not Applicable
12.	AC Inlet 100-240V	100-240V	Not Applicable
13.	Equipotentiality terminal	Ground Terminal	Not Applicable

Pin assignment for each connector

Table 3-10: Pin Assignments of External VGA

Pin No.	Signal	Pin No.	Signal
1	RED	9	NC
2	GREEN	10	NC
3	BLUE	11	NC
4	NC	12	NC
5	NC	13	HSY
6	GND	14	VSX
7	GND	15	NC
8	GND		

Table 3-11: Pin Assignments of USB

Pin No.	Signal
1	+5 VDC
2	DATA
3	DATA
4	GND

Table 3-12: Pin Assignment of S-Video

Pin No.	Output Signal	Pin No.	Output Signal
1	GND	3	Y
2	GND	4	C

Table 3-13: Pin Assignment of Composite Video Out

Pin No.	Output Signal	Pin No.	Output Signal
1	Composite Out	2	GND

Connections on the I/O Rear Panel

NOTE: *Accessory equipment connected to the analog and digital interfaces must be certified according to the respective IEC standards (e.g. IEC60950 for data processing equipment and IEC60601-1 for medical equipment). Furthermore, all complete configurations shall comply with the valid version of the system standard IEC60601-1. Everybody who connects additional equipment to the signal input part or signal output part of Versana Balance™/Versana Balance™ Vet, configures a medical system, and is therefore responsible that the Ultrasound system complies with the requirements of the valid version of IEC60601-1. If in doubt, consult the technical service department or your local representative for GE.*

Connect Ethernet

Connect the network cable to the Ethernet connector on the I/O Rear Panel.

The connector is located on the rear side of Versana Balance™/Versana Balance™ Vet.

Connect USB Flash Drive

NOTE: *USB Flash Drive approved for Versana Balance™/Versana Balance™ Vet are verified for EMC performance according to EN55011 class B. The use of any other USB Flash Drive will compromise this verification, and may cause interference on Versana Balance™/Versana Balance™ Vet itself, or on other electronic devices.*

For approved models, please refer to Chapter 9.

Insert the USB Flash Drive in one of the USB ports on the Versana Balance™/Versana Balance™ Vet.

Connecting probes

Please refer to User Manual on how to connect/disconnect a probe.

Powering the system

Please refer to User Manual on how to power the system.

System Configuration

Purpose of this section

This section describes how to configure the Versana Balance™/Versana Balance™ Vet.

Versana Balance™/Versana Balance™ Vet configuration

For complete instructions, refer to the latest revision of the Versana Balance™/Versana Balance™ Vet User Manual, Chapter 10.

Information includes Entering Location, Adjusting Date and Time, Selecting User interface Language, Selecting Online Manual Language, Selecting Unites of Measure.

User Configurable Key installation

When the system is received, please check the software option installed on the system.

- Power on the system.
- Enter **Utility -> Admin -> System Admin -> Option Information** to check the option status.

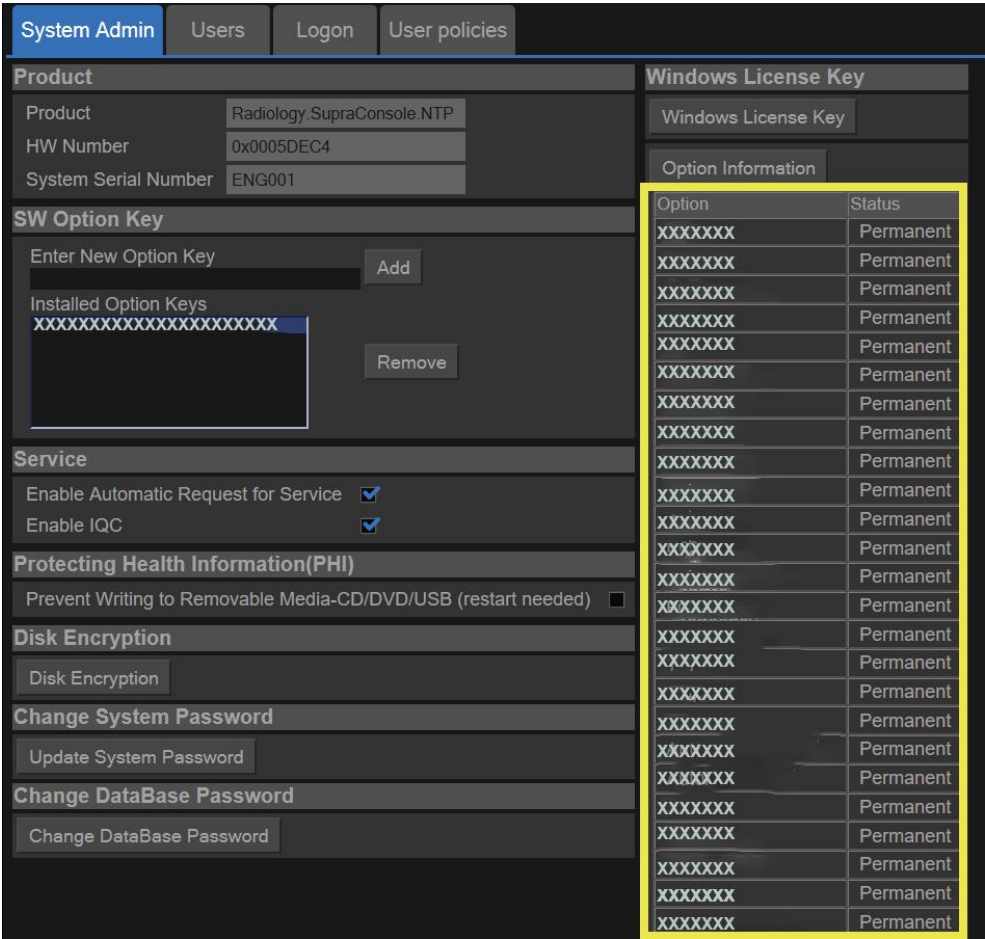


Figure 3-5. Check SW Option Status

User Configurable Key installation(continued)

To configure the user configurable key, enter **Utility-> System-> User Configurable Key** and assign the user defined key.

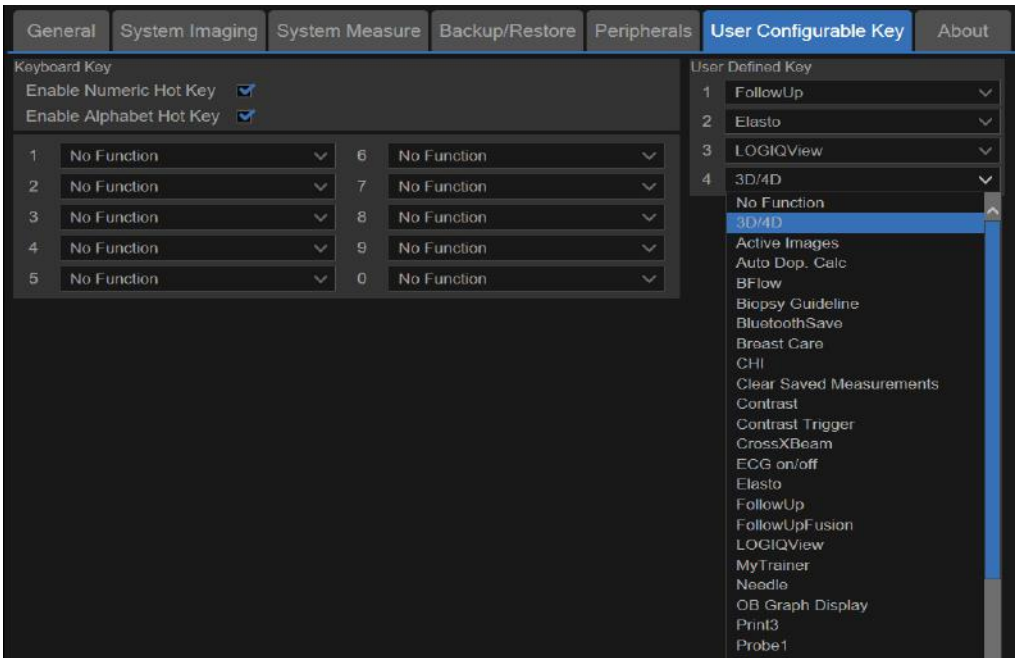


Figure 3-6. Assign User Configurable Key

Peripherals Installation

Overview

This section describes how to install and configure the peripherals validated for the Versana Balance™/Versana Balance™ Vet.

About the operation check-out of peripherals, [See 'Peripheral checks' on page 4-66 for more information.](#)

Table 3-14: Versana Balance™/Versana Balance™ Vet Peripherals

Description	Control	Model
B/W USB Printer	USB port	Sony UP-D898MD Printer
USB Printer	USB port	Sony UP-D898DC Printer
Color USB Printer	USB port	Sony UP-D25MD Printer
3-Pedal Footswitch	USB port	Footswitch MKF 2-MED USB GP26
1-Pedal Footswitch	USB port	Whanam FSU-1000
USB Stick	USB port	USB stick H48392BB (32G)
USB HDD	USB port	1TB mobile USB HD
ECG	ECG Port	USB ECG Module
Wireless Adaptor	USB port	Wireless Adaptor
Bluetooth Adaptor	USB port	Bluetooth Adaptor
DVD RW	USB port	DVDRW kit with SW

Furnished materials

This section describes the materials with the Peripherals and with the system.

Retain the original carton and packing materials in case transport is needed in the future.

- B/W USB Printer

Table 3-15: Materials furnished with B/W Printer

Item	Description	Quantity	Note
1	Sony UP-D898DC Printer	1	
2	Sony UP-D898MD Printer	1	
3	Paper Roll	1	
4	USB cable	1	

- Color USB Printer

Table 3-16: Materials furnished with Color USB Printer

Item	Description	Quantity	Note
1	Sony UP-D25MD Printer	1	
2	Paper Roll	1	
3	AC Power Cord (local purchase)	1	
4	USB cable	1	

- Printer Shelf

Table 3-17: Materials furnished with the Printer Shelf

Item	Description	Quantity	Note
1	898DC Printer Shelf	1	
2	898MD Printer Shelf	1	

- Isolation Transformer

Table 3-18: Materials furnished with the Isolation Transformer

Item	Description	Quantity	Note
1	AC Printer Transformer 110V	1	
2	AC Printer Transformer 220V	1	

- USB Stick

Table 3-19: Materials furnished with USB Stick

Item	Description	Quantity	Note
1	USB Stick	1	

Furnished materials(continued)

- USB HDD

Table 3-20: Materials furnished with the USB HDD

Item	Description	Quantity	Note
1	USB HDD	1	
2	USB Cable	1	

- Wireless Adaptor

Table 3-21: Materials furnished with the Wireless Adaptor

Item	Description	Quantity	Note
1	1 Wireless Adaptor	1	

- Bluetooth Adaptor

Table 3-22: Materials furnished with the Bluetooth Adaptor

Item	Description	Quantity	Note
1	1 Bluetooth Adaptor	1	

- Paper Tray

Table 3-23: Materials furnished with the Paper Tray

Item	Description	Quantity	Note
1	Paper Tray	1	

Furnished materials(continued)

- Footswitch

Table 3-24: Materials furnished with the Footswitch

Item	Description	Quantity	Note
1	1 Pedal Footswitch	1	
2	3 Pedal Footswitch	1	

- DVD RW

Table 3-25: Materials furnished with the DVD RW

Item	Description	Quantity	Note
1	DVD RW	1	
2	USB cable	1	

- Barcode Scanner

Table 3-26: Materials furnished with the Barcode Scanner

Item	Description	Quantity	Note
1	Barcode Reader	1	

Peripherals Installation Instructions

Sony UP-898MD/UP-898DC Printer Installation

Tools

Common Phillips screwdrivers

Manpower

One person 20 minutes + travel.

Preparations

1. Unpack B/W Printer.
2. Ensure no physical damage.
3. Shut down the system and disconnect the power cord.

Installation Procedure

NOTE: *The printer driver is customized for the Versana Balance™/Versana Balance™ Vet at the factory, you do not need to change the settings.*

1. Put the printer shelf on the bottom of the printer, then screw 4 screws to fix the printer shelf.

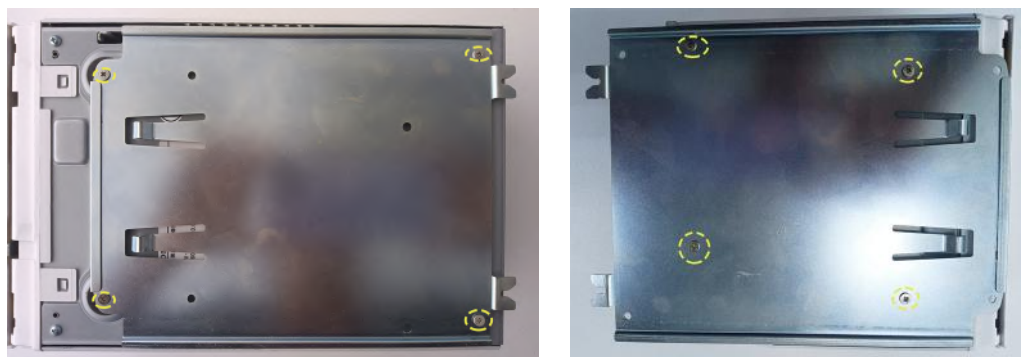


Figure 3-7. Install Printer to Printer Shelf

Sony UP-898MD/UP-898DC Printer Installation(continued)

2. For UP-898MD, paste the black foam to the back cover of the printer, align it to the second hole in the top line. For UP-898DC, paste the black foam to the back cover of the printer, centrally align it to the black line.



Figure 3-8. Paste the foam to the 898MD printer



Figure 3-9. Paste the foam to the 898DC printer

Sony UP-898MD/UP-898DC Printer Installation(continued)

NOTE: Shut down the system and disconnect the power cord before installing the printer.

3. Remove printer cover from the system.



Figure 3-10. Remove Printer Cover

4. Remove the three ties for power cable, USB cable and DC power extension cable.

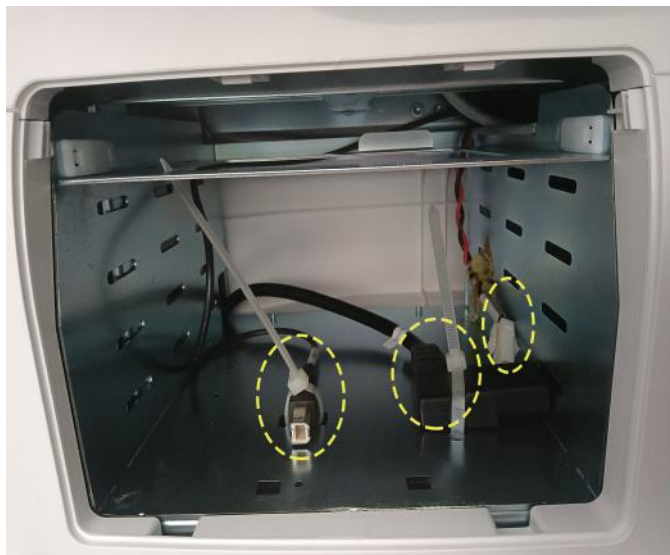


Figure 3-11. Remove three ties

Sony UP-898MD/UP-898DC Printer Installation(continued)

5. Install the Supra body printer DVD cover to the system, insert one side first, bend it a bit then insert another side.



Figure 3-12. Insert DVD cover

6. For UP-898MD, connect the power cable and USB cable to the printer.



Figure 3-13. Connect power cable and USB cable to Printer

Sony UP-898MD/UP-898DC Printer Installation(continued)

7. For UP-898DC, connect the DC power extension cable to the connector, then connect USB cable and DC power extension cable to the printer.



Figure 3-14. Connect the Power cable and USB cable to Printer

8. Put the printer to the system.



Figure 3-15. Put Printer into system

Sony UP-898MD/UP-898DC Printer Installation(continued)

9. Press **Utility**, Select **Connectivity** -> **Service**, add **Standard Print**.

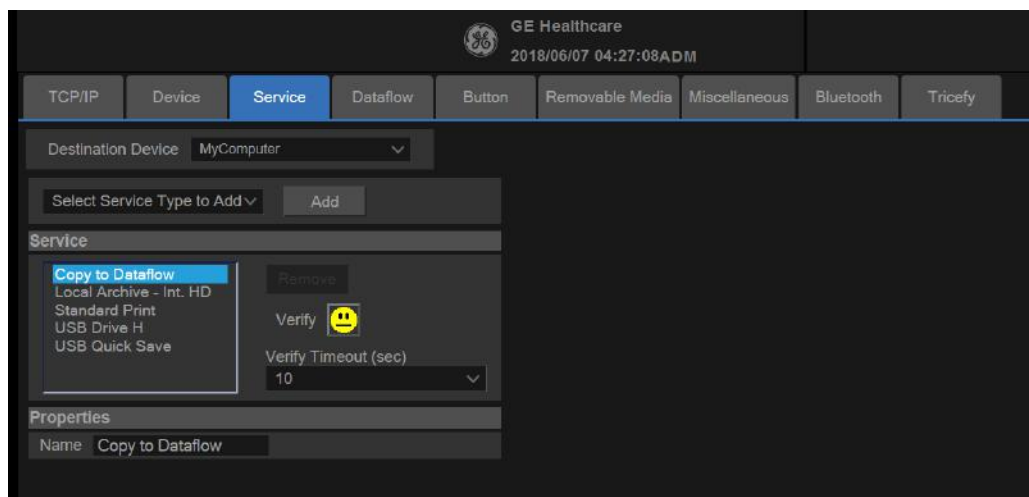


Figure 3-16. Connectivity -> Service

10. Highlight **Standard Print** in the Service list. Select the printer from the Printer pull-down Properties menu. Type the printer name in the Name Field. This name is used on the Button screen. Press **Save**.

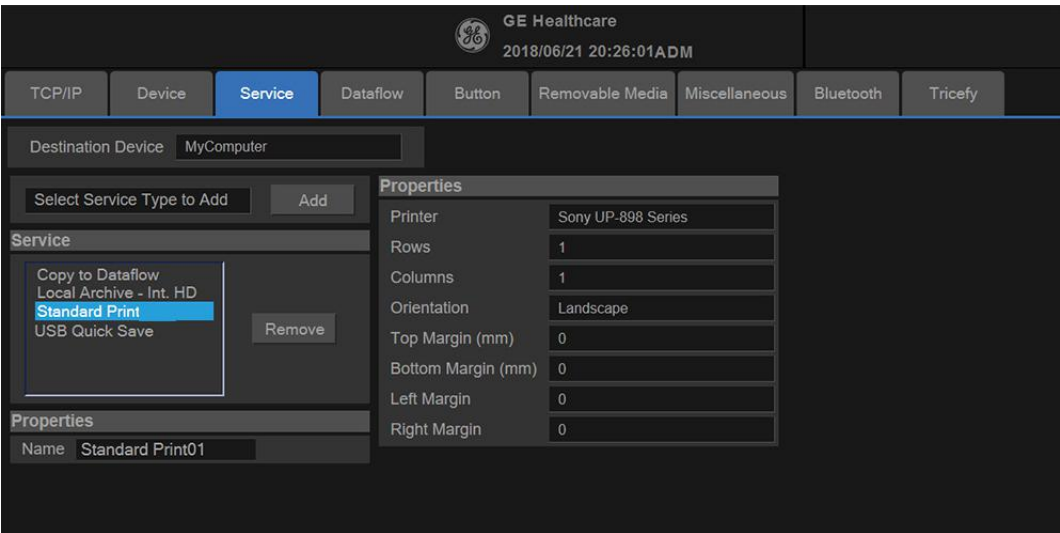


Figure 3-17. Select the Printer

Sony UP-898MD/UP-898DC Printer Installation(continued)

11. Select **Button**. Select the appropriate print key (Print, Print3...) from the **Physical Print Buttons** selection. Select the printer from **MyComputer** column and press >> to move it to the Printflow View column. Press **Save**.

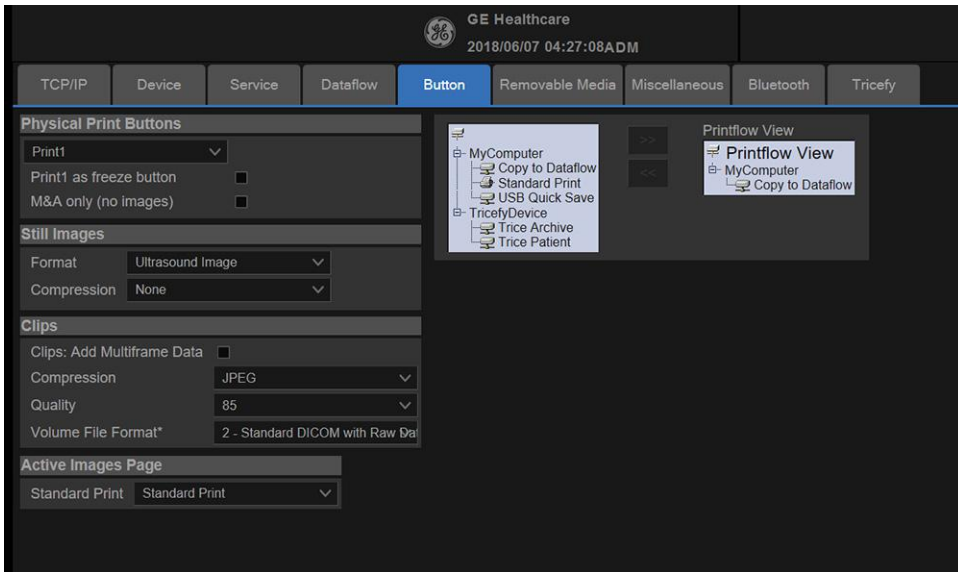


Figure 3-18. Select the Printer

12. Press **Utility --> System --> Peripherals**. Select the 898DC or 898MD from the pull-down menu, then click **Properties**.

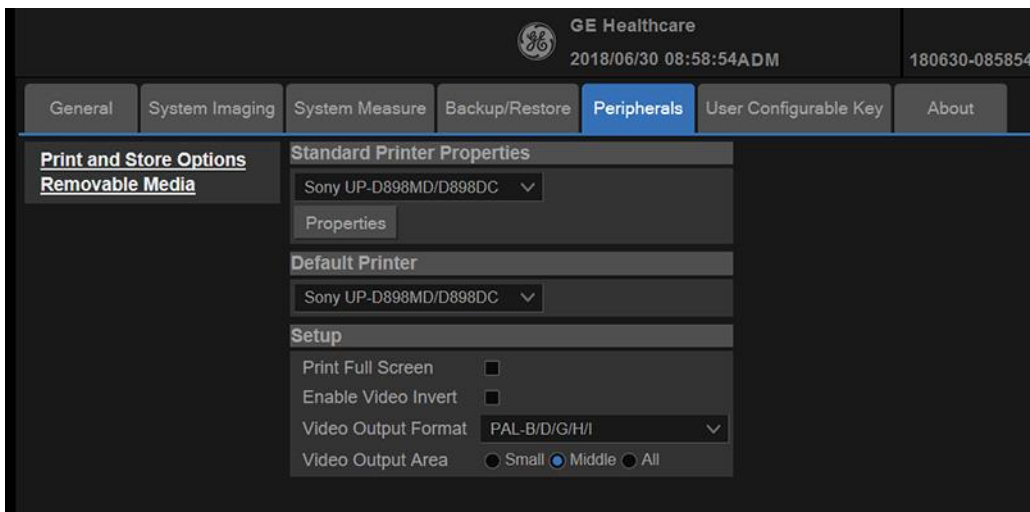


Figure 3-19. Properties

Sony UP-898MD/UP-898DC Printer Installation(continued)

13. Click **Printer** --> **Printing Preferences** at the menu of Properties Window.

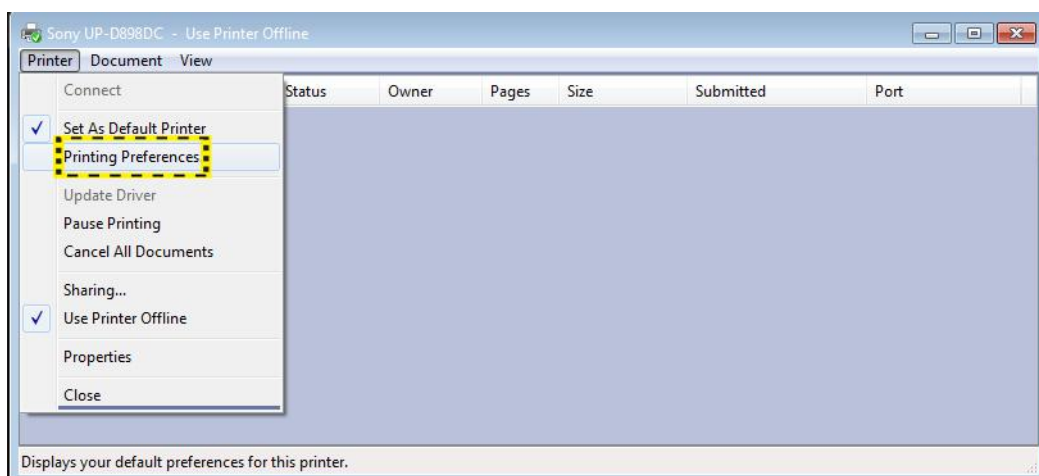


Figure 3-20. Properties

14. Select **Paper Size**. Press **Apply**. Press **OK**.

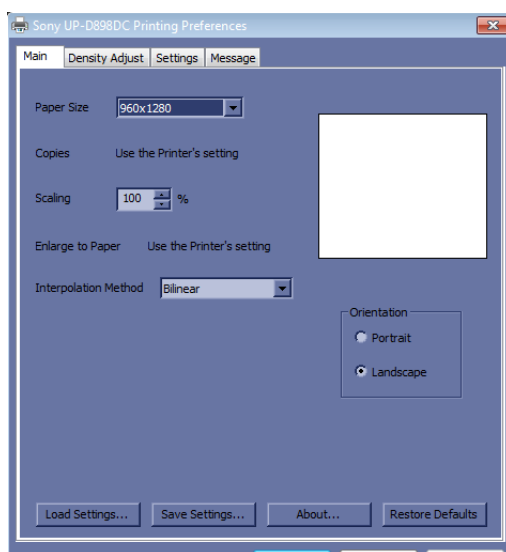


Figure 3-21. Printing Preferences

15. Press **Save**, then **Exit**.

Sony UP-898MD/UP-898DC Printer Installation(continued)

Set up Paper Size

Follow these steps to set up the paper size of the printer, take Sony UP-D898MD/D898DC as an example.

- Press **Utility-->System-->Peripherals**. Select the UP-D898MD/D898DC from the pull-down menu under **Standard Printer Properties**. Then Click **Properties**.

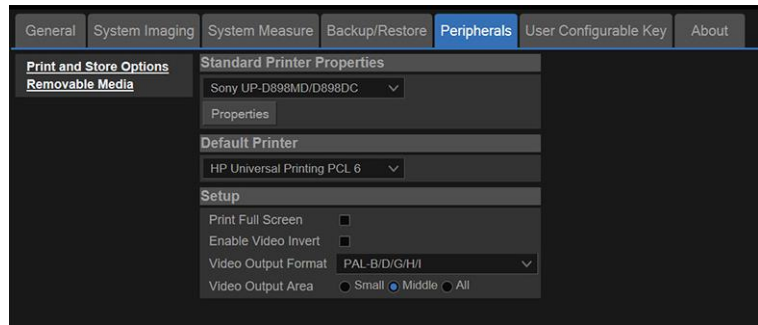


Figure 3-22. Properties

- Click **Printer -> Printing Preferences...** at the menu of Properties Window.

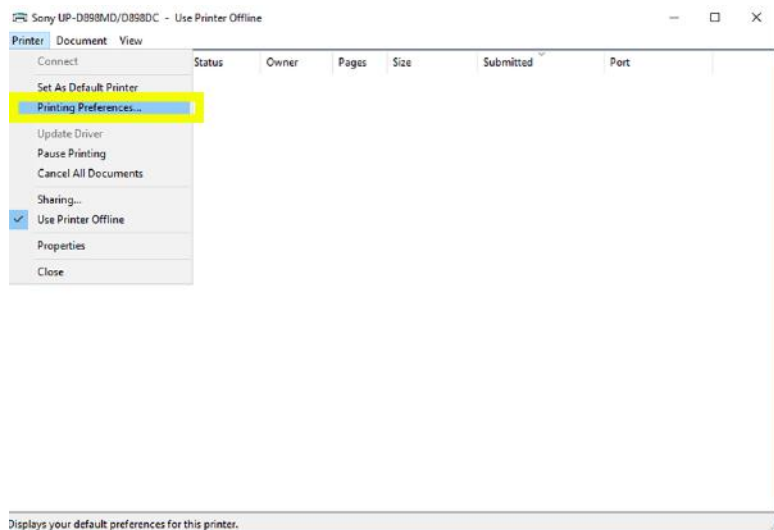


Figure 3-23. Properties

Sony UP-898MD/UP-898DC Printer Installation(continued)

- Select Paper Size. Press **Apply**. Press **OK**.

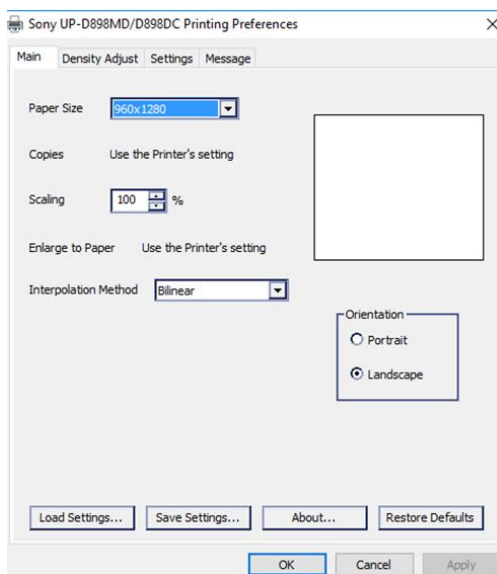


Figure 3-24. Printing Preferences

- Press **Save**, then **Exit**.

Printer Brightness Adjustment

Follow these steps to adjust the printer brightness, take Sony UP-D898MD as an example.

1. The first setting method is to adjust by "BRIGHT" button on printer.



Figure 3-25. BRIGHT button on printer

Printer Brightness Adjustment(continued)

- The second setting method is to adjust brightness by Printer properties on Versana Balance user interface. Please refer to below steps to set.

NOTE:

For some commercial printers, user might not find brightness adjustment option from system user interface setting menu. It depends on the commercial printer drive itself. Please find brightness adjustment option on commercial printer's own physical setting menu.

- Press **Utility-->System-->Peripherals**. Select the UP-D898MD/D898DC from **Standard Printer Properties** list. Then click **Properties**.

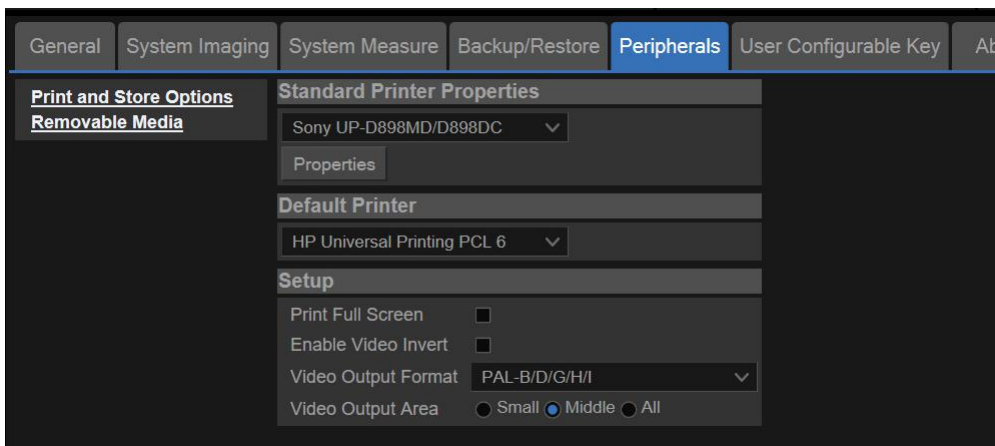


Figure 3-26. Peripherals Setting

- Click **Printer -> Printing Preferences...** to enter Printing Preferences setting.

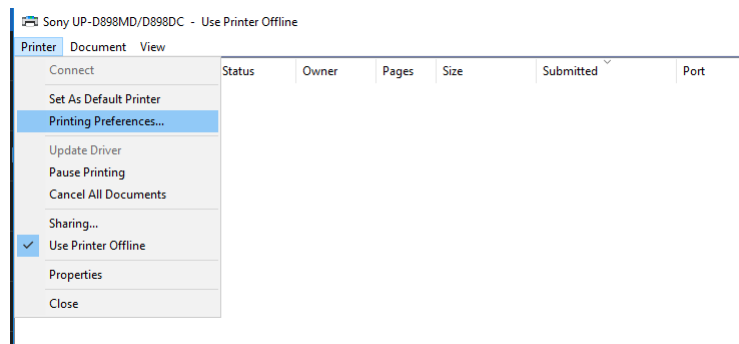


Figure 3-27. Properties

Printer Brightness Adjustment(continued)

3. Select **Density Adjust** to adjust **Light** to the desired value. Then press **OK** to save.

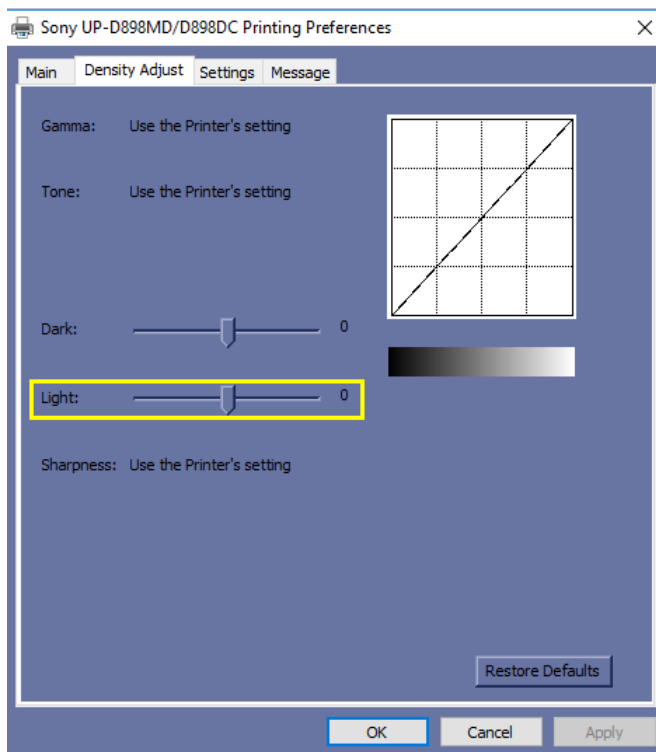


Figure 3-28. Density Adjust

Sony UP-D25MD Printer Installation

Tools

No special tools needed.

Manpower

One person 5 min.

Preparations

1. Unpack the Sony UP-D25MD Printer.
2. Ensure no physical damage.

Installation Procedure

1. Place the device in a suitable place.
2. Connect the USB Cable on the Printer.
3. Connect the power cord with the AC output in the wall outlet, and then turn on the printer.
4. Connect USB cable to Versana Balance™/Versana Balance™ Vet isolated USB port.



Figure 3-29. Color Printer connection

5. Refer to the Connectivity configure steps of '[Sony UP-898MD/UP-898DC Printer Installation](#)' on [page 3-33](#).

Footswitch Installation

Tools

No special tools needed.

Manpower

One person 2 min.

Preparations

1. Unpack the Footswitch.
2. Ensure no physical damage.

Installation Procedure

1. Connect the Footswitch to the USB port on the Versana Balance™/Versana Balance™ Vet system.



Figure 3-30. Connect Footswitch to the system (1)



Figure 3-31. Connect Footswitch to the system (2)

Configuring Footswitch

Footswitch supports these configurations: No Function, Freeze, Store, Print, Update, Next Step (Scan Coach), Previous Step (Scan Coach), Scan Coach Pause/Resume.

Enter **Utility** -> **Application**-> **Settings** to configure the Footswitch functions.

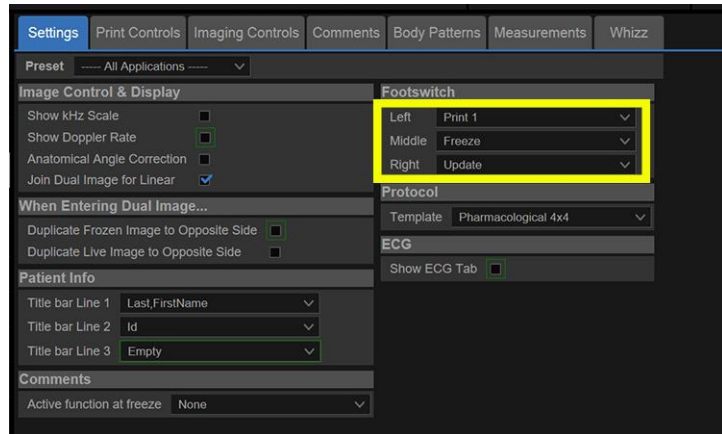


Figure 3-32. Configuring Footswitch Functions

USB HDD Installation

Tools

No special tools needed.

Manpower

One person 1 min.

Preparations

1. Unpack the USB HDD.
2. Ensure no physical damage.

Installation Procedure

1. Connect the USB HDD to the USB port on the Versana Balance™/Versana Balance™ Vet system.



Figure 3-33. Connect HDD to the system

External ECG Installation

Tools

NA

Manpower

One person 8 minutes + travel.

Preparations

1. Unpack the ECG Assy.
2. Ensure no physical damage.

Installation Procedure

1. Insert the ECG USB connector into the USB port.



Figure 3-34. Connect the USB port

DVDRW Installation

Tools

No special tools needed.

Manpower

One person 5 min.

Preparations

1. Unpack the DVDRW.
2. Ensure no physical damage.

Installation Procedure

1. Remove the body left and right cover.



Figure 3-35. Remove the body left and right Cover

DVDRW Installation(continued)

2. Remove printer cover from the system.



3. Unscrew the 3 screws on each side, then remove the body 4PP/3PP front cover Assy.



Figure 3-36. Remove Body 4PP/3PP Cover Assy

DVDRW Installation(continued)

4. Connect the 2 USB cables to system



Figure 3-37. Connect to DVD USB

5. Pull out the USB cable.



Figure 3-38. Connect to DVD USB

DVDRW Installation(continued)

6. Connect the USB cable with DVD.



Figure 3-39. Connect to DVD USB

7. Push DVD into the system.

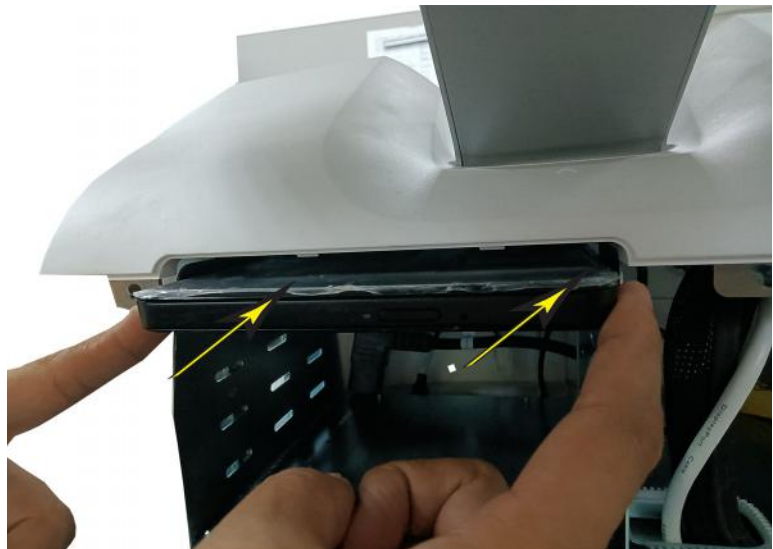


Figure 3-40. Push DVD into system

DVDRW Installation(continued)

8. Install the printer cover and push the body 4PP/3PP front cover assy into system, and screw 3 screws on each side.



Figure 3-41. Install Body 4PP/3PP Cover Assy

Wireless Adapter

Tools

No special tools needed.

Manpower

One person 1 min.

Preparations

1. Unpack the wireless adapter
2. Ensure no physical damage.

Installation Procedure

1. Connect the wireless adapter to the USB port on the Versana Balance™/Versana Balance™ Vet system.



Figure 3-42. Connect Wireless Adapter

NOTE: *It's recommend to connect the wireless adapter from the back of system for avoiding damage.*

2. Refer to the Wireless Network configure steps of ['Wireless-LAN Network' on page 7-82.](#)

Bluetooth Adapter

Tools

No special tools needed.

Manpower

One person 5 min.

Preparations

1. Unpack the bluetooth adaptor.
2. Ensure no physical damage.

Installation Procedure

1. Connect the Bluetooth Adapter to the USB port on the Versana Balance™/Versana Balance™ Vet system.



Figure 3-43. Connect Bluetooth Adapter

2. Reboot the system.

Bluetooth Adapter(continued)

- After the power-up sequence is complete, press **Utility** on the Control Panel. Select **Connectivity-> Bluetooth**, click **Add New Device**.

NOTE: For Bluetooth Adapter connection, the operator must login as Administrator.

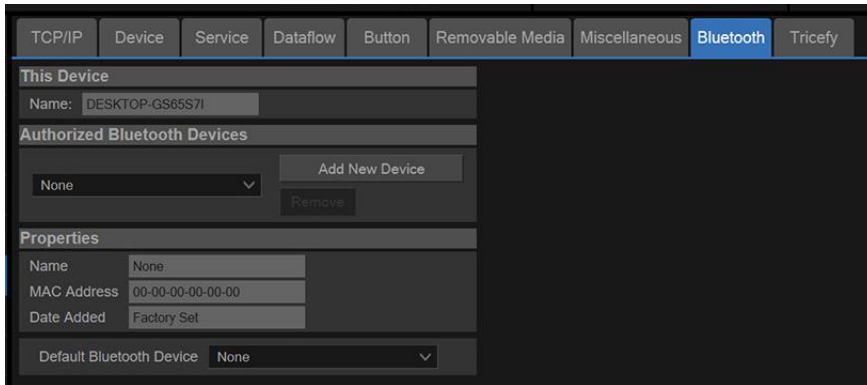


Figure 3-44. Add New Device

- Follow the Bluetooth pairing wizard to turn on Bluetooth on your mobile device. Scan for surrounding devices. Then select the device name of Versana Balance in your surrounding device list to pair.

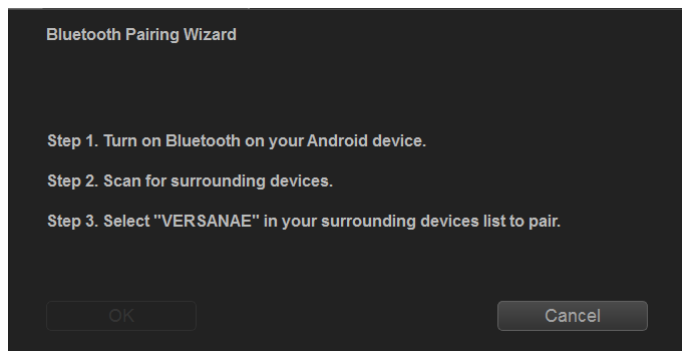


Figure 3-45. Bluetooth Pairing Wizard (1)

NOTE: Versana Balance™/Versana Balance™ Vet system does not support to pair with Apple device.

Bluetooth Adapter(continued)

- 5. The **Pincode** is shown in the dialogue, click **Accept** to continue.

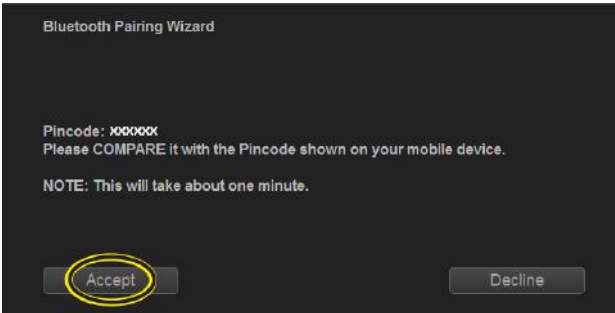


Figure 3-46. Bluetooth Pairing Wizard (2)

- 6. On your mobile device a dialogue box should appear asking for permission to connect to the Versana Balance™/ Versana Balance™ Vet system. Click **OK** and wait for the process to complete.

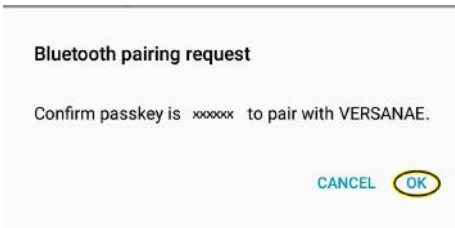


Figure 3-47. Bluetooth Pairing Request

- 7. After pairing is done, the mobile device name appears in the **Authorized Bluetooth Devices** field.

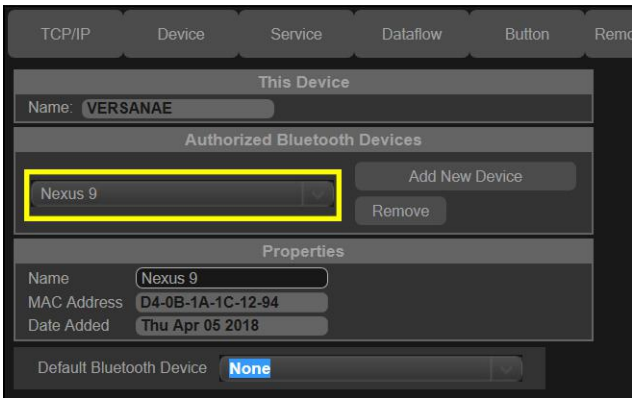


Figure 3-48. Connected Successfully

EMI Filter

EMI filter can improve power grid environment.

Tools

No special tools needed.

Manpower

One person 5 min.

Preparations

1. Unpack the EMI Filter.
2. Ensure no physical damage.

Installation Procedure

1. Take out the EMI filter from the package. The EMI filter option includes the EMI filter and the cable.



Figure 3-49. EMI Filter

EMI Filter(continued)

2. Insert one side of the cable into the EMI Filter **OUTPUT** side.



Figure 3-50. Insert the cable into the EMI filter output side

3. Insert the Ultrasound system's main power cord into the EMI filter **INPUT** side.



Figure 3-51. Insert the system power cord into the EMI filter input side

EMI Filter(continued)

4. Connect the EMI filter cable to the Ultrasound system, and plug the system power cord into wall AC power outlet.

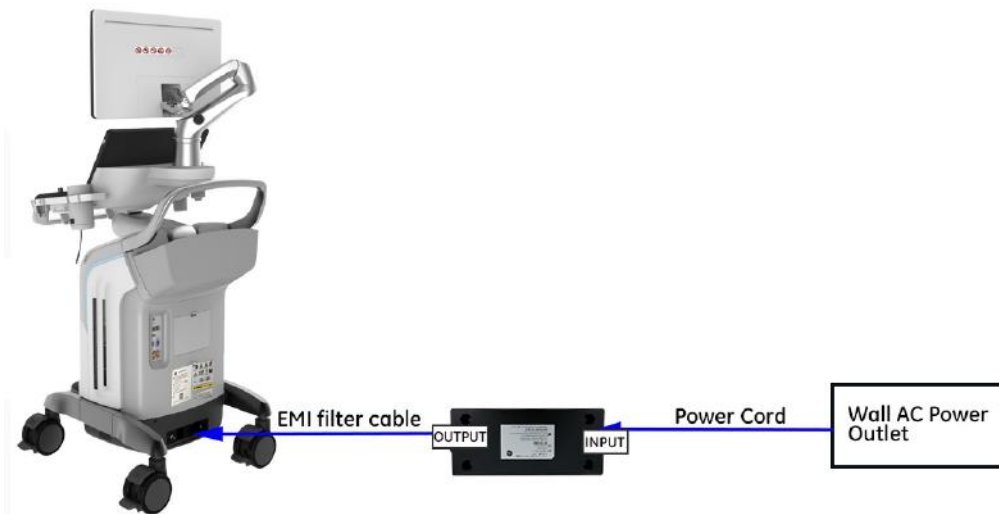


Figure 3-52. Connect successfully

Ferrite core Assy

Tools

No special tools needed.

Manpower

One person 2 min.

Preparations

Remove the S-Video cable

Installation Procedure

NOTE: *The ferrite core is a standard part for China console, which is designed for specific use scenario. Option part number: H48862BA.*

1. Wind up the Ferrite core assy to the S-video cable (at the Ultrasound system end) for 5 turns, refer to [Figure 3-53 on page 3-62](#).



Figure 3-53. Wind up the Ferrite core assy to the S-video cable

Probe Check

Introduction

Probe Check is a probe assessment tool that evaluates each probe element response scanning in the air. Probes must be clean, any gel residue will provide incorrect data. This test is an assessment that is intended to be used comparatively during the life of the probe to evaluate possible probe deterioration over time.



CAUTION

Probe Check can detect most probe defects, but not all possible probe defects.



CAUTION

GE is NOT responsible for the confirmation related to the normal function of the ultrasound probe before use.

Probe check will evaluate the probe performance and provide the user with an indication of potential impact to the diagnostic image if it is compromised due to transducer malfunction.

Supported probes

Probe Check supports for 3Sc-RS, 6S-RS, 12S-RS, 4C-RS, 8C-RS, E8Cs-RS, E8C-RS, 12L-RS, L6-12-RS, L8-18i-RS, LK760-RS and RAB2-6-RS probes.

Pass/Fail criteria

NOTE: *If any one of the two Pass or Fail criteria listed below are met, the result is a failure:*

1. the total number of defect elements is larger than or equal to "Maximum number of total defect elements";
2. the number of defect elements within the largest nearby group is larger than or equal to "Defects of nearby elements".

NOTE: *If two groups of nearby defect elements are separated by a gap smaller than or equal to "Gap between defect nearby elements", these two groups are considered as one nearby group.*

Table 3-27: Pass/Fail criteria

Probe Name	Maximum number of total defect elements	Defects of nearby elements	Gap between defect nearby elements
3Sc-RS	13	9	0
6S-RS	13	9	0
12S-RS	13	9	0
4C-RS	17	9	1
8C-RS	17	7	1
E8CS-RS	17	7	1
E8C-RS	17	7	1
12L-RS	17	7	3
L6-12-RS	17	9	1
L8-18i-RS	13	7	1
LK760-RS	17	9	1
RAB2-6-RS	17	9	3

Presets

Probe Check provides five interval options for auto triggering, press **Utility -> System -> General -> Probe Check** to select the preset.

- **Never:** probe checking will never automatically open.
- **Every time:** probe checking will be automatically opened each time while triggering probe active.
- **Once 1 day:** probe checking will be automatically opened one time every day while triggering probe active.
- **Once 7 days:** probe checking will be automatically opened one time every week while triggering probe active.
- **Once 30 days:** probe checking will be automatically opened one time every month while triggering probe active.

NOTE: The system default is every time for USA region, for other regions, the system default is Never. The first boot up shall follow this setting.

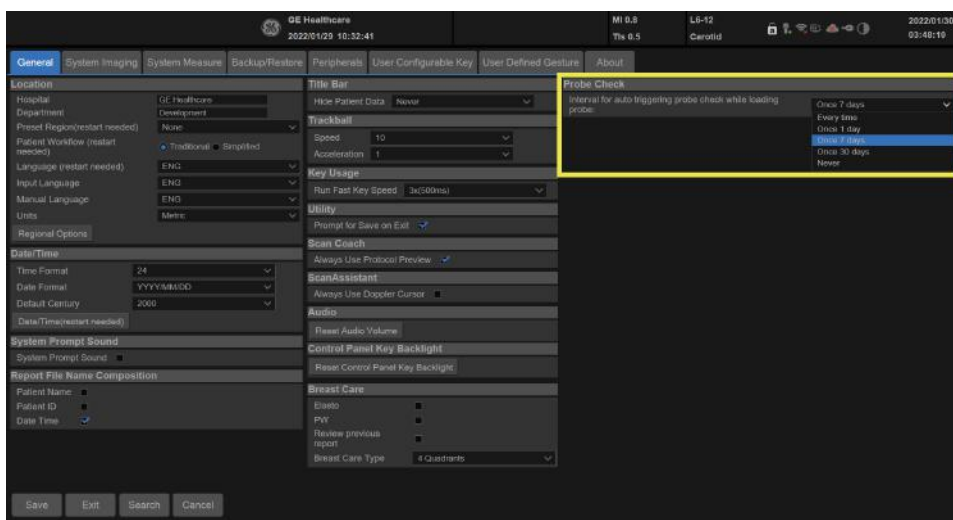


Figure 3-54. Probe Check preset

Probe Test

Auto Trigger

NOTE: *Always remember to clean the probe surface before probe check procedure.*

1. Check that the probe to be tested is thoroughly clean and dry. Connect it to the probe port on the scanner, then hold the probe in the air ready for testing.

NOTE: *The auto trigger assessment is only available when the Probe Check preset is Every Time.*

NOTE: *The auto trigger assessment is only available for the probe connected to the activated probe port.*

NOTE: *Prior to inserting the probe, ensure that the connector locking handle is positioned to the unlock state.*

NOTE: *Ensure the probe is locked to the system before you start the probe diagnostics.*



CAUTION

DO NOT allow the probe head to hang free. Impact to the probe head could result in irreparable damage.



CAUTION

DO NOT unplug the probe during Probe Check process, otherwise the test result will fail.

Auto Trigger(continued)

2. Press **Probe**, select the probe, the system will perform probe test automatically, a message will pop-up on the monitor “Probe Check:Testing probe, please wait...”.

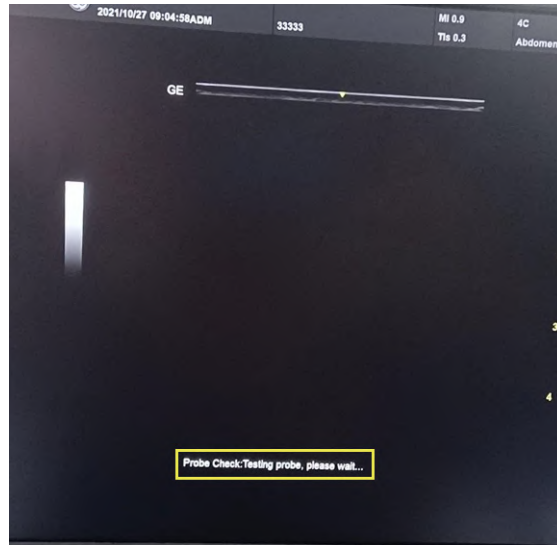


Figure 3-55. Probe Check:Testing probe, please wait...

3. If the probe test is **Passed**, there will be a message “Probe Check: Probe test passed.” showing on the monitor.

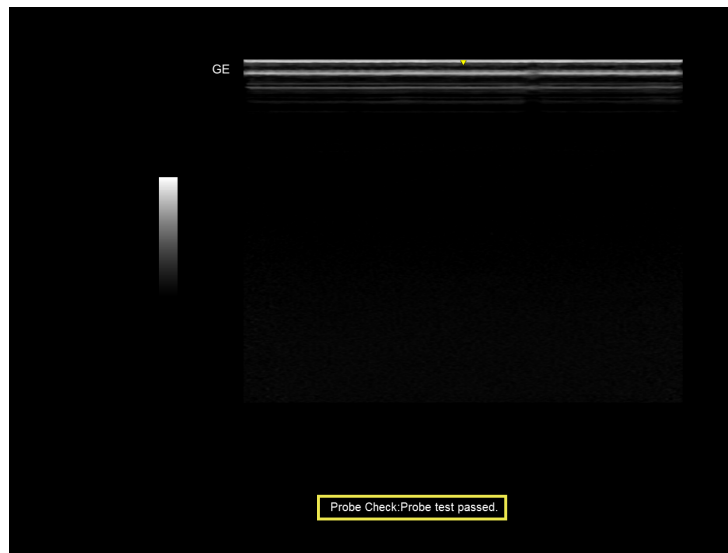


Figure 3-56. Probe Test passed

Auto Trigger(continued)

4. If the probe test is **Failed**, the checking results will be shown on the pop-up dialog.

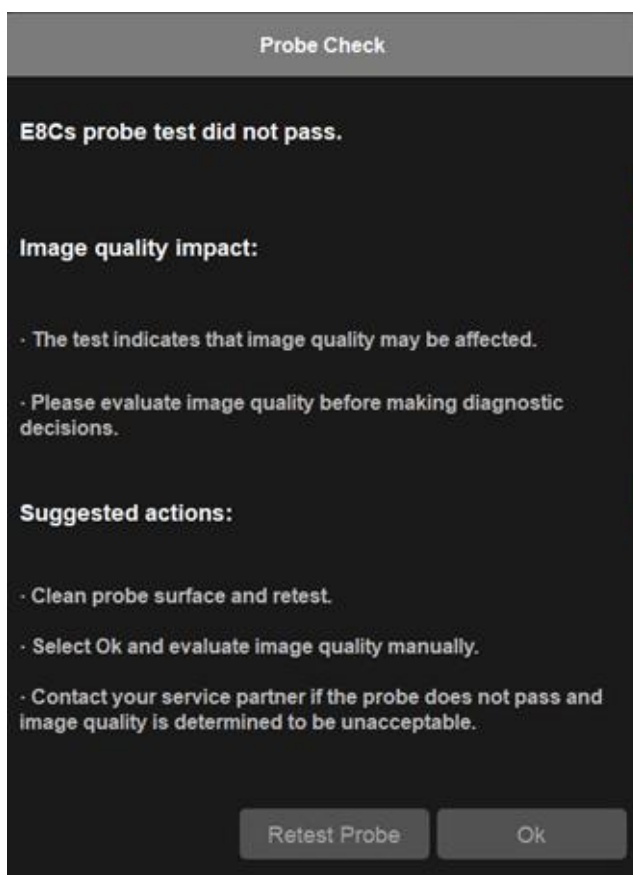


Figure 3-57. Probe Test Fail

5. Click **Retest Probe** on the dialog to retest the probe or click **OK** to close the dialog.

Auto Trigger(continued)

6. For the failed test result, user should contact the Field Engineer(Hereinafter referred to as FE) immediately to evaluate the test result. FE will collect the below failure information:
 - Console Name
 - Console Serial Number
 - Current SW revision
 - Probe name
 - Probe port number the probe connected
 - The trigger mode of the diagnostic (Auto Trigger / Manual Trigger)
 - Trigger interval for auto trigger (only for the auto trigger log)
 - Start and end timestamp of the diagnostic activity
 - User activity during probe check
 - Pass/Fail result

Auto Trigger(continued)

- 7. With the remote control of the machine plus an authority of Class M or SSA dongle, FE can obtain the information more conveniently by exporting the test logfile.

Press ALT+D to export the test report and store to the specific destination, there are 2 methods for exporting the report:

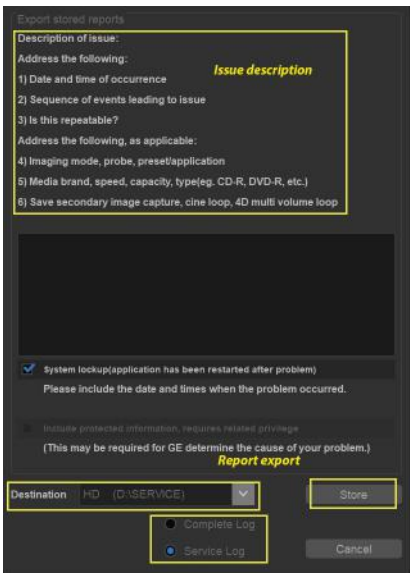


Figure 3-58. Export reports

Complete Log: export all the files from D:\Log folder in the form of a compressed package.

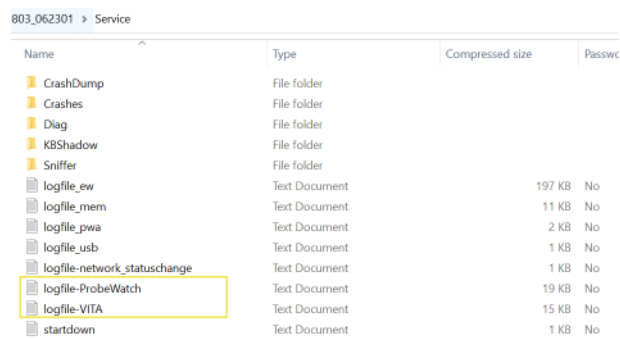
8003_062316 > log

Name	Type	Compressed size	Password
logfile-DCVoltMon	Text Document	18 KB	No
logfile-DCVoltMon-Boundaries	Text Document	1 KB	No
logfile-DCVoltMon-ColNames	Text Document	1 KB	No
logfile-FirstLoadInit	Text Document	1 KB	No
logfile-Language	Text Document	185 KB	No
logfile-network	Text Document	1 KB	No
logfile-ProbeWatch	Text Document	19 KB	No
logfile-Scope	Text Document	95 KB	No
logfile-SvcHistory	Cascading Style Sheet Document	1 KB	No
logfile-SvcHistory	XSL Stylesheet	1 KB	No
logfile-TempMon	Text Document	26 KB	No
logfile-TempMon-Boundaries	Text Document	1 KB	No
logfile-TempMon-ColNames	Text Document	1 KB	No
logfile-TpMon	Text Document	23 KB	No
logfile-TpMon-Boundaries	Text Document	1 KB	No
logfile-TpMon-ColNames	Text Document	1 KB	No
logfile-UserMgr	Text Document	2 KB	No
logfile-VITA	Text Document	15 KB	No
RtsHistory	XSL Stylesheet	1 KB	No
StartLoader	Text Document	4 KB	No
SysCfg	Microsoft Excel Commma Separ...	1 KB	No
USBConfigLog	XML Document	1 KB	No
USBDiff_Usb_Firefox	Chrome HTML Document	34 KB	No

Figure 3-59. Complete Log

Auto Trigger(continued)

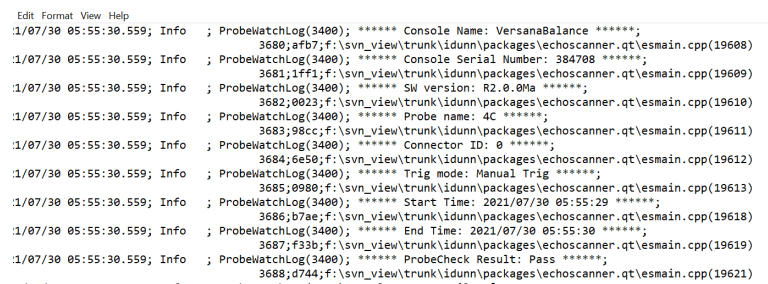
Service Log: export files only in D:\Log\Service folder in the form of a compressed package.



Name	Type	Compressed size	Passw
CrashDump	File folder		
Crashes	File folder		
Diag	File folder		
KBShadow	File folder		
Sniffer	File folder		
logfile_ew	Text Document	197 KB	No
logfile_mem	Text Document	11 KB	No
logfile_pwa	Text Document	2 KB	No
logfile_usb	Text Document	1 KB	No
logfile-network_statuschange	Text Document	1 KB	No
logfile-ProbeWatch	Text Document	19 KB	No
logfile-VITA	Text Document	15 KB	No
startdown	Text Document	1 KB	No

Figure 3-60. Service Log

The file logfile-ProbeWatch and logfile-VITA record all the necessary probe test information.



	Edit	Format	View	Help
1/07/30 05:55:30.559; Info	; ProbeWatchLog(3400);	***** Console Name: VersanaBalance *****;		
	3680;afb7;f:\svn_view\trunk\idunn\packages\echoscanner.qt\esmain.cpp(19608)			
1/07/30 05:55:30.559; Info	; ProbeWatchLog(3400);	***** Console Serial Number: 384708 *****;		
	3681;1ff1;f:\svn_view\trunk\idunn\packages\echoscanner.qt\esmain.cpp(19609)			
1/07/30 05:55:30.559; Info	; ProbeWatchLog(3400);	***** SW version: R2.0.0Ma *****;		
	3682;0023;f:\svn_view\trunk\idunn\packages\echoscanner.qt\esmain.cpp(19610)			
1/07/30 05:55:30.559; Info	; ProbeWatchLog(3400);	***** Probe name: 4C *****;		
	3683;98cc;f:\svn_view\trunk\idunn\packages\echoscanner.qt\esmain.cpp(19611)			
1/07/30 05:55:30.559; Info	; ProbeWatchLog(3400);	***** Connector ID: 0 *****;		
	3684;6e50;f:\svn_view\trunk\idunn\packages\echoscanner.qt\esmain.cpp(19612)			
1/07/30 05:55:30.559; Info	; ProbeWatchLog(3400);	***** Trig mode: Manual Trig *****;		
	3685;0980;f:\svn_view\trunk\idunn\packages\echoscanner.qt\esmain.cpp(19613)			
1/07/30 05:55:30.559; Info	; ProbeWatchLog(3400);	***** Start Time: 2021/07/30 05:55:29 *****;		
	3686;b7ae;f:\svn_view\trunk\idunn\packages\echoscanner.qt\esmain.cpp(19618)			
1/07/30 05:55:30.559; Info	; ProbeWatchLog(3400);	***** End Time: 2021/07/30 05:55:30 *****;		
	3687;f33b;f:\svn_view\trunk\idunn\packages\echoscanner.qt\esmain.cpp(19619)			
1/07/30 05:55:30.559; Info	; ProbeWatchLog(3400);	***** ProbeCheck Result: Pass *****;		
	3688;d744;f:\svn_view\trunk\idunn\packages\echoscanner.qt\esmain.cpp(19621)			

Figure 3-61. Logfile Information

Auto Trigger(continued)

8. After all information is collected, FE will remotely instruct the user to cross check the probe and probe port to detect if the issue is related to the probe or the system itself.

NOTE:

Suggest to prepare at least 2 probes to conduct the cross check.

- a. Freeze active probe or select another probe and disconnect the failed probe from the port, if the test result passed, it shows the original probe has an issue. If the test result failed, please continue with next step.
- b. Test the two probes on other probe ports separately, if both test results failed, it indicates the possible issue is related to the probe port or MST board. If only one probe tested failed, it indicates the issue may be related to the probe.
- c. For the failed test probe, suggest to replace with new one, if the new probe test fails, suggest to replace the probe port or MST board.

Manual Trigger

A manual probe check should be conducted when images acquired with a deficient probe look abnormal. Phenomenon includes but not limited to overall decreased brightness or/and partial signal loss.



Figure 3-62. Normal image acquired with a 12L-RS probe

Examples (phantom scanning) are provided below for your reference. Whenever you see similar cases or aren't confident in the status of a probe, please conduct probe check manually.

- Condition 1: Total number of element failures exceeded.



Figure 3-63. Abnormal image acquired with a deficient 12L-RS probe that has distributed defect elements

Manual Trigger(continued)

Condition 2: Number of adjacent element failures exceeded.

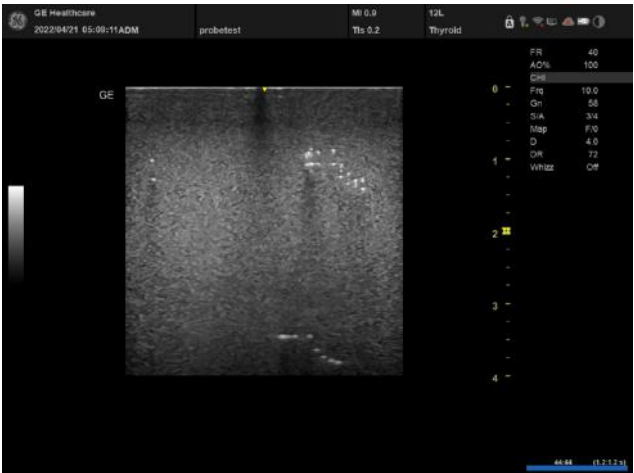


Figure 3-64. Abnormal image acquired with a deficient 12L-RS probe that has adjacent defect elements

Manual Trigger(continued)

- 1. Press **Probe**, select the probe to be tested, click **Test Probe** button.



DO NOT allow the probe head to hang free. Impact to the probe head could result in irreparable damage.



DO NOT unplug the probe during Probe Check process, otherwise the test result will fail.

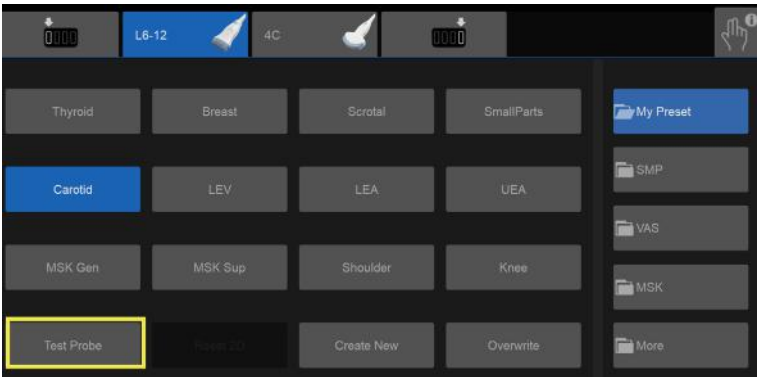


Figure 3-65. Manual Probe Test on Touch Panel

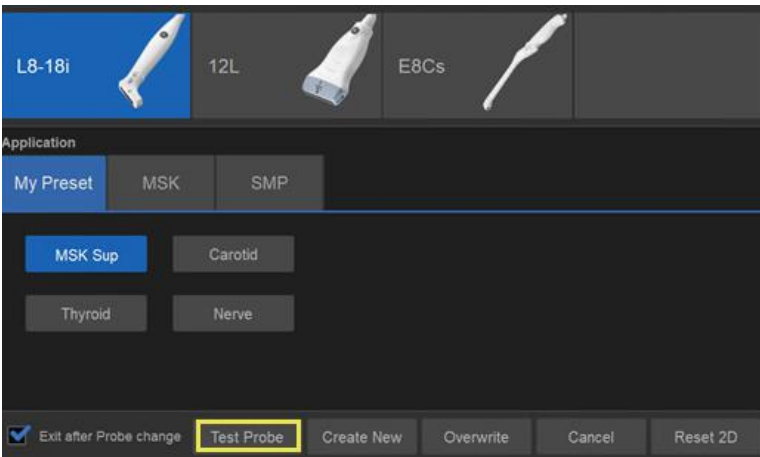


Figure 3-66. Manual Probe Test on Non-Touch Panel

Manual Trigger(continued)

2. Click **Test Probe** button on the pop-up window. The testing workflow for Manual Trigger is same as Auto Trigger from step 2 to step 5, refer to '[Auto Trigger](#)' on [page 3-66](#) for information.

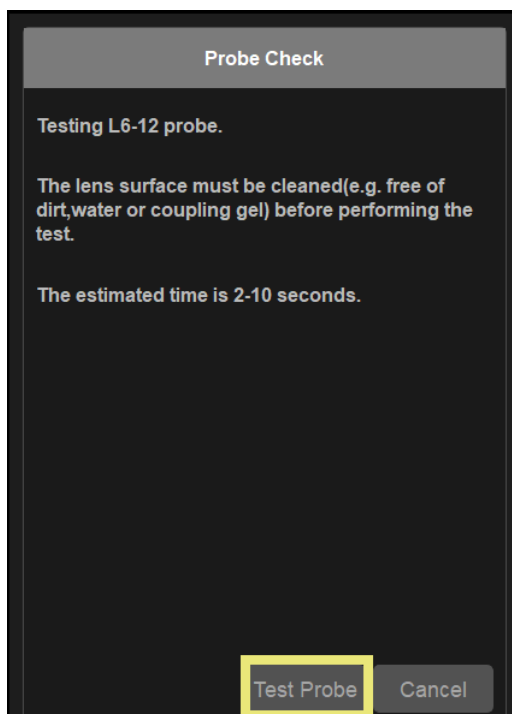


Figure 3-67. Manual Probe Test

Connectivity setup

EZ configuration Wizard

EZ Configuration wizard is a function to enable the operator to configure some common system settings when turning on the system for the first time after the software installation.

NOTE: *Password setting is required when turning on the system for the first time after the software installation.*

For Versana Balance™/Versana Balance™ Vet, you can also enter EZ Configuration Wizard by clicking the Insite icon at the top right of the screen.

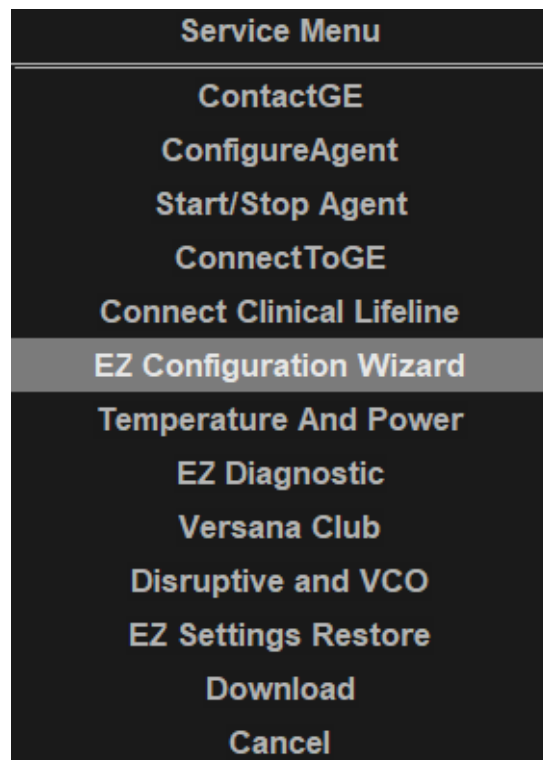


Figure 3-68. Enter EZ Configuration Wizard

EZ configuration Wizard(continued)

- 1. Select password level in **Password Policies**. User can change the policy level later by **Utility -> Admin -> User policies**.

NOTE: Password policy level setting is only required when turning on the system for the first time or after the software installation.

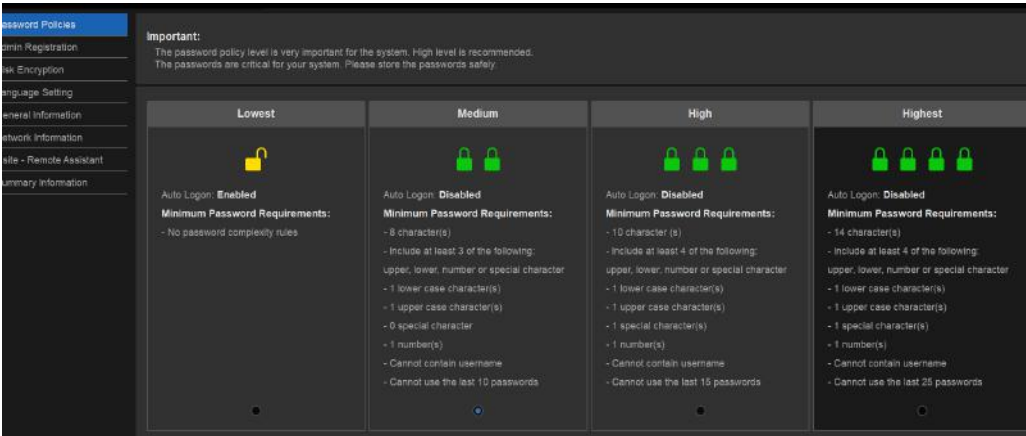


Figure 3-69. Select password policy level

NOTE: When user select lowest, a warning will display to inform that the current security policy will put your system at risk.

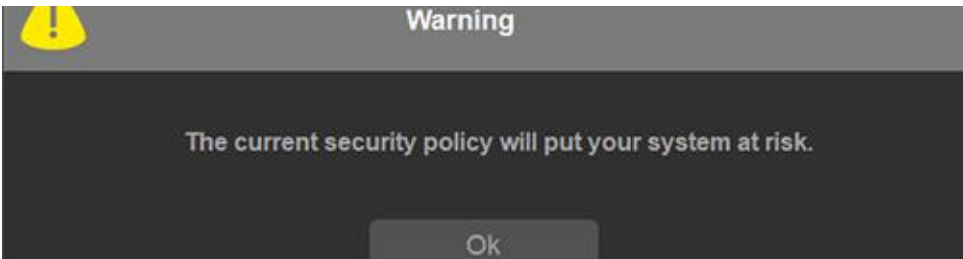


Figure 3-70. Lowest policy level warning

EZ configuration Wizard(continued)

Users can select the option **Lowest**, **Medium**, **High** or **Highest** for policy level. The complexity of the password will be differed by the policy level you selected:

NOTE: *If user select lowest level in password policies, ADM password can be empty during Admin Registration*

NOTE: ***Exit** button is not activated in password policies setting, users are not able to exit the EZ Configuration Wizard in this step.*

Table 3-28: Password Policy Level and Complexity

Policy Level	Complexity
Lowest	Auto Logon: Enabled Minimum Password Requirements: - No password complexity rules
Medium	Auto Logon: Disabled Minimum Password Requirements: - 8 character(s) - Include at least 3 of the following: upper, lower, number or special character - 1 lower case character(s) - 1 upper case character(s) - 0 special character(s) - 1 number(s) - Cannot contain username - Cannot use the last 10 passwords
High	Auto Logon: Disabled Minimum Password Requirements: - 10 character(s) - Include at least 4 of the following: upper, lower, number or special character - 1 lower case character(s) - 1 upper case character(s) - 1 special character(s) - 1 number(s) - Cannot contain username - Cannot use the last 15 passwords
Highest	Auto Logon: Disabled Minimum Password Requirements: - 14 character(s) - Include at least 4 of the following: upper, lower, number or special character - 1 lower case character(s) - 1 upper case character(s) - 1 special character(s) - 1 number(s) - Cannot contain username - Cannot use the last 25 passwords

EZ configuration Wizard(continued)

2. Set ADM password in **Admin Registration**.

If users didn't set ADM password during system setup. User can also set operator password later by **Utility -> Admin -> Users**. Refer to User Manual for details.

NOTE: *Admin Registration is only required when turning on the system for the first time or after the software installation.*

NOTE: ***Exit** button is not activated in Admin Registration setting, users are not able to exit the EZ Configuration Wizard in this step.*

NOTE: *ADM password can be empty if password policy level is selected as **LOWEST**.*

NOTE: *A valid password must be at least 8 characters long and has a maximum length of 256 characters.*

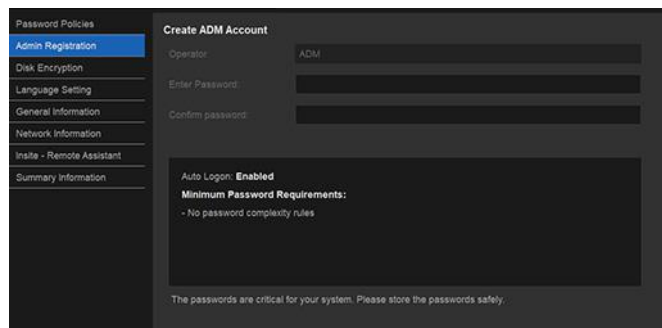


Figure 3-71. ADM password setting

If users didn't set ADM password during system setup. User can also set operator password later by **Utility -> Admin -> Users**. For instructions, please see "Users" in the User Manual.

EZ configuration Wizard(continued)

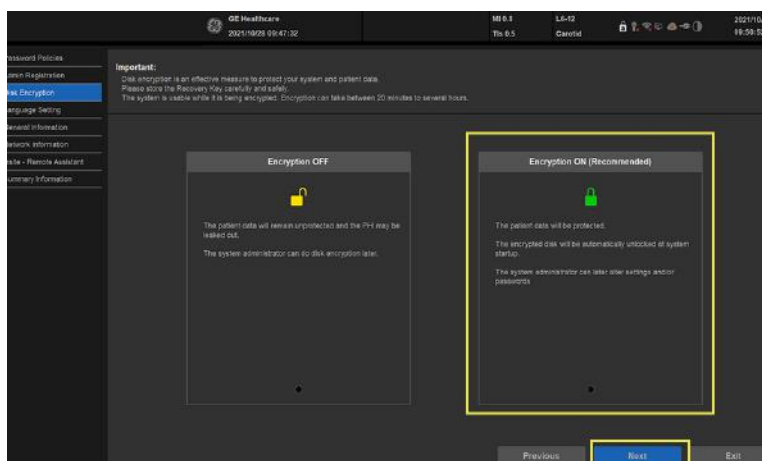
3. Select **Encryption OFF** / **Encryption ON (Recommended)**.

Figure 3-72. Disk Encryption

- If user select **Encryption OFF**, a warning message will display, press **OK** to continue.

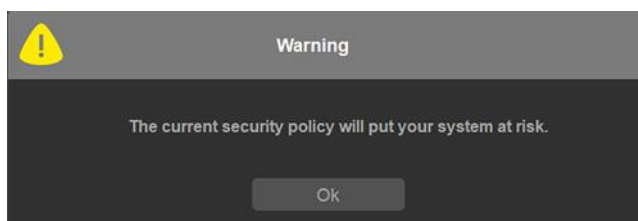


Figure 3-73. Encryption OFF

EZ configuration Wizard(continued)

- If user select **Encryption ON (Recommended)**, Disk Encryption window displays. During the encryption progress, press **Save Recovery Keys** to store the Recovery Key carefully and safely.

NOTE: Only when **Save Recovery Keys** button is available, user can press it to store.

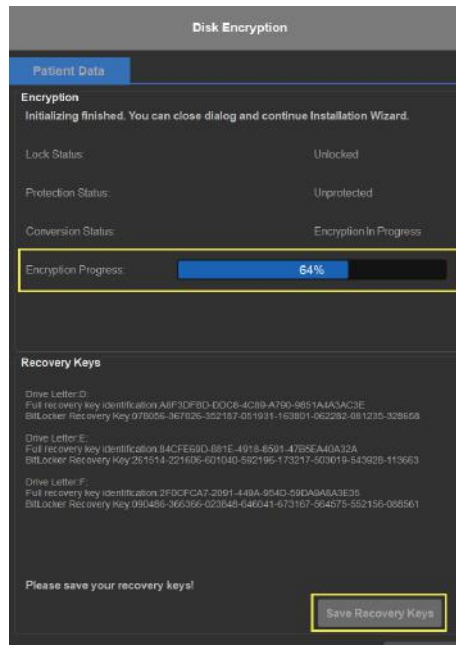


Figure 3-74. Save Recovery Keys

An information window of recovery keys been saved successfully will display, press **OK** and **Close** to continue.

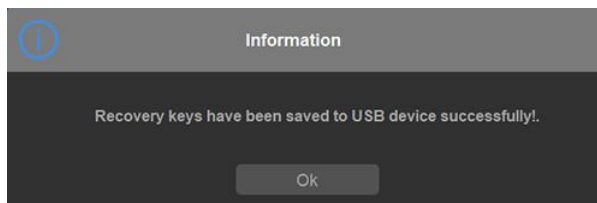


Figure 3-75. Saved successfully

User can also encrypt or decrypt system by **Utility -> Admin -> System Admin -> Disk Encryption**. See 'Disk Encryption' on [page 4-37 for more information](#).

EZ configuration Wizard(continued)

4. Select the appropriate language for system language and keyboard language from the drop-down list.

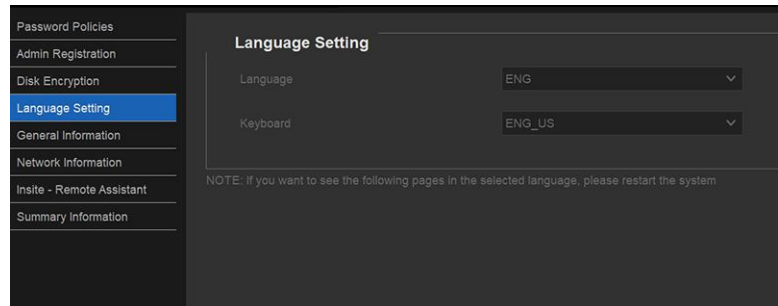


Figure 3-76. System Language settings (1)

NOTE: *All required setting after turning on system for the first time is done. If you select **Exit**, you will be able to exit the EZ Configuration Wizard and start using your system.*

- If you do not change the language, press **Next** to continue.
- If you change the language setting, a language setup window will display.

Set language and keyboard language, then press **OK** to restart the system.

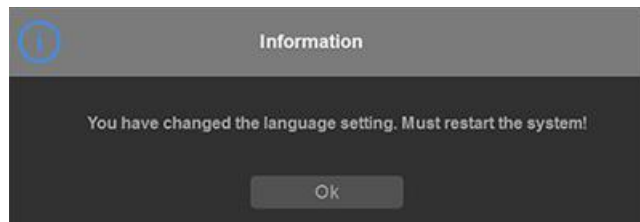


Figure 3-77. System Language settings (2)

NOTE: *If you press **Previous**, you will go to the previous page.*

EZ configuration Wizard(continued)

- 5. This screen shows the hospital and time information, and you can set the system date and time here.

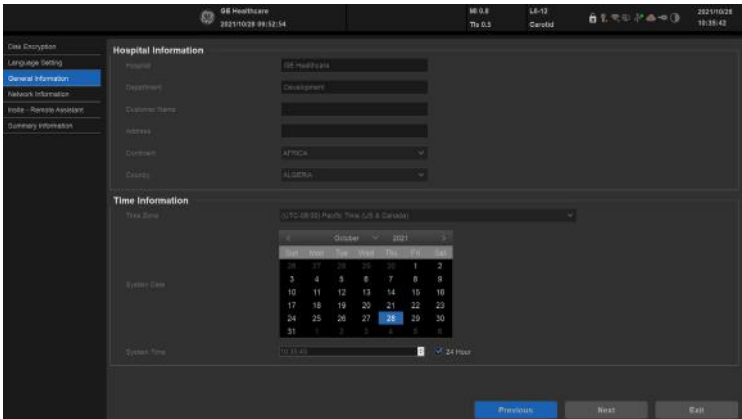


Figure 3-78. General Information

- 6. Press **Next** to continue.
- 7. The **Network Information** screen shows the configuration of wireless and local network:

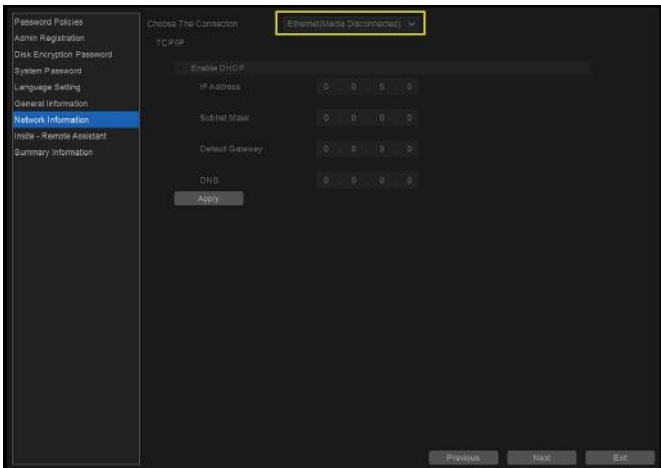


Figure 3-79. Wireless Network Information

EZ configuration Wizard(continued)

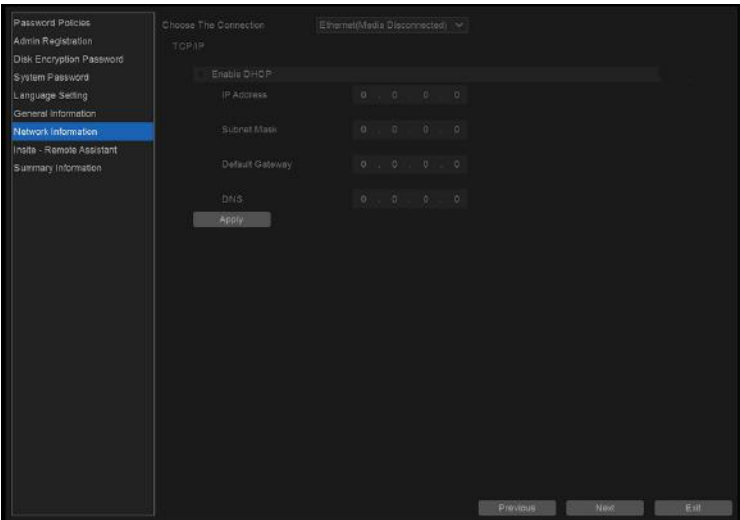


Figure 3-80. Local Network Information

Table 3-29: Network settings

Preset Parameter	Description
Enable DHCP	Select to set TCP/IP.

8. Press **Next** to continue.

EZ configuration Wizard(continued)

9. The **Insite - Remote Assistant** screen shows the configuration of Agent and Proxy.

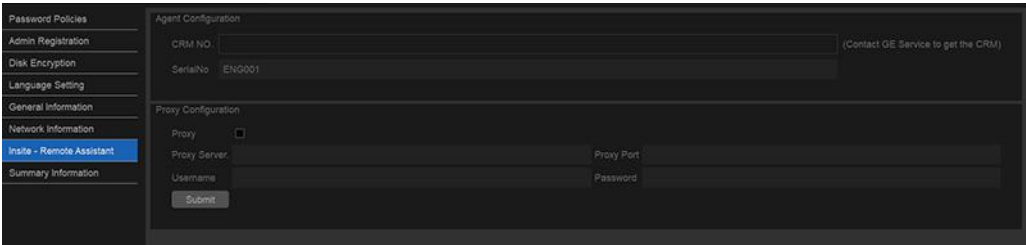


Figure 3-81. Insite - Remote Assistant

Table 3-30: Agent and Proxy Configuration

Element	DESCRIPTION
CRM No	Customer Relationship Management (CRM) number. System identifier assigned to the customer unit by the service region. CRM is pre-populated by adding Versana Balance to the CRM number. The CRM number of the Versana Balance is editable.
Serial No	Serial number of the agent (read-only). If the agent is not registered with a serial number, this field is populated with the serial number of the Versana Balance. The serial number of the agent is tied to the serial number of the Versana Balance.
Proxy Server	When Enable Proxy is selected, name of the proxy server IP.
Proxy Port	When Enable Proxy is selected, number of the proxy server port.
Username	When Proxy is selected, name of the user.
Password	When Proxy is selected, password for the user.

EZ configuration Wizard(continued)

After Insite - Remote Assistant has been successfully configured, 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 all service class licenses.

To access **System Information**, navigate to **Utility -> Service -> Home**.

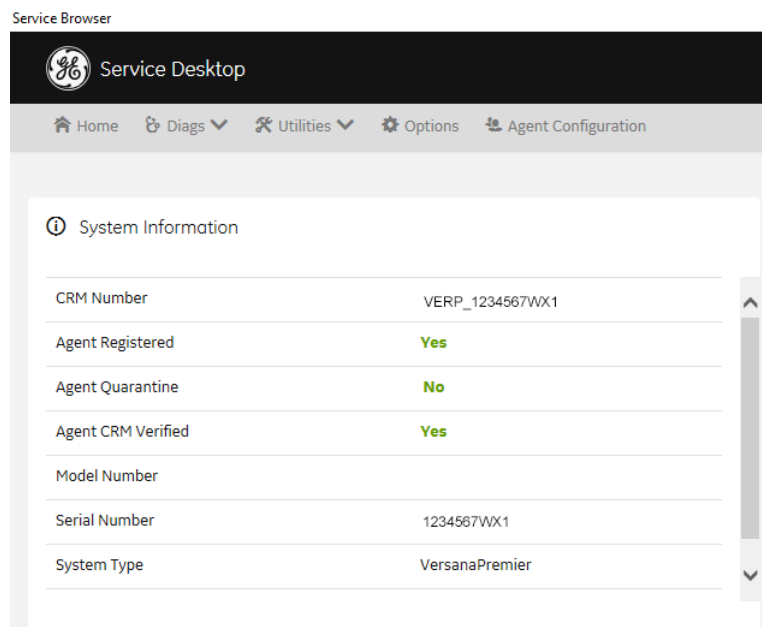


Figure 3-82. System Information

10. After having set the Insite - Remote Assistant, press **Next** to continue.

EZ configuration Wizard(continued)

11. This screen shows the report of the previous settings. You can export it to the database.

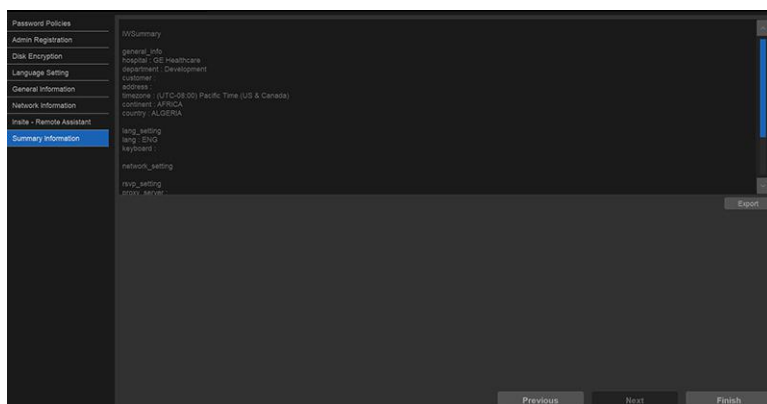


Figure 3-83. Summary Information

Press **Export** and select the location where you want to store the report.

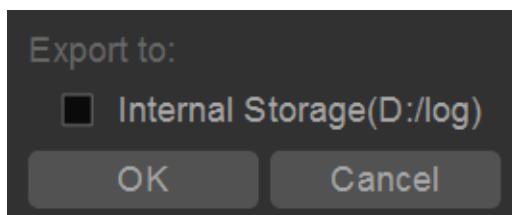


Figure 3-84. Export Summary

12. Press **Finish** to exit EZ Configuration Wizard. The system will display a warning to restart to activate your configuration after you configure EZ Configuration Wizard for the first time turning on the system or software. Press **OK** to restart.

TCP/IP Screen

1. Press **Utility** on the control panel and login as admin, refer to 'Logging on to Versana Balance™/Versana Balance™ Vet as "ADM"' on page 4-12.
2. Select **Connectivity** on the screen.
3. Select **TCP/IP** tab, the screen gives an overview of the network settings for Versana Balance™/Versana Balance™ Vet.

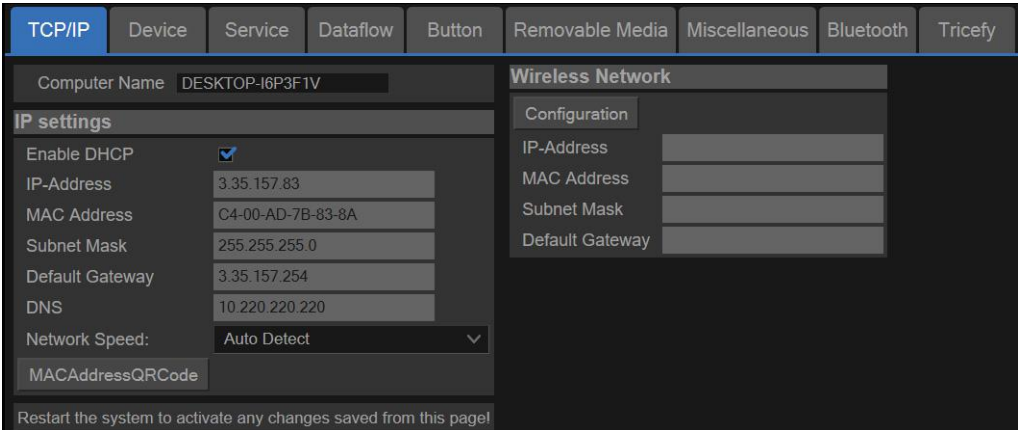


Figure 3-85. TCP/IP Screen

4. By clicking **MACAddressQRCode**, there will be a QR code popping out on the screen. You can get MAC address here.

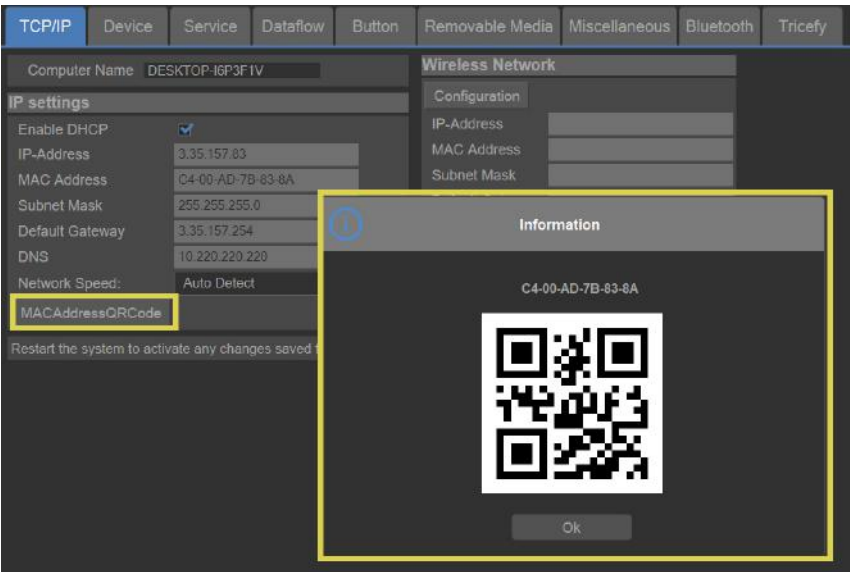


Figure 3-86. MAC Address QR Code

TCP/IP Screen(continued)

MAC Address can also be found in OAC system as showing in Figure 3-87.

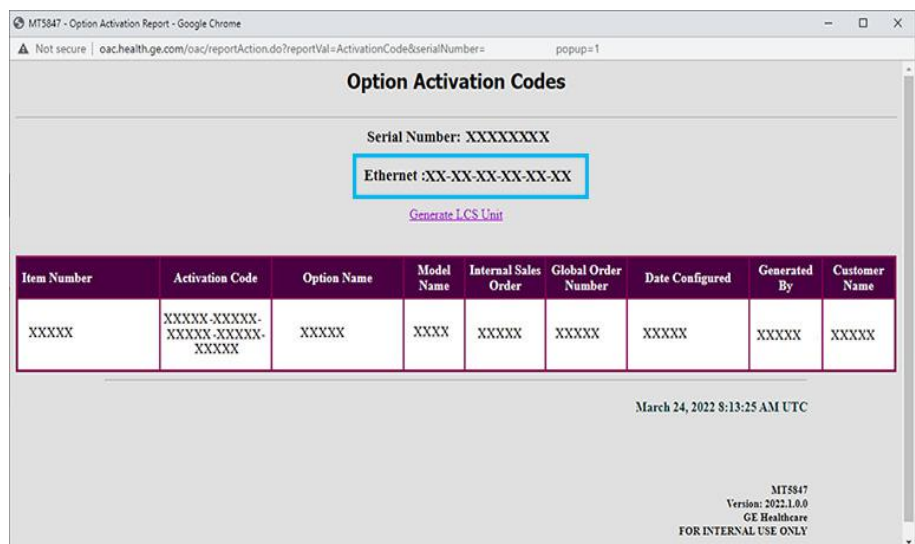


Figure 3-87. MAC Address in OAC system

Changing the AE title and/or Port Number

1. To change **AE Title** and/or **Port No**, edit the respective fields.

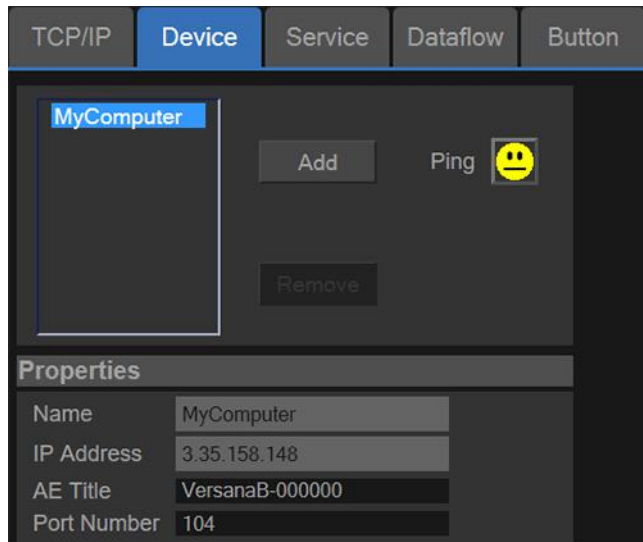


Figure 3-88. AE Title/Port No

2. Select **Save** to store your changes. This will bring up a new warning screen.

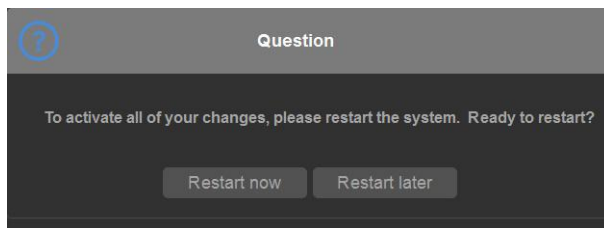


Figure 3-89. Warning Message

3. Select **OK** to save your changes or **Cancel** to return without saving any changes.
4. Reboot the system to activate the settings or continue with other TCPIP setup tasks.

Network setup

For network connection setup, refer to 'Network Configuration' on page 7-80.


Setup connection to a DICOM server

Versana Balance™/Versana Balance™ Vet is configured to work with DICOM servers in a network environment. Images are first saved on the local image butter on the system. At the end of the examination the images are sent to the DICOM server via a DICOM spooler and to the local database, depending on dataflows.

To connect to the DICOM server, the following information has to be entered in the system.

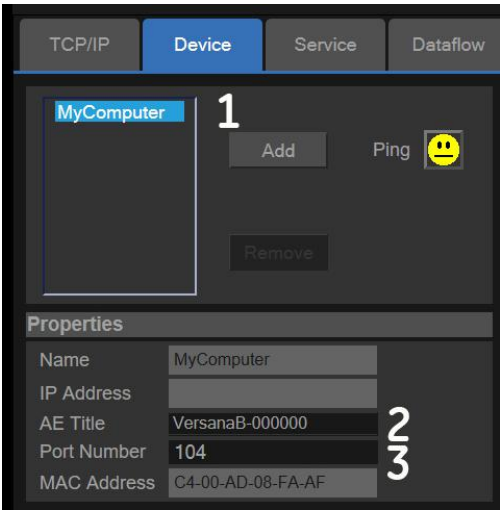
- The DICOM server IP address
- The DICOM server port number
- The DICOM server AE title (the server application's name)

Table 3-31: Utility ->Connectivity ->TCP/IP screen

	
1	Enter the Versana Balance™/Versana Balance™ Vet computer name. This may be the same as the station name.
2	<p>Enter the Versana Balance™/Versana Balance™ Vet IP address, subnet mask, default gateway and network speed. For automatic assignment of IP address, subnet mask and default gateway, select DHCP.</p> <p><i>Note: If possible, set the Versana Balance™/Versana Balance™ Vet network Speed to match that of the Network switch. if in doubt, set it to AutoDetect. Otherwise, transfer times can be two or five times longer, during which the Versana Balance™/Versana Balance™ Vet will appear to be locked up. (If the Hard Drive activity light on the front of the console is lit steady or blinks quickly, the Versana Balance™/Versana Balance™ Vet is most likely not hung.)</i></p>

Setup connection to a DICOM server(continued)

Table 3-32: Utility ->Connectivity ->Device screen

	
1	Select MyComputer .
2	<p>Assign an AE title to the Versana Balance™/Versana Balance™ Vet. (AE stands for Application Entity. DICOM services use this to identify the Versana Balance™/Versana Balance™ Vet.) AE title is case-sensitive. This title may contain the Computer Name from the TCP/IP page, if desired.</p> <p><i>Note: It is NOT recommended to use the factory default. This is not prohibited, but more than one system with the same AE title can cause confusion.</i></p>
3	Edit Port Number if needed. 104 is typical. Save your changes and reboot the system.

How to get the Versana Balance™/Versana Balance™ Vet to recognize another Device on the Network


Table 3-33: Utility ->Connectivity ->Device screen

<div><div>TCP/IPDeviceServiceDataflow</div><div><div>MyComputerNewDevice</div><div>1</div><div>AddPing😊</div><div>Remove</div></div><div>Properties</div><div><div>NameNewDevice</div><div>IP Address0.0.0.0</div></div></div>	
<div><div>TCP/IPDeviceServiceDataflow</div><div><div>MyComputerDICOM</div><div>4</div><div>AddPing😊</div><div>Remove</div></div><div>Properties</div><div><div>NameDICOM2</div><div>IP Address3.35.88.1253</div></div></div>	
1	Select Add . The system creates a device called “NewDevice”.
2	Change the name to one of your choosing.
3	Enter the IP address of the device.
4	<div><div>😊😞</div><div>Save your changes and then press Ping. A “Smiley Face” indicates successful communication between your Versana Balance™/Versana Balance™ Vet and the device. A “Frown” indicates failed communication. Check the following:<ul style="list-style-type: none">• Is the device running?• Is it connected to the network?• Did you enter the right IP address?</div></div>

How to Setup and Use a DICOM Image Storage Service

An Image Storage Service provides a place to store patient and exam data from Versana Balance™/Versana Balance™ Vet and corresponding images. The Image Storage Service, or the device that hosts it, is often called a Patient Archiving and Communication System (PACS).

Table 3-34: Setup an Image Storage Service

<div> <div>TCP/IP</div> <div>Device</div> <div>Service</div> <div>Dataflow</div> <div>Button</div> <div>Removable Media</div> <div>Miscellaneous</div> <div>Bluetooth</div> <div>Tricify</div> </div>	
<div> <div>Destination Device</div> <div>NewDevice</div> </div> <div> <div>Dicom Image Storage</div> <div>Add</div> </div> <div> <div>Service</div> <div> <div>Dicom Image Storage</div> <div>Remove</div> <div>Verify </div> <div>Verify Timeout (sec)</div> <div>10</div> </div> </div> <div> <div>Properties</div> <div> <div>Name</div> <div>Dicom Image Storage</div> <div>AE Title</div> <div></div> <div>Port Number</div> <div></div> <div>Maximum Retries</div> <div>2</div> <div>Retry Interval (sec)</div> <div>10</div> <div>Timeout (sec)</div> <div>30</div> <div>Enable Encryption</div> <div><input type="checkbox"/></div> </div> </div> <div> <div>Properties</div> <div> <div>Allow Clips</div> <div><input checked="" type="checkbox"/></div> <div>Allow Raw Data</div> <div><input type="checkbox"/></div> <div>Still Image Compression</div> <div>None</div> <div>Clip Compression</div> <div>JPEG</div> <div>Clip Quality</div> <div>Lossless</div> <div>Max Framerate</div> <div>Full</div> <div>Color Support</div> <div>Mixed</div> <div>Reopen Per Image</div> <div><input type="checkbox"/></div> <div>Enable Structured Reporting</div> <div><input type="checkbox"/></div> <div>Key Image Notes</div> <div>Off</div> </div> </div>	
1	In Utility -> Connectivity -> Service , from the Destination Device drop-down menu, select the device on which the service resides. (This assumes you have already setup the device in the Device tab in 'How to Setup and Use a DICOM Image Storage Service' on page 3-95 .
2	From the <i>Select Service Type to add</i> drop-down menu, select DICOM Image Storage and press Add .
3	Change the name of the service to one of your choosing.
4	Enter the AE Title and port Number of the service. AE Title is case-sensitive.
4	<p>Save your changes and then press Verify. A "Smiley Face" indicates successful communication with the service.</p> <p><i>Note: If you get a successful Ping (Smiley Face) at the device level but not at the service level, it is possible that the AE Title or Port Number of the service settings are incorrect. Ensure that these are correct then re-verify. Be sure that the service type (Store, Print, etc) is correct and supported by the device.</i></p>

Dataflow



CAUTION

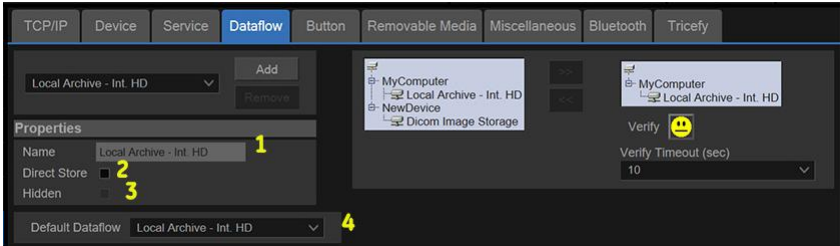
DO NOT rename the factory default dataflow.

A dataflow is a set of pre-configured services. When you select a dataflow, the ultrasound system automatically works according to the services associated with the dataflow. The Dataflow tab allows you to select and review information about dataflows. You can also create, change, and remove dataflows.

Set up dataflows for the services.

NOTE: You must be logged on as Administrator to use the Dataflow tab.

Table 3-35: Setup an Image Storage Service

	
1	Select the dataflow from the list.
2	Select to store data directly to archive (no buffer storage).
3	Select so that this dataflow does not appear as a Dataflow on the Patient menu.
4	Select to use this dataflow as the default dataflow when you start the system.

Button

You can assign print buttons via the Utility --> Connectivity --> Button page.

Assigning print buttons. First select the print button to configure on the upper, left corner of the page. Then select the device you want to add in the middle part of the page, under Available Input/Outputs. Then click on the right arrow in the top right corner of the page.

NOTE: You can configure each print key to multiple output devices/dataflows.

NOTE: Only attach one DICOM service per print key (e.g., PACS and DICOM printer). Multiple DICOM devices should be configured via a dataflow.

NOTE: When using a print key to send an image directly to a DICOM device, this causes a single DICOM association per image. Most devices (all known printers) work fine with this. However, some storage devices, such as ALI, Kodak Access, and Cemax, assume that the end of each association is the end of the exam and can result in a new folder for each image. In the Utility menu, select a single association or open PR for the desired DICOM storage device.

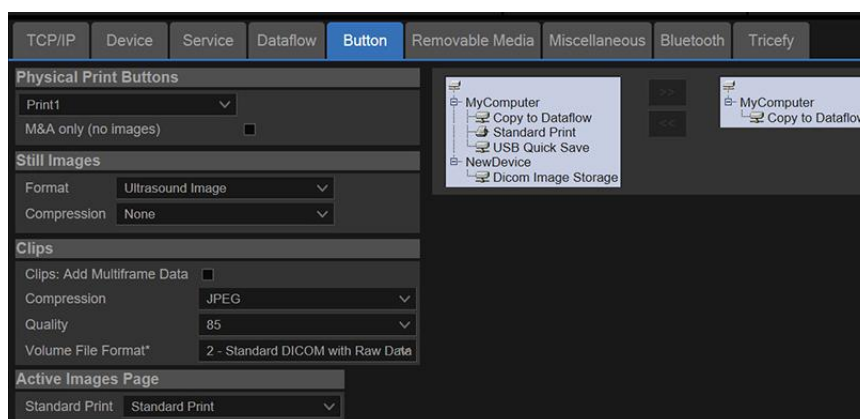


Figure 3-90. Button Preset Menu

Button(continued)

Table 3-36: Physical Print Buttons

Preset Parameter	Description
M&A only (no images)	Configures the system to send a DICOM structured report only; no image is generated or sent.

Table 3-37: Still Images

Preset Parameter	Description
Format	RawDICOM, DICOM, or M&A.
Compression	Always set to None.

Table 3-38: Clips/Volumes

Preset Parameter	Description
Clips: Add Multiframe Data	Checkbox
Compression	None, Rle, Jpeg, Jpeg2000
Quality	Lossless, 99, 98, 97, ... 50 Note: The default Compression for Clips is JPEG85. It is strongly recommended to keep the Compression set to JPEG85.

Table 3-39: Active Images Page

Preset Parameter	Description
Standard Print	Lets you send to a Windows-based printer.

Removable Media

The Removable Media tab allows you to:

- Verify the DICOM directory on removable media.
- Verify the free space of the media.
- Verify that the media is finalized or unfinalized.
- Verify that the media is formatted or unformatted.
- Format removable media (rewritable CD/DVD or USB device).

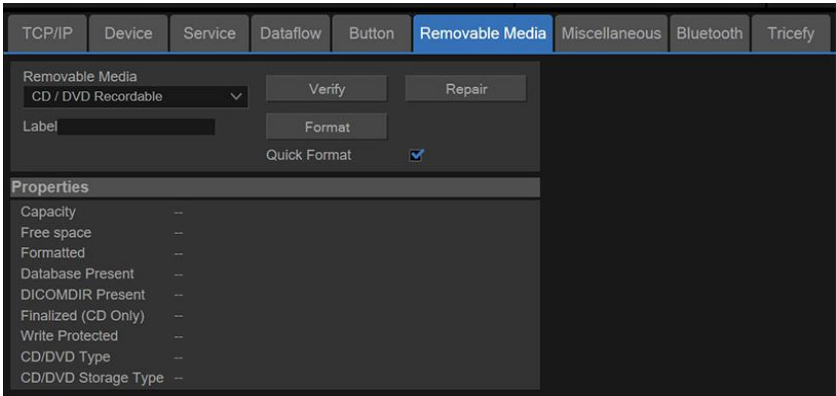


Figure 3-91. Removable Media Preset Menu

Table 3-40: Tools

Preset Parameter	Description
Removable Media	Select the removable media to format or verify.
Label	Type a label for a new removable media (free text).
Verify	<ul style="list-style-type: none"> • Select to verify DICOM directory on removable DICOM disk. • Verify the free space of the media. • Verify that the media is finalized or unfinalized. • Verify that the media is formatted or unformatted.
Format	Select to format removable media.
Quick Format	To format the media quickly, check this box. If you uncheck this box, the media is formatted with a full format. New media should always be formatted with a full format.

The bottom of the screen lists properties of the selected media.

Removable Media(continued)

Formatting removable media

1. Select the removable media from the Media list.
2. Type a name for the removable media in the Label field.

NOTE: Do not use the following characters for labelling:

*\ / : ; . , * < > | + = []*

3. Select **Format**. Confirm **OK** or **Cancel**.
4. An information window confirms when the format has been completed. Select **OK** to exit.

Verifying removable media

1. Select the removable media from the Media list.
2. Select **Verify**.

Miscellaneous

The Miscellaneous tab allows you to configure tools related to patient management and print and store options. You can specify default system functionality, such as whether patient ID is required when you archive data, or if you want the system to automatically search the archive for a patient when you enter patient data.

The screenshot displays the 'Miscellaneous' tab in a software interface. It contains several sections of settings:

- Patient/Exam Menu Options:** Includes checkboxes for 'Use birthdate', 'Auto search for patient', 'Automatic generation of patient ID', 'Auto Archiving patient data', and dropdown menus for 'After [End Current Patient], go to:' (set to 'Patient screen') and 'Double click on patient list to start:' (set to 'Review').
- Patient/Exam Message Options:** Includes checkboxes for 'Patient info exist in logfile', 'Request acknowledge of End Exam action', 'Warn image store without patient', 'Warn register to No Archive', 'Warn image store to Read Only dataflow', and 'Warn video titles exist in the internal storage'.
- Columns in examination listing:** A table with columns: Date, Category, Exam Description, Img. size, M&A, Disk.
- Print and Store Options:** Includes dropdowns for 'P[1-4] Key Sound' (set to 'Click'), 'Dual When Color Support is Mixed' (set to 'Active Image'), 'Store Multiframe for Sec Capture Loops' (checked), 'Store 2D Loop with Timeline Data' (checked), 'Patient List Print - Font Size' (set to 'Medium'), and 'Image Order Scheme' (set to 'Acquisition').
- Other ID Options:** Includes 'Enable Other ID' (checked) and 'Validation Format' (set to 'Numbers').
- USB Control:** Includes 'Enable USB (Restart needed)' (checked).

Figure 3-92. Miscellaneous Preset Menu

Table 3-41: Patient/Exam Menu Options

Preset Parameter	Description
Use birthdate	In the Patient information window, enter either the patient age or the birthdate:When selected, enter birth date, then the age is calculated.When cleared, enter age (birth date field not available).
Auto search for patient	In the Search/Create Patient window: When selected, the system automatically searches through the selected patient archive, while the user enters patient information.When cleared, the automatic search tool is turned off. If you are trying to keep the past patient data confidential, DO NOT use this feature.
Automatic generation of patient ID	In the Search/Create Patient window: When selected, the Patient ID is not required when entering a new patient in the archive. The system automatically generates an ID number. When cleared, the Patient ID is required when entering a new patient in the archive.
Auto Archiving patient data	Archives patient data automatically.

Table 3-41: Patient/Exam Menu Options (Continued)

Preset Parameter	Description
After [End Current Patient], go to	Select go to Worklist screen or Patient screen when ending the current patient.
Keep Search String	Search string is kept rather than cleared.
Worklist Auto Query	Automatically queries the worklist server.
Show BBT	Show BBT field on the OB patient screen to input the basal body temperature.
Double click on patient list to start	Select Review or New Exam to display each time you double click on the patient name in the patient list on the Patient menu.
Detail Mode	Select to display Detail Mode, rather than Exam View, when you select the patient name in the patient list on the Patient menu. You can also type comments while in Detail Mode.
Export to USB HDD: Create DICOMDIR	Create DICOMDIR is a DICOM file format which contains how the directory and DICOM files structured for diagnostic portable media behave. It is important for portability between the Versana Balance™/Versana Balance™ Vet to PACS. If you want to save exams to the USB Hard drive and look at it on the PACS, the DICOMDIR is a must.
Export to Network storage: Create DICOMDIR	
Automatic Disable Patient Data	Select to automatically disable patient data. If selected, locks the patient name, date of birth and gender (like Patient ID). The Factory Default for this preset is unchecked.
Remember Cursor Position on the Transfer Screen	To set a default cursor location on the Data Transfer screen: 1. Select the "Remember cursor position in the Transfer screen" preset and press Save. 2. On the Data Transfer screen, move the cursor to the desired field. 3. Exit out of the Data Transfer screen. When returning to the Data Transfer screen, the cursor location is in the position your selected.
Quick New Patient Entry	Select to store new patient automatically by pressing the Patient key.

Table 3-42: Patient/Exam Message Options

Preset Parameter	Description
Patient info exist in logfile	Check box to select.
Request acknowledge of End Exam action	When selected, the user is asked to confirm action when ending an examination.
Warn Image Store without Patient	Select to receive a warning when you press the Print key without an active patient.
Warn Register to No Archive	Select to receive a warning when you register a patient to the "No Archive" data flow. Select a different data flow for permanent storage of patient data.
Warn image store to Read Only dataflow	The system posts a warning message if you attempt to store images to a read-only Dataflow.

Table 3-42: Patient/Exam Message Options

Preset Parameter	Description
Warn video titles exist in the internal storage	The system posts a warning if the video titles exist on the internal DVR flash memory.

Table 3-43: Columns in examination listing:

Preset Parameter	Description
<< & >>	Select Date, Category, Exam Description, Img.size, M&A or Disk, then press << or >> to adjust the columns in exam list.

Table 3-44: Print and Store Options

Preset Parameter	Description
P[1-3] Key Sound	Select None, Click, Chimes, Ding, Ding-Dong, or Whoosh.
Store Dual as Dicom Only	Select to always store dual images as a DICOM (secondary capture) store, rather than Raw DICOM.
Dual When Color Support is Mixed	Dataflow Mixed is not available. While transferring dual images to the PACS, send black and white images as gray; send color images as color. Set up 2 services (one gray and one color), set up 2 dataflows, and set up 2 buttons. Each button needs to be tied to a different service. Select if you want to keep the user preset for Color Photometric Interpretation while in Dual mode.
Store Multiframe for Sec Capture Loops	Select if you want the CINE loop stored as secondary capture.
Enable Whizz Capture Area	Check box to select.
Store 2D Loop with Timeline Data	Check box to select.
Patient List Print-Font Size	Select font size.
Image Order Scheme	Select to Direct Store images in Acquisition Order, Scan Coach/Assistant Order, or Off. <ul style="list-style-type: none"> • Off. The clipboard on the Ultrasound system shows the image in the order it was acquired. Therefore, re-stored images appear where you'd expect. However, on the PACS system, images appear in arrival order or in image number order. • Acquisition Order. From the Ultrasound system perspective, the same as "Off." But on the PACS system (if based on image number order), images are displayed consistently with the way they are stored on the Ultrasound system. • Scan Coach/Assistant Order. You can define the storage order (reading order) via Scan Coach/Assistant Creator. Therefore, based on the order defined in Scan Coach/Assistant, images are re-ordered and displayed in this manner both on the Clipboard and on the PACS system.
Tip for USB Quick Save only First time	Check box to select.

Table 3-45: Other ID Options

Preset Parameter	Description
Enable Other ID	Not selected is the Default. If selected, allow entering Other ID, such as Citizen Service Number, Burger Service Number (BSN), National Health System (NHS) number, along with patient ID information on the Patient Screen.
Validation Format	If the Enable Other ID preset is selected, the system validates the format of "Other ID" when an ID is entered. Choose: NHS Number *** ** ****, Letters and Numbers, Numbers, or Any (no restriction)

Table 3-46: USB Control

Preset Parameter	Description
Enable USB (Restart needed)	Check box to select.

Bluetooth

To add a new bluetooth device,

- 1. Press **Add New Device**.
- 2. Type the device name in the Name field.

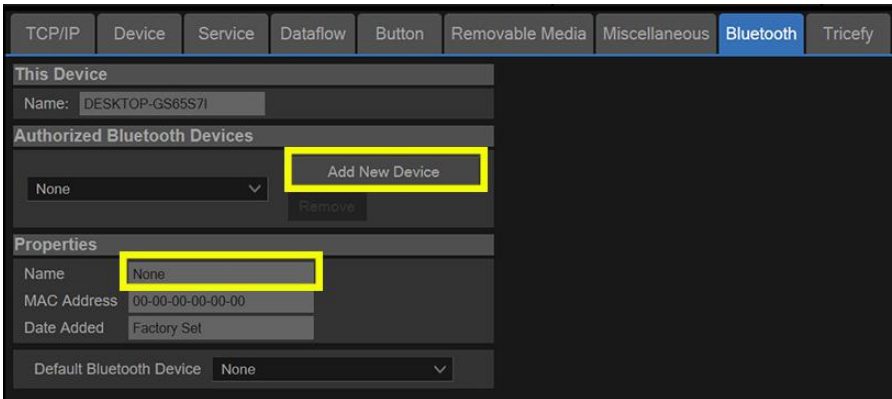


Figure 3-93. Connectivity Bluetooth Preset Menu

Table 3-47: Device

Preset Parameter	Description
Add New Device/Remove	Press Add new device to add a new device; press Remove to delete a device.
Properties: Name	Type the name of the device.
Properties: MAC Address	Unique network card address. NOTE: Only available for MyComputer.
Properties: Enabled	Select to enable bluetooth device.
Properties: Image Transfer Support	Select to enable image transfer.
Properties: Date Added	Display the new device added date.

Tricefy

New GE Versana ultrasound systems have Tricefy pre-installed. Additional software is not necessary for using Tricefy; simply activate your account using the following steps.

- 1. Press **Utility -> Connectivity -> Tricefy**.

NOTE: The Tricefy tab is only available on machines that have Tricefy option.

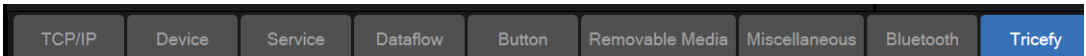


Figure 3-94. Tricefy Menu

- 2. Enable **Tricefy** checkbox, and enter the **email address** to authorize the account. Press “**Activate account**” to activate your account, this process may take up to 30 seconds, and a dialog will pop up if succeeded. And you will receive a notification email, click the link to complete the whole activating process.

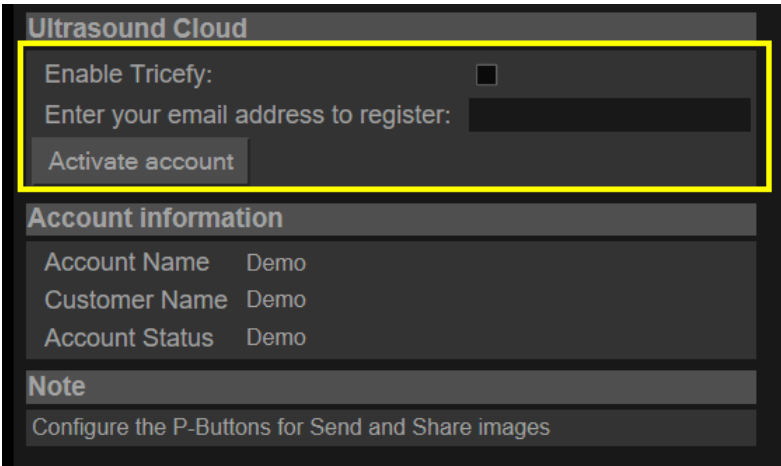


Figure 3-95. Activate Tricefy Account

Tricefy(continued)

3. Add Tricefy to Print workflow.
 - Click **Button** to configure the P- Buttons for sending and sharing images.

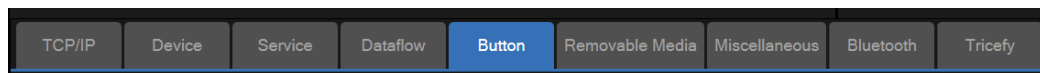


Figure 3-96. Button Menu

- Select **Print1** (or **Print2**, **Print3**) which you would like to use. Then Select **Trice Archive** and press >> button to add it to **Printflow View**, press **Save**. Now when you press the **P1** button, the image will be sent to your Tricefy cloud.

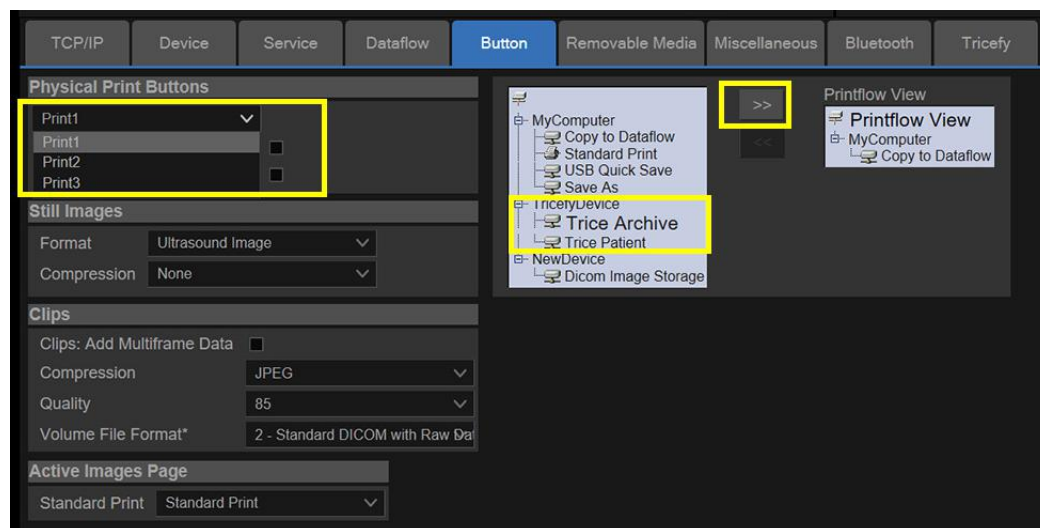


Figure 3-97. Configure the P-Button for Tricefy

Tricefy(continued)

- 4. If you want to share the images to patient, please add **Trice Patient** to **Printflow View**. And also remember input the patient's Phone number or email address.

The screenshot shows the 'Patient Details' form in the Tricefy system. The left sidebar contains navigation links: Patient, Image History, Active Images, Data Transfer, New Patient, Register, Details (highlighted in blue), EZMove, EZBackup, Dataflow (99% free), Local Archive - Int. HC, and Scan. The main form area includes input fields for Patient ID, Last Name, First Name, Middle Name, DOB, Gender (Male/Female), Age, Address, and Comments. At the bottom, the Patient Phone # and Email fields are highlighted with a yellow border.

Figure 3-98. Share Images to Patient

NOTE: If you has any problem with Tricefy settings, please contact your GE service/sales representative.

Option Setup

Software Option Installation Procedure

NOTE: Not all features described in this section may be available or cleared for sale in all markets. Please contact with your local GE Ultrasound representative to get the latest information.

1. Power on the system.

NOTE: Keep the power cord connection during the installation.

2. After the power-up sequence is complete, press **Utility** on the control panel, and then select **Admin -> System Admin**.



WARNING

For software Option Installation, the operator must login as Administrator.

3. Enter the new SW Option key and then select **Add**.

The screenshot displays the 'System Admin' interface. At the top, there are tabs for 'System Admin', 'Users', 'Logon', and 'User policies'. The 'System Admin' tab is selected. Below the tabs, there are sections for 'Product', 'SW Option Key', 'Service', 'Protecting Health Information(PHI)', 'Disk Encryption', and 'Change System Password'. The 'SW Option Key' section is highlighted. It contains a text input field labeled 'Enter New Option Key' and an 'Add' button. Below this, there is a section for 'Installed Option Keys' which shows a list of keys (represented by 'XXXXXXXXXXXXXXXXXXXX') and a 'Remove' button. The 'Service' section below it has two checkboxes: 'Enable Automatic Request for Service' and 'Enable IQC', both of which are checked. The 'Protecting Health Information(PHI)' section has a checkbox for 'Prevent Writing to Removable Media-CD/DVD/USB (restart needed)' which is unchecked. The 'Disk Encryption' section has a 'Disk Encryption' button. The 'Change System Password' section has an 'Update System Password' button.

Figure 3-99. New Option Key

Software Option Installation Procedure(continued)

- 4. To activate the changes, press **Restart now** to restart the system.

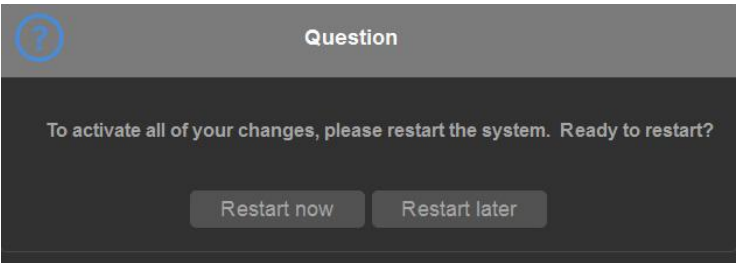


Figure 3-100. Dialog Window

NOTE: There is no need to restart the system after each installation, if several option keys are installed at one time. Select Restart later for the first several times, and select Restart now after the last installation to activate all the changes.

- 5. After the system is powered on, check the option status.

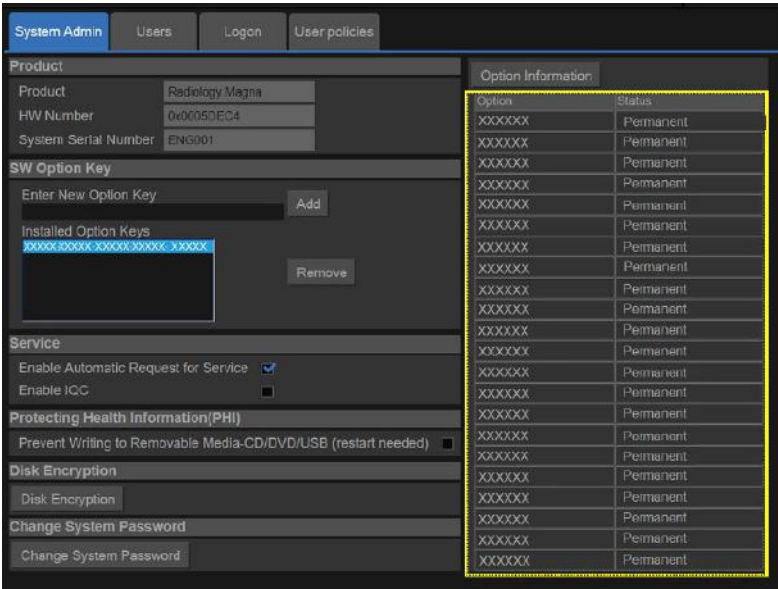


Figure 3-101. Check Option Status

The option status explanation:

- Permanent: This option is enabled in the system.
- Disabled: This option is disabled in the system.

Software Option Installation Procedure(continued)

6. Configure the user defined key in Utility. On the screen, the user defined key name will be displayed.
7. This completes the option installation of Versana Balance™/Versana Balance™ Vet.

NOTE: *Installing corresponding hardware is a prerequisite of loading software option successfully. Please check below table for correspondence.*

Table 3-48: Software Corresponding Hardware

Software Option	Hardware
4PP	4PP Front Cover Assy
DVDROM	DVD Writer Kit
3D_4D	4D Box Assy

Paperwork after setup

NOTE: *During and after setup, the documentation (i.e. CDs with documentation, User Manuals, Installation Manuals, etc.) for the Versana Balance™/Versana Balance™ Vet and the peripherals must be kept as part of the original Ultrasound system documentation. This ensures that all relevant safety and user information is available during the operation and service of the complete Ultrasound system.*

Contents in this Section

- 'User's Manual(s)' on [page 3-112](#)
- 'Product Locator Installation Card' on [page 3-113](#)

User's Manual(s)

User Check that the correct User Manual(s) for the system and software revision, is included with the installation. Specific language versions of the User Manual may also be available. Check with your GE Sales Representative for availability.

Product Locator Installation Card

NOTE: The Product Locator Installation Card shown may not be the same as the provided Product Locator card.


	GE Medical Systems Product Locator File P.O. Box 414 Milwaukee, WI 53201-0414	General Electric CGR Product Locator Adm. - DSE/SM 283 Route de la Miniere 78530 Buc, FRANCE	Yokogawa Medical Systems Ltd. GEMSA Service Administration 4-7-127 Asahigaoka Hino-shi Tokyo 191, JAPAN		
DESCRIPTION		FDA	MODEL	REV	SERIAL
SYSTEM LTD.		OCP		BS	ORD
		DISTRICT		ROOM	DATE (MO - DA - YR)
INSTALLATION		CUSTOMER NO.		EMPLOYEE NO.	
46-303268 Rev 5		DESTINATION NAME AND ADDRESS			
				ZIP CODE	

Figure 3-102. Product Locator Installation Card (Example)

Chapter 4

General Procedures and Functional Checks

This chapter provides procedures for quickly checking major functions of the Versana Balance™/Versana Balance™ Vet and diagnostics instructions using the built-in service software.

Overview

Purpose of this chapter

This chapter provides procedures for quickly checking major functions of the scanner and diagnostics instructions using the built-in service software.

Contents in this chapter

- 'Overview' on [page 4-2](#)
- 'General procedures' on [page 4-3](#)
- 'Disk Encryption/Decryption' on [page 4-36](#)
- 'Functional checks' on [page 4-46](#)
- 'Power supply test & adjustments' on [page 4-68](#)

Special Equipment required

To perform these tests, you'll need any of the sector, linear, or convex probes. (Normally you should check all the probes used on the system).

General procedures



CAUTION

Ultrasound system requires all covers.

Operate this Ultrasound system only when all board covers and frame panels are securely in place. The covers are required for safe operation, good Ultrasound system performance and cooling purposes.



WARNING

Energy Control and Power Lockout for Versana Balance™/Versana Balance™ Vet.

When servicing parts of the Ultrasound system where there is exposure to voltage greater than 30 volts:



1. Follow LOCK OUT/TAG OUT procedures.
2. Turn off the breaker.
3. Unplug the Ultrasound system.
4. Maintain control of the Ultrasound system power plug.
5. Wait for at least 30 seconds for capacitors to discharge as there are no test points to verify isolation.

Ultrasound System components may be energized.

Overview

Some procedures are used more often than other. The intention with this section is to keep the most used procedures in one place.

Contents in this section

- 'Power ON/Boot Up' on *page 4-5*
- 'Power off' on *page 4-9*
- 'Check System Date and Time' on *page 4-11*
- 'Logging on to Versana Balance™/Versana Balance™ Vet as "ADM"' on *page 4-12*
- 'Reset Logon Accounts to Factory Default (Reboot needed)' on *page 4-13*
- 'Service Key (SSA)' on *page 4-15*
- 'Exit to Windows Desktop from the Versana Balance™/Versana Balance™ Vet application software' on *page 4-16*
- 'Removable media' on *page 4-16*
- 'Backup and Restore Database, Preset Configurations and Images' on *page 4-16*
- 'Data Management' on *page 4-27*
- 'Backup' on *page 4-27*
- 'Restore the factory defaults' on *page 4-27*
- 'Installation and Setup Procedure for Peripherals' on *page 4-27*
- 'Where are the User Manuals and the Service Manual?' on *page 4-28*
- 'How to display or print the PDF files via a Windows PC?' on *page 4-28*
- 'Cleaning the Trackball' on *page 4-29*
- 'Cleaning the air filters' on *page 4-31*

Power ON/Boot Up

Warnings



^d DANGER

ALWAYS CONNECT THE ULTRASOUND SYSTEM TO A FIXED POWER SOCKET WHICH HAS THE PROTECTIVE GROUNDING CONNECTOR.



^d DANGER

NEVER USE A THREE-TO-TWO PRONG ADAPTER; THIS DEFEATS THE SAFETY GROUND.



^d DANGER

ENSURE THAT THE POWER CORD AND PLUG ARE INTACT AND THAT THE POWER PLUG IS THE PROPER HOSPITAL-GRADE TYPE (WHERE REQUIRED).



^c CAUTION

Ultrasound system requires all covers.

Operate this Ultrasound system only when all board covers and frame panels are securely in place. The covers are required for safe operation, good Ultrasound system performance and cooling purposes.

Power ON/Boot Up(continued)



CAUTION

Use only power supply cords, cables and plugs provided by or designated by GE.

NOTE: *Do not cycle the Supply Mains Switch ON-OFF-ON in less than five (5) seconds. When turning OFF the Supply Mains Switch, the Ultrasound system should de-energize completely before turning the Supply Mains Switch ON.*



CAUTION

The system will do probe check procedure during boot up.

NOTE: *For the new battery used for the first time, system may boot up failed because of the low battery power, please connect to power source in this case. If system boots up failed when using the battery, please check if the source power is connected, relying only on the battery with low power may cause the failed boot up.*

Connect AC (mains) Power to Versana Balance™/Versana Balance™ Vet

Connecting AC Power to the Versana Balance™/Versana Balance™ Vet ultrasound unit, involves preliminary checks of the power cord, voltage level and compliance with electrical safety requirements. Main switch is an isolation means which used to isolate its circuits electrically from the SUPPLY MAIN.

1. Ensure that the wall outlet is of appropriate type, and that the Circuit Breaker is turned off.
2. Uncoil the power cable, allowing sufficient slack so that the unit can be moved slightly.
3. Verify that the power cable is without any visible scratches or any sign of damage.
4. Verify that the on-site mains voltage is within the limits indicated on the rating label near the Circuit Breaker on the rear of the unit.
5. Connect the Power Cable's female plug to the Power Inlet at the rear of the unit.
6. Lock the plug in position with the Retaining Clamp (ACC Clamp).
7. Verify that the Mains Power Circuit Breaker is in OFF position, if not, switch it OFF.
8. Connect the Power Cable's other end (male plug) to a hospital grade mains power outlet with the proper rated voltage, and the unit is ready for Power ON/Boot Up.

Switch ON the AC Power to Versana Balance™/Versana Balance™ Vet

1. Switch ON the Mains Power Supply Mains Switch at the rear of the unit.
You should hear a “click” from the relays in the AC Power and the unit is ready to boot.
2. Press once on the **On/Off** key on the Operator Panel to boot the unit.

During a normal boot, you may observe that:

- a. The unit's ventilation fan starts on full speed, but slows down after a few seconds (listen to the fan sound).
- b. Power is distributed to the peripherals, Operator Panel (Console), Monitor, Front End Processor and Back End Processor.
- c. Back End Processor and rest of scanner starts with the sequence listed in the next steps:
- d. Back End Processor is turned ON and starts to load the software.
- e. The Start Screen is displayed on the monitor.
- f. A start-up bar indicating the time used for software loading, is displayed on the monitor.
- g. The software initiates and sets up the Front End electronics and the rest of the instrument.
- h. The backlight in the keyboard is lit.
- i. As soon as the software has been loaded, either a 2D screen is displayed on the screen, indicating that a probe has been connected, or a No Mode screen is displayed, indicating that no probe has been connected.

NOTE: *Total time used for start-up is typical one and a half minutes or less. If starting after a power loss or a lock-up, the start-up time may be up to four minutes.*

NOTE: *Diagnostic LEDs on the rear panel indicate the boot up status, refer to “Normal Status” in [Table 7-32 on page 7-102](#).*

NOTE: *Set up Drive D password and system password, See ‘EZ configuration Wizard’ on page 3-77 for more information.*

Power off

When you switch off the unit, the system performs an automatic shutdown sequence.

The SYSTEM - EXIT menu, used when switching off the unit, gives you these choices:

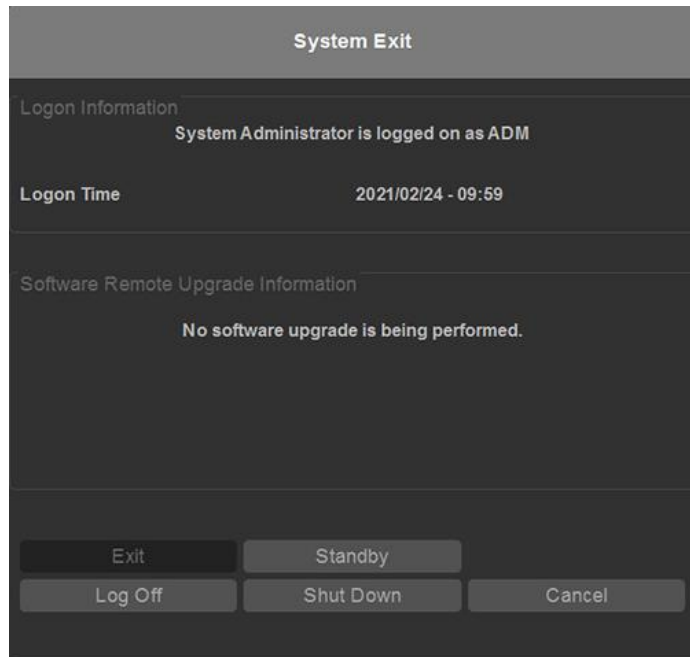


Figure 4-1. System Exit Window

- **Exit**
(Only available when logged in as GE Service with Service Dongle)
Select this button when you want to exit to Windows.
- **Standby**
Use this button to turn off the backlight of LCD, freeze image, disable all keys (Function Keys, A/N keys, Trackball) except On/Off switch and turn off all backlight and active light of keys except On/Off switch.
NOTE: Image is still on freeze mode (Frozen Image).
- **Logoff**
Use this button to log off the current user.
The system remains ON and ready for a new user to log on.
If the Logoff button is dimmed, it indicates that no user is logged on to the unit at the moment.

Power off(continued)

- **Shutdown**

Use this button to shut down the system. The entire system will shut down. It is recommended to perform a full shutdown at least once a week.

If the Shutdown button is dimmed, use the key-combination <Ctrl+Alt+Delete> to shut down the unit.

NOTE: To enable the key-combination <Ctrl+Alt+Delete>, the dongle should be connected to the system.

- **Cancel**

Use this button to exit from the System-Exit menu and return to the previous operation.

System shutdown

Disconnect the Mains Power Cable is necessary. *For example:* Relocating the scanner.



CAUTION

DO NOT unplug and/or transport the unit until after the power off sequence has been completed. Failure to do so may result in corrupted patient files.

Check System Date and Time

A warning message "Please check the system date and time are correct" appears on the screen when the system is powered on. This warning message appears for the possible reasons:

- The system is not boot up for over 14 days.
- The system time has been changed by 24 hours earlier than the current system time of last boot-up.
- The BIOS time is changed by 24 hours earlier than the current system by resetting BIOS time, replacing BIOS module or changing BIOS time.

This warning message is to remind the user to check the system date in case the system date and time is incorrect.

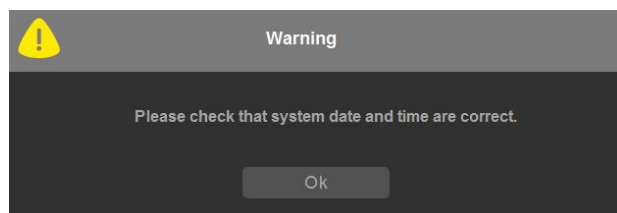
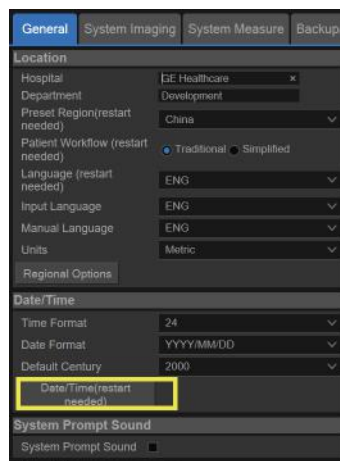


Figure 4-2. Check system date and time message

Move the cursor to OK and press Cursor key on the control panel to select OK. The system enters.

Check the system date and time. If it is incorrect, follow below steps to reset the system date and time.

- Enter Utility -> System -> General -> Date/Time.
- Reset the system date and time.
- Select Apply and then select OK.
- Select Save.



Logging on to Versana Balance™/Versana Balance™ Vet as “ADM”

Select **Utility** on the control panel, then select **Admin**.

It will bring up the **Operator Login** dialog where you must log on.

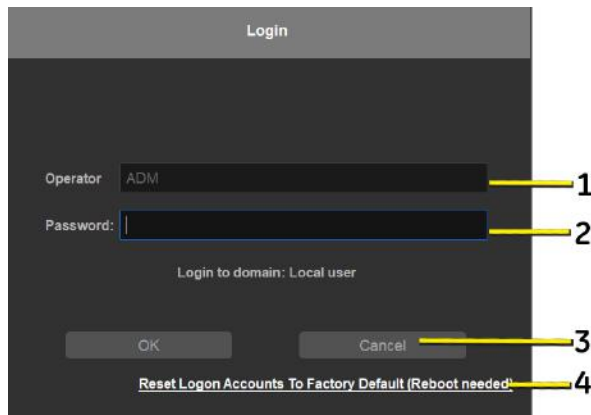


Figure 4-3. Operator Login Window

1. **Operator:** Select the operator.
2. **Password:** Enter Operator's password (optional).
3. Select the type of Login or Cancel.
 - **OK:** Standard login.
 - **Cancel:** Cancel login.

As default, ADM is defined.

- ADM

If you log on as **ADM**, you will have access to do general set-up, service adjustments, adjust network and connectivity settings.

Select the name **ADM**, the password as default and select **Login**.

It is possible for the administrator (**ADM**) to establish new users (**USR**) and set unique passwords for each user, including a new password for **ADM**. If the login as **ADM** fails, contact the responsible person in the hospital to get access.

- **USR**

If you log on as **USR**, you will have access to do set-up tasks that a user may need to do during daily use.

4. **Reset Logon Accounts to Factory Default (Reboot needed):** Plug in SSA Dongle to reset Logon accounts.

Reset Logon Accounts to Factory Default (Reboot needed)

To reset logon account to factory default:

1. Check on "Enable Reset Logon Accounts To Factory Default" in Utility -> Admin -> Logon and save the setting before resetting logon accounts to factory default.

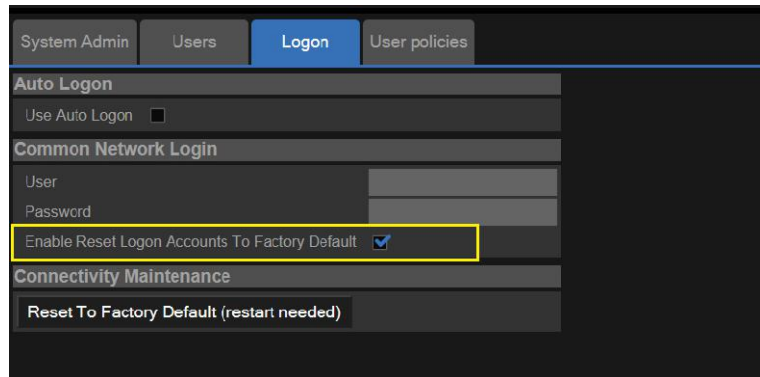


Figure 4-4. Enable Reset Logon Accounts To Factory Default

2. Select **Reset Logon Accounts to Factory Default (Reboot needed)**.

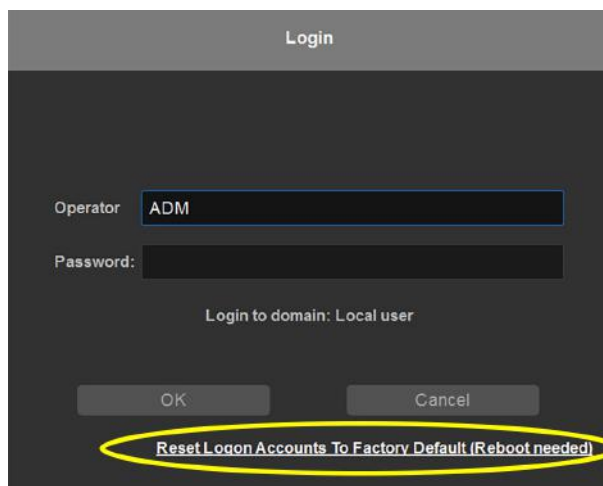


Figure 4-5. Reset Logon Accounts to Factory Default

Reset Logon Accounts to Factory Default (Reboot needed)(continued)

3. A pop-up window appears. Press **Ok** and plug in the SSA Dongle.

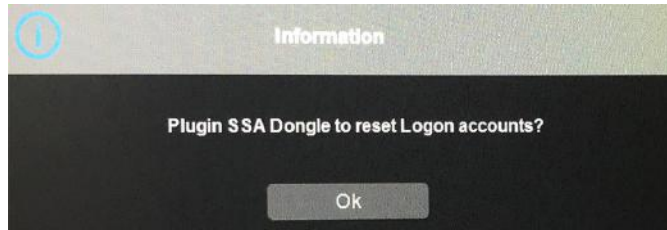


Figure 4-6. Plug in SSA Dongle

4. The Checking Secure Key window pops up, click **I Agree**.

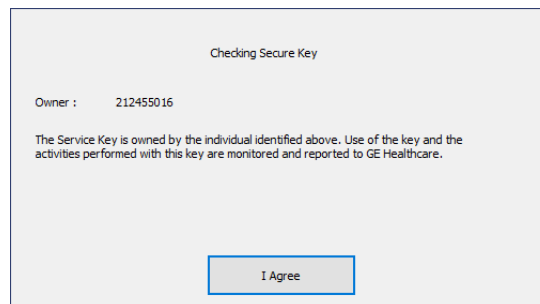


Figure 4-7. Checking Secure Key

5. Press **Reset Logon Accounts to Factory Default** again. A pop-up window appears and press **Ok** to continue.

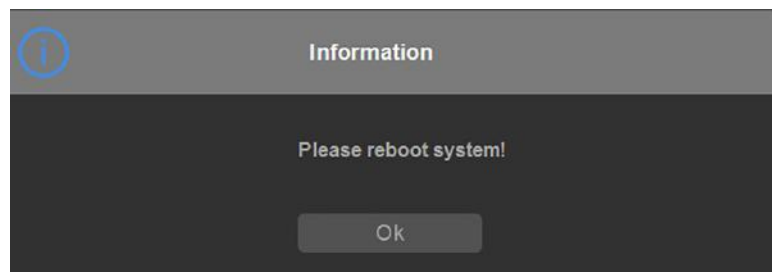


Figure 4-8. Reboot system information

6. Reboot the system, and you will be prompted to first log into the Versana Balance. [See 'Logging on to Versana Balance™/Versana Balance™ Vet as "ADM"' on page 4-12 for more information.](#)

Service Key (SSA)

A Service Key and a proprietary GE Service password are necessary for use by GE Service when performing proprietary level diagnostics like accessing the desktop on the BEP. The password used with the GE service key changes at specific intervals.

The SSA key provides secure access for GE service personal to advanced tools to service the system.

SSA is a class M key with the following characteristics:

- Access to all service features
- Access to Windows Desktop
- Key must be renewed every 30 days
- Tied to SSO
- Password locked via key pad

Please complete the course on GE Learning before using SSA:

Course name: Secure Service Access Training

Course ID: GEHC-SVCS-63061025

NOTE: *Press I Agree to enter the Maintenance Access Screen when below Information dialogue window appears. Press OK before the status bar completes, otherwise the system may enter scanning screen.*

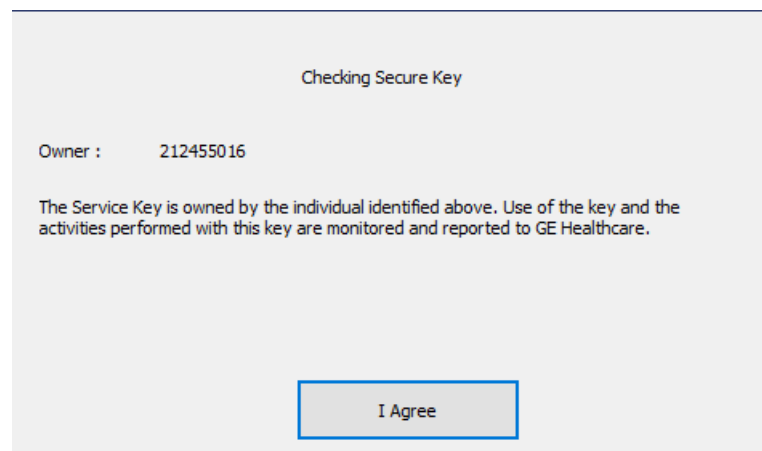


Figure 4-9. Service Key Information

Exit to Windows Desktop from the Versana Balance™/Versana Balance™ Vet application software

If you want to exit to the Windows Desktop when the application software is running, please refer to Proprietary Service manual.

Removable media

Refer to the latest revision of the User Manual to perform the following tasks:

- Using Removable Media
- Labeling Removable Media
- Formatting Removable Media
- Verifying Removable Media

Backup and Restore Database, Preset Configurations and Images

NOTE: *Always save presets before any software reload. This ensures the presets loaded after the software reload are as up-to-date as possible.*

All user presets except changes to Summary, Anatomy, and Biometry pages, can be saved on an DVD-R disk (or USB memory device) for reloading on the system.

NOTE: *Presets should NOT be saved on the same USB memory device (or DVD-R disk) as images. The Archive Menu lists the images but does NOT list the presets stored on a USB memory device (or DVD-R disk).*

EZ Settings Restore

EZ Settings Restore helps to fast backup Network, Userdefines and RSvP setting in local disk.

- Network: static IP address, Subnet mask and Default gateway of LAN adapter.
- Userdefines: Scanner software user settings of annotation, measure, report template and imaging presets.
- RSvP: Remote Service Platform settings include: Serial Number, CRM No, Enterprise Host and port, Software Download URL, Proxy Configuration.

EZ Settings Restore(continued)

To perform EZ Settings Restore,

1. Click Insite ExC icon at the upper right of the display screen.
2. Select **EZ Settings Restore**.
3. Select any options under **Restore Options** and then click **Restore**, those settings will be restored.

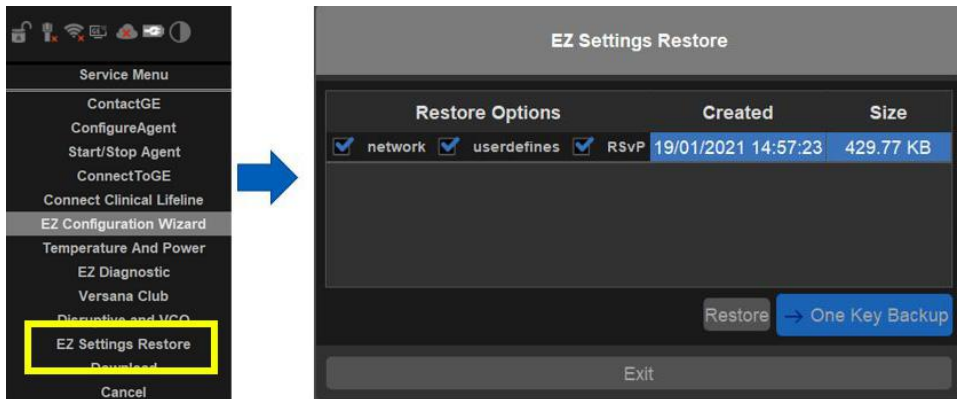


Figure 4-10. EZ Settings Restore

If user never perform backup since software installed, there will be no restore options listed in EZ Settings Restore window. Press **One Key Backup** to backup first.

After restore completed, an information window pops out. Press **OK** to restart the system to make changes take effect.

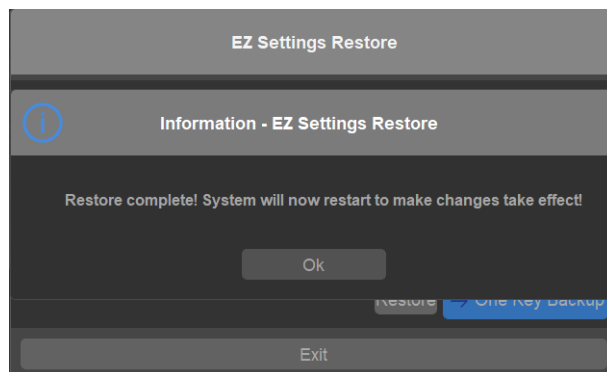


Figure 4-11. Restore complete

Formatting Media

1. Select **Utility -> Connectivity -> Removable Media**.
2. Select the media type from the drop down menu.
3. Enter the label for the media. It is best to use all capital letters with no spaces or punctuation marks. Select **Format**.

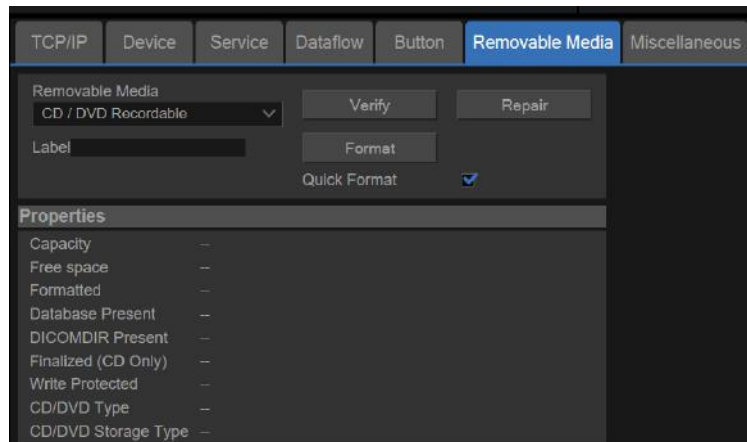


Figure 4-12. Format and Verify Media

4. The system displays a pop-up menu, as shown in [Figure 4-13](#), select OK to continue.

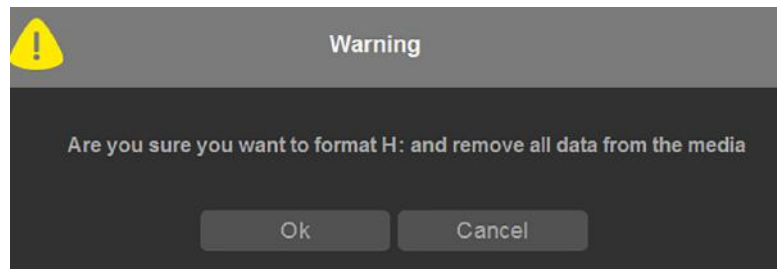


Figure 4-13. Format Warning Pop-up Window

5. If desired, verify that the format was successful by returning to Utility-> Connectivity->Removable Media and selecting Verify.

Backup System Presets and Configurations

NOTE: Always backup any preset configurations before a software reload. This ensures that if the presets need to be reloaded, after the software update, they will be the same ones the customer was using prior service.

1. Insert a formatted media into the drive.
2. Enter enter Utility-> System-> Backup/Restore.

NOTE: If you are not logged in as GE Service or with administrator privileges, the Operator Login window is displayed. Log on with administrator privileges.

3. In the Backup list, select Patient Archive, User Defined Configuration and Service.
4. In the Media field, select CD/DVD (or USB memory device).
5. Select Backup.

The system performs the backup. As it proceeds, status information is displayed on the Backup/Restore screen.

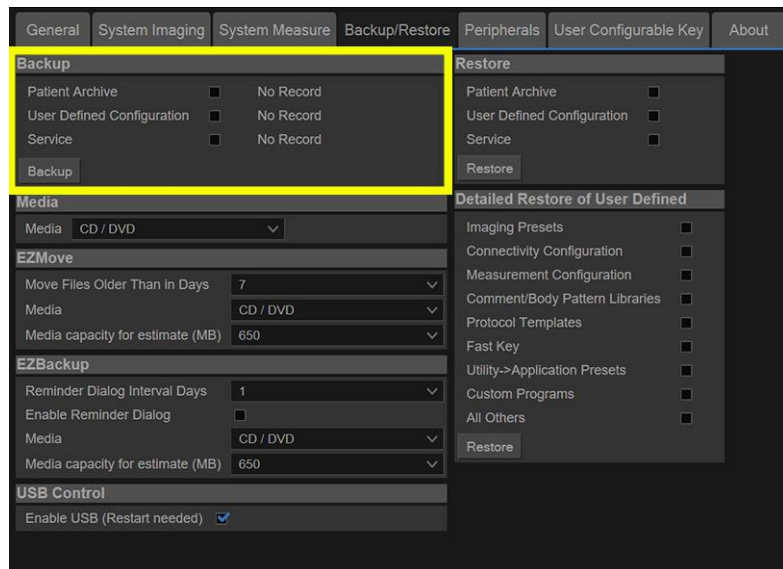


Figure 4-14. Backup/Restore Menu

Restore System Presets and Configurations



CAUTION

The restore procedure overwrites the existing database on the local hard drive. Make sure to insert the correct CD (or USB memory device).

NOTE:

1. Insert the Backup/Restore CD/DVD (or USB memory device) into the drive.
2. Enter enter Utility-> System-> Backup/Restore.
If you are not logged in with administrator privileges, the Operator Login window is displayed. Log on with administrator privileges.
3. In the Restore list, select Patient Archive, User Defined Configuration and Service.
4. In the Media field, select the Backup/Restore CD/DVD (or USB memory device).
5. Select Restore.

The system performs the restore. As it proceeds, status information is displayed on the Backup/Restore screen.

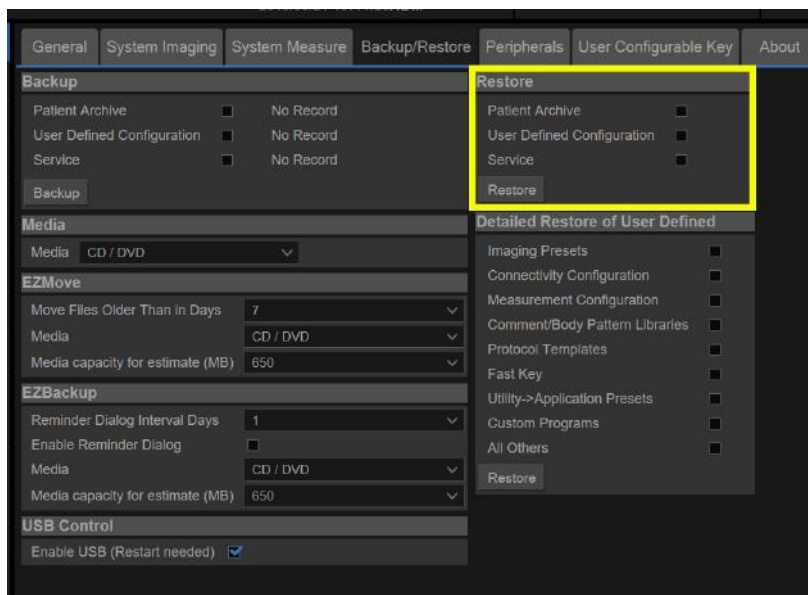


Figure 4-15. Restore message

Archiving Images

1. Insert the archive media.
2. To format the archive media, enter Utility-> Connectivity-> Removable Media.
3. Format the CD. Verify the format if desired.
4. Images will be moved from the hard drive by date. Therefore, the best way is to label media by date.

NOTE: *Images will be moved from the hard drive by date. Therefore, the best way to label media is by date. When images are moved to the archive media, they will be deleted from the system hard drive. However, the patient database (backed up earlier) maintains pointers to the location of the images on the archive media.*

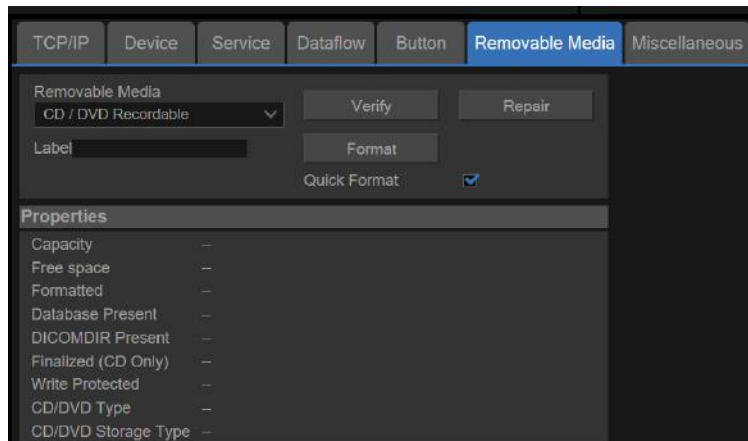


Figure 4-16. Format Media Screen

5. Enter Utility-> System-> Backup/Restore.

Archiving Images(continued)

6. Select “Move File Older Than in Days”.

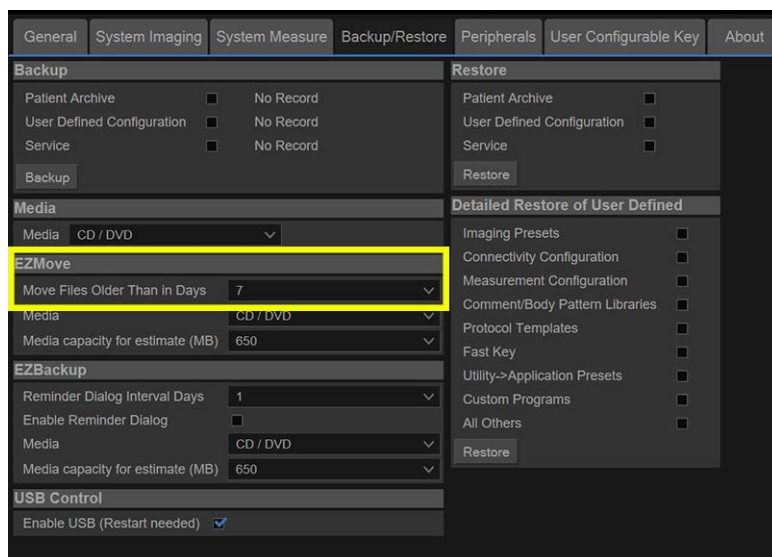


Figure 4-17. EZBackup/Move 1

Archiving Images(continued)

7. Press **EZBackup/EZMove**.

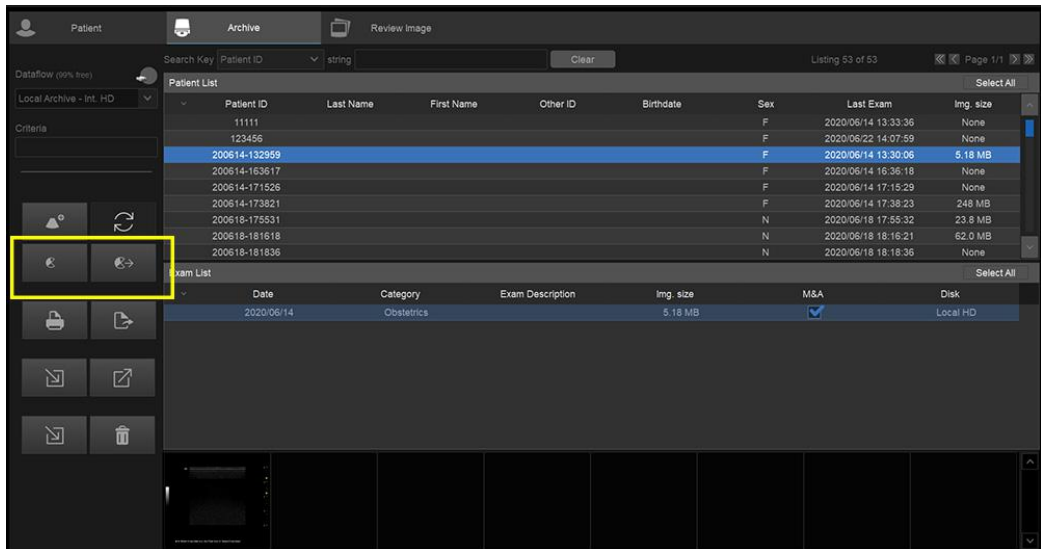


Figure 4-18. EZBackup Wizard for Touch Panel System

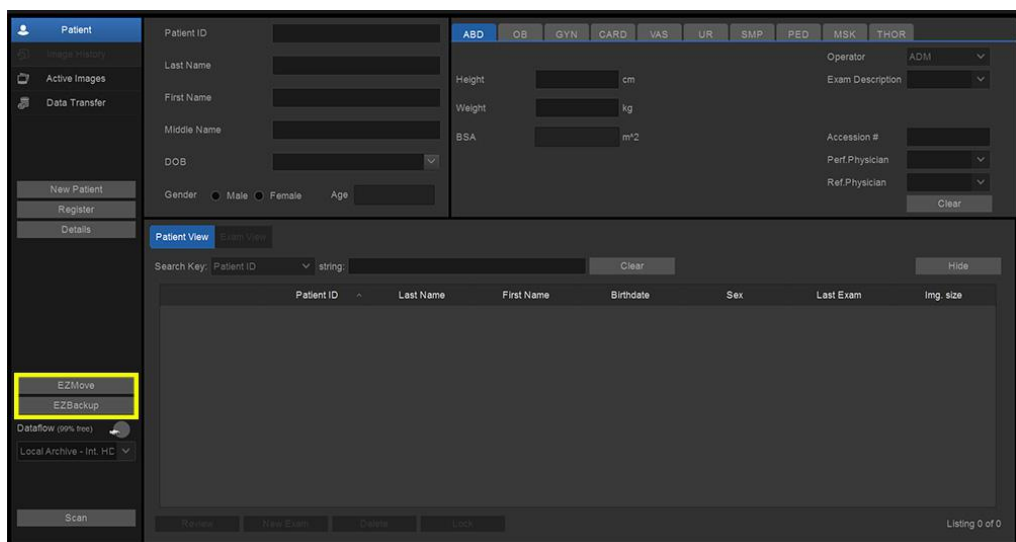


Figure 4-19. EZBackup Wizard for Non-Touch Panel System

Archiving Images(continued)

8. Verify the information on the first page of EZBack/EZMove wizard, then select Next. If you want to backup all of the exams in the range (even if the exam was previously backed up), check Full backup. If you uncheck this option, the system only backs up exams which have not yet been backed up.

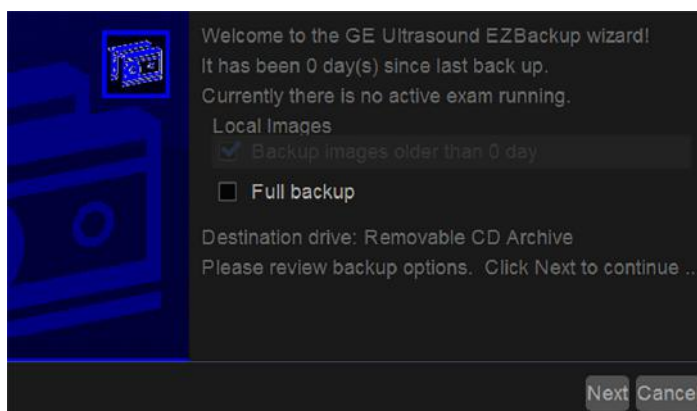


Figure 4-20. EZBackup Wizard 1

9. It indicates the size of the data and the storage. Select Next to continue.

NOTE: *The calculation for the number of backup CD is only an estimate. Allow for one additional CD when performing an EZBack/EZMove.*

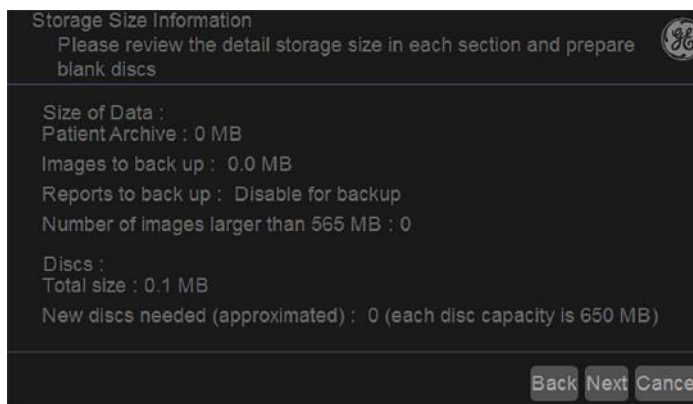


Figure 4-21. EZBackup Wizard 2

Archiving Images(continued)

NOTE: This message “Please insert a blank media...” appears if you press Next without inserting the backup media. Insert the media and continue.

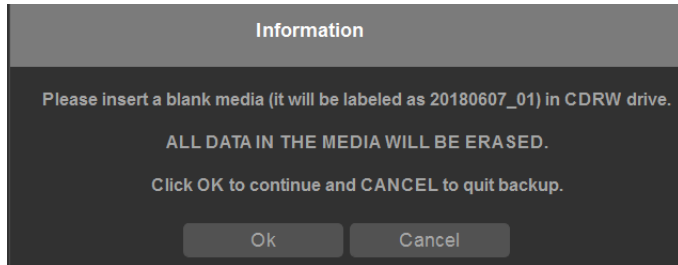


Figure 4-22. Insert Media Message

10. The status menu appears. When the backup/move has been complete, press Next.

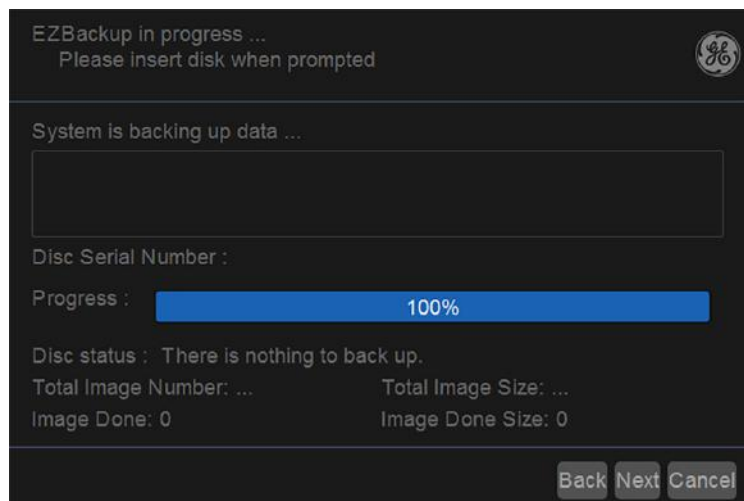


Figure 4-23. EZBackup Wizard 3

NOTE: If you need to insert the next media, a message appears providing you with the media label.

Archiving Images(continued)

11. When the backup is complete, the completion wizard page appears. Press Finish.

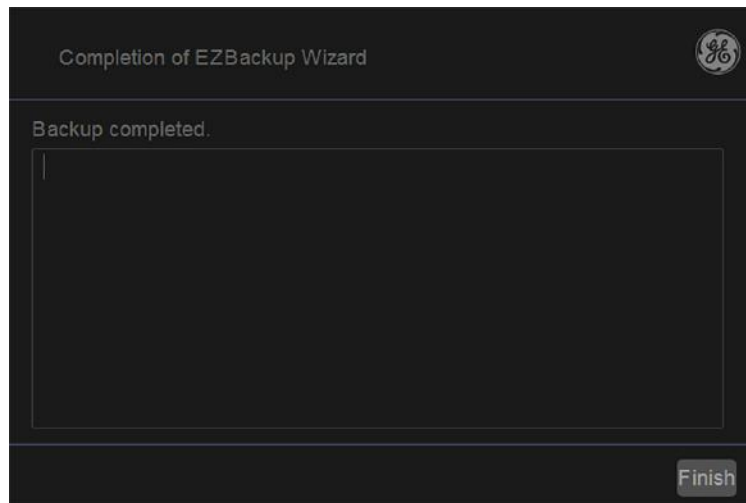


Figure 4-24. EZBackup Completion Window

All databases, presets and images should now be saved to removable media.

NOTE: *After EZBackup completed, system will eject the removable media automatically. No need to press F3 key to eject it.*

Data Management

Refer to the latest revision of the Versana BalanceTM/Versana BalanceTM Vet User Manual to perform the following tasks:

- Configuring the Disk Management Function
- Setting the Disk Management Schedule
- Configuring Data Management Settings
- Configuring Destination Device Setting
- Running the Disk Management Function
- Starting Disk Management Manually

Backup

For more information, refer to the latest revision of the Versana BalanceTM/Versana BalanceTM Vet User Manual.

Restore the factory defaults

For instructions, please see “Backup and Restore” in the User Manual.



To avoid not being able to connect to Local Archive, connectivity.res and IPSave in *D:\ldunn\target\resources\ldunn\userdefs* should not be deleted. If they are deleted, please rewrite the serial number.

Installation and Setup Procedure for Peripherals

Please refer to [‘Peripherals Installation Instructions’ on page 3-33](#).

Where are the User Manuals and the Service Manual?

The latest version of manuals are available on the Internet at <http://www.gehealthcare.com/DocumentationLibrary>.

Online versions of the User Manuals (multi-language User Manual and Advanced Reference Manual) are available via F1 key on the system. Please refer to Versana Balance™/Versana Balance™ Vet Electronic Instructions for Use on how to install the online documentation on the ultrasound scanner.

Both the User Manuals and the Service Manual are delivered as PDF files in an eIFU USB. Paper copies may be ordered from GE.

How to display or print the PDF files via a Windows PC?

1. Plug in the media into the USB port on a PC or Laptop with Adobe Acrobat Reader.
2. Open the media on your PC or Laptop.
3. Double click on **gedocumentation.html**.
4. Click the item in desired language to view the user documentation.
5. Before printing the complete manual, or pages from the manual, select **File > Print**.
6. Select the **paper size** and choose **Portrait**.
7. Select **Print** to start printing. In the pop up window, you may choose which pages to print and the number of copies you want to print (usually 1 copy).

Cleaning the Trackball



WARNING

DO NOT touch any boards with integrated circuits prior to taking the necessary ESD precautions.

Always connect yourself, via an arm-wrist strap, to the advised ESD connection point located on the rear of the Ultrasound system (near the power connector).



Follow general guidelines for handling of electrostatic sensitive equipment.

Manpower

One person, 10 minutes,

Tools

- Antistatic brush and/or antistatic vacuum cleaner

Preparations

To get access to the trackball for cleaning, you must perform the following steps:

1. Power down the system.
2. Disconnect the mains power cable from the wall outlet.

Follow these links if you need more information: [See 'Power off' on page 4-9 for more information.](#)

Clean the Trackball

Dust is often building up behind the ball, so it interferes with the ball rotation and for optical trackballs the light used for sensing. To get access for cleaning, you need to remove the ball.

The ball is held in position by the Dust Gasket.

1. Power off the system.
2. Rotate the dust gasket counterclockwise until it can be removed from the keyboard.

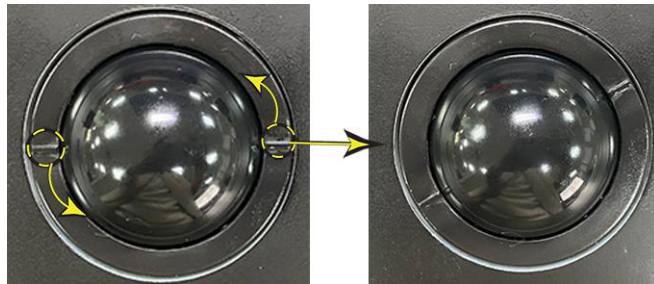


Figure 4-25. Rotate the retainer

3. Separate the trackball and the gasket. Wipe off any oil or dust from the trackball, gasket and the trackball housing using a cleaner or cotton swab.
4. Assemble the trackball and gasket, then put it into the housing and rotate it clockwise until its notches are set in the position.



CAUTION

When cleaning, make sure not to spill or spray any liquid into the trackball housing (keyboard or system).

Test the Trackball

Power up the system and test that the trackball now works as intended.

Cleaning the air filters

Clean the system's air filters to ensure that a clogged filter does not cause the system to overheat and reduce system performance and reliability. It is recommended the filters be cleaned every two weeks, but the requirements will vary due to your system use.



Be sure to lock the wheels before cleaning the air filters to avoid injury by any unexpected movement of the system.

DO NOT operate the unit without the air filters in place.

Allow the air filters to dry thoroughly before re-installing them on the unit.

Manpower

One person, 5 minutes,

Tools

- None

Preparations

To get access to the air filter for cleaning, you must perform the following steps:

1. Power down the system.
2. Disconnect the mains power cable from the wall outlet.

Follow these links if you need more information: [See 'Power off' on page 4-9 for more information.](#)

Cleaning

1. Power off the system.
2. Remove the body left and right cover on both sides.



Figure 4-26. Remove the body right and left cover

Cleaning(continued)

3. Remove the air filters on both side panels.



Figure 4-27. Remove the Filters

4. Dust the filters with a vacuum cleaner and/or wash it with a mild soapy solution.
If washed, rinse and dry the filters before re-installation.
5. Re-install the clean filter in the reverse order of removal.

NOTE: *Please align the 2 Pins with the 2 holes on both side panels during installation.*

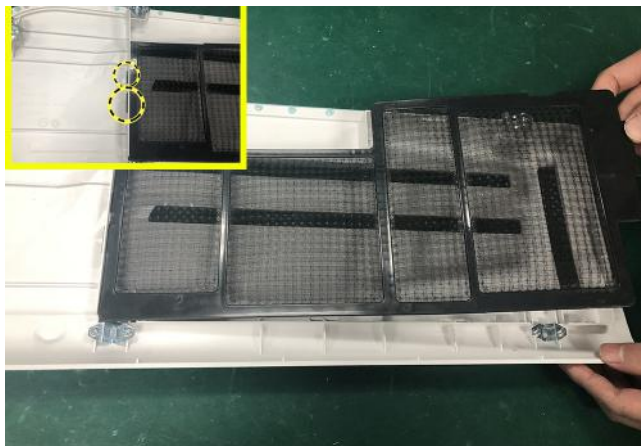


Figure 4-28. Install the Filters

Cleaning the gel warmer

The reservoir of the gel warmer is designed to hold the redundant gel temporarily. User needs to clean the reservoir in time to avoid reservoir being full and leaking inside of the system.

Follow below steps to remove and clean the reservoir:

1. Spin the reservoir counterclockwise to remove it from the gel warmer.
 - a. Clean the reservoir.
 - b. If there is already gel leaked to the inside of gel warmer, please clean it before re-install the reservoir.

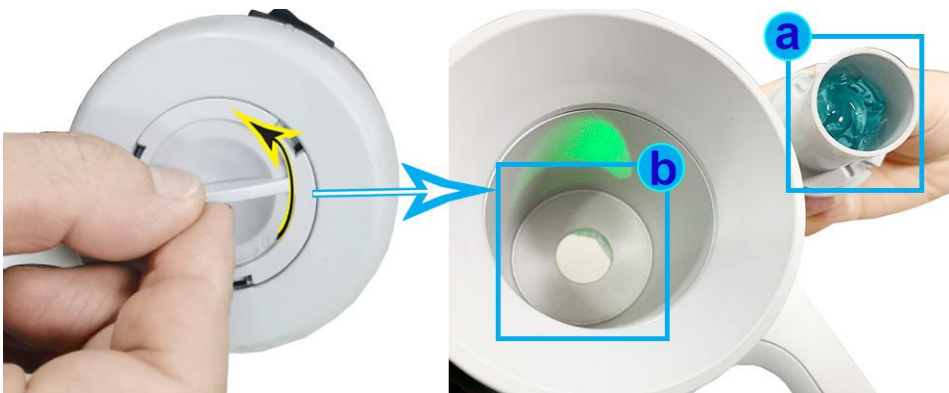


Figure 4-29. Remove the reservoir from gel warmer

2. Re-install the reservoir to the gel warmer.



CAUTION

If the gel leaked in the gel warmer always cannot be cleaned on time, it may cause a short circuit in the internal board.

Monitor

To clean the monitor face:

Use a soft, folded cloth. Gently wipe the monitor face.

DO NOT use a glass cleaner that has a hydrocarbon base (such as Benzene, Methyl Alcohol or Methyl Ethyl Ketone) on monitors with the filter (anti-glare shield). Hard rubbing will also damage the filter.

NOTE: *When cleaning the screen, make sure not to scratch the monitor.*

Operator Control Panel

To clean the operator control panel:

1. Moisten a soft, non-abrasive folded cloth with a mild, general purpose, non-abrasive soap and water solution.
2. Wipe down operator control panel.
3. Use a cotton swab to clean around keys or controls. Use a toothpick to remove solids from between keys and controls.

NOTE: *When cleaning the operator control panel, make sure not to spill or spray any liquid on the controls, into the system cabinet, or in the probe connection receptacle.*

NOTE: *In case of SARS, use bleach, or Cidex in a normal diluted form for cleaning/disinfecting the operator panel.*

NOTE: *DO NOT use T-spray or Sani Wipes on the control panel.*

NOTE: *DO NOT remove AN Key film when clean the control panel.*



CAUTION

Before cleaning the control panel, make sure the key cap is firmly in place.

Disk Encryption/Decryption

Overview

Disk Encryption is a function to protect the patient information on the device and prevent unauthorized access to PI/PHI, especially when the device is stolen. The encryption AES is 256 bit.

NOTE: *Disk Encryption can also protect the user data stored on removable device.*

NOTE: *The steps for Removable Media Encryption and Local Patient Data Drive Encryption are the same.*



CAUTION

The user must make backups and take care of the encryption password/passphrase and recover key. It is the customer's responsibility for storing the data. GE will have no back door or any responsibility or possibility of recovering the data.

Disk Encryption

1. Login as administrator. Press **Utility -> Admin -> System Admin -> Disk Encryption**.

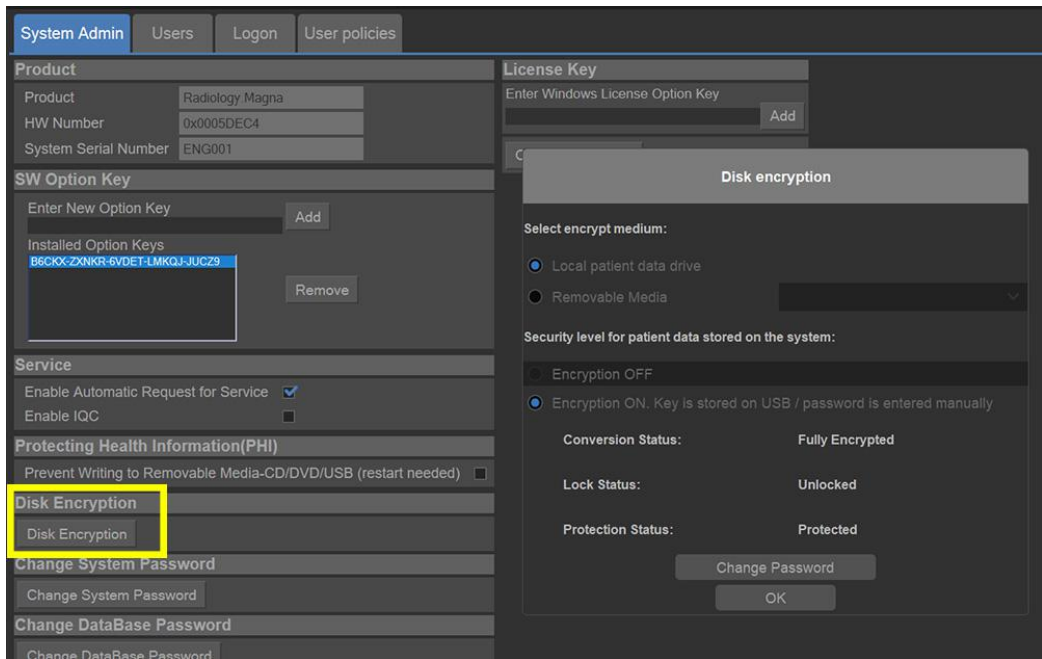


Figure 4-30. Disk Encryption 1

Disk Encryption(continued)

2. Select **Encryption**.
3. Enter a password or a passphrase and re-enter to confirm. Press **Continue**.

NOTE: *A valid password must be at least 8 characters long and has a maximum length of 256 characters.*

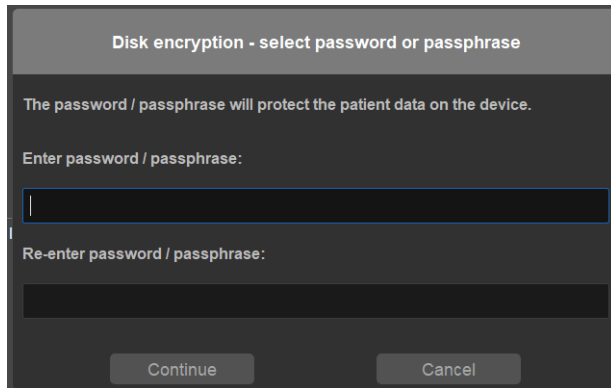


Figure 4-31. Disk Encryption 3

4. Insert a USB and select **Save Recovery Keys** to save the recovery keys to USB device. You can press **Hide recovery key** to hide the recovery key. Press **Close** to exit.



CAUTION

Make sure to keep the password/passphrase, recovery key and any back up of these in secure place, not accessible for unintended audience.

User can also configure Disk Encryption by EZ Configuration Wizard. [See 'EZ configuration Wizard' on page 3-77 for more information.](#)

Pause Encryption

1. During encryption process for Removable Media, you can press **Pause** to stop the encryption process

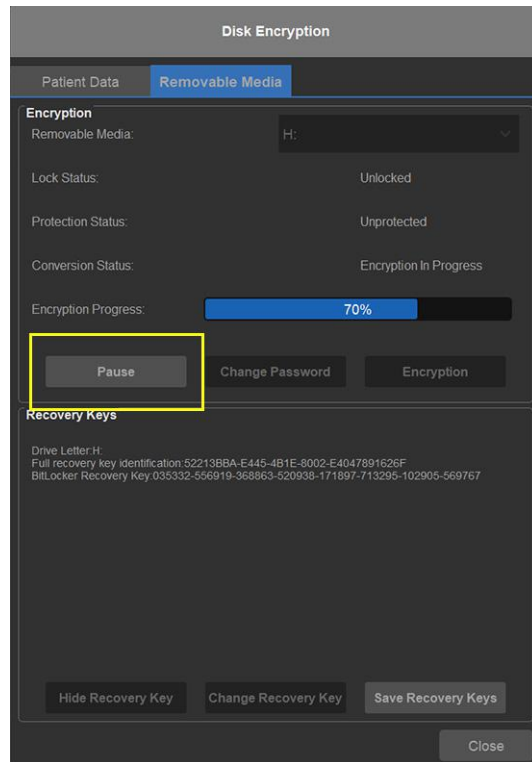


Figure 4-32. Encryption Pause 1

Resume Encryption

During Disk encryption/decryption process for Removable Media, press pause to stop. Follow below steps to resume the conversation:

1. Press **Utility -> Admin -> System Admin -> Disk Encryption**. Press **Resume** to resume disk encryption/decryption.

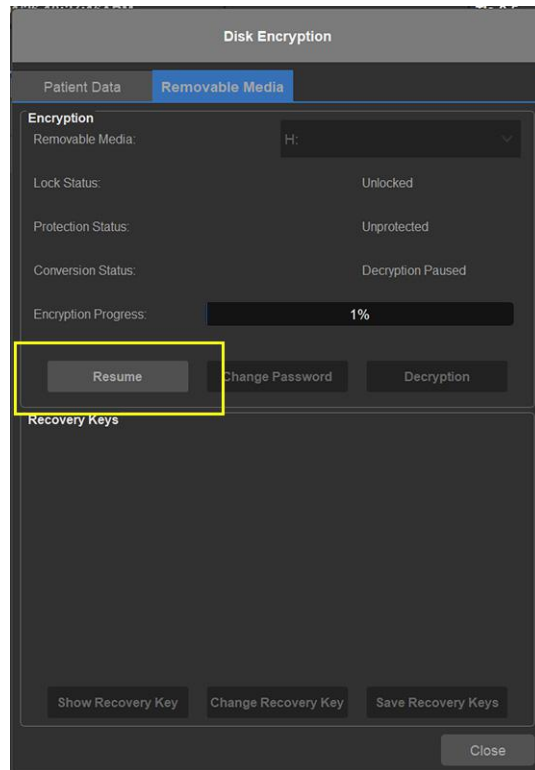


Figure 4-33. Encryption Resume 1

Change Password

After the encryption process is completed, you can change the password as you prefer.

1. Press **Utility -> Admin -> System Admin -> Disk Encryption**. Press **Change Password**.

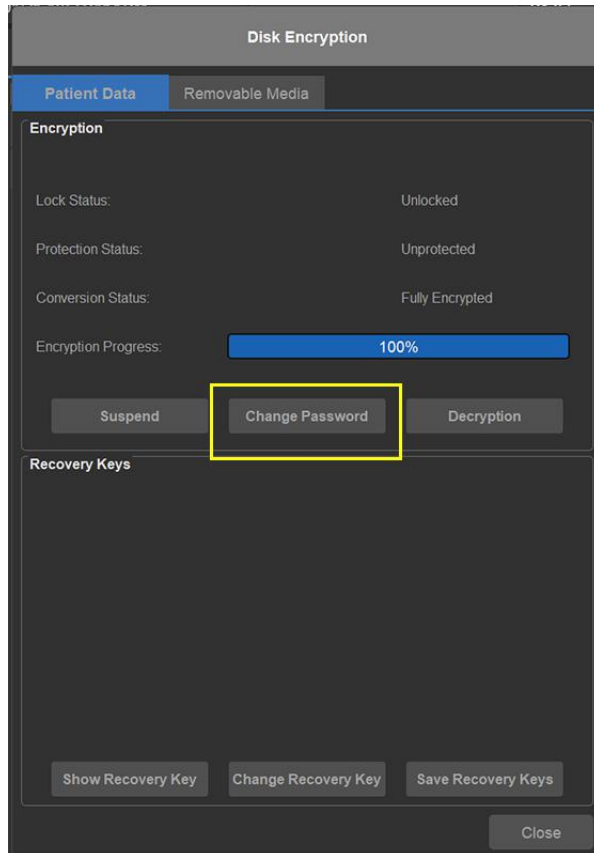
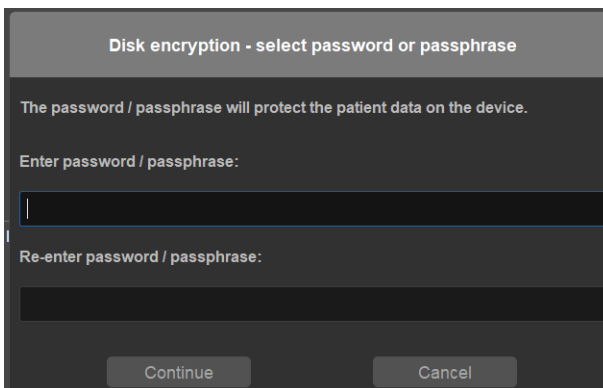


Figure 4-34. Change Password 1

Change Password(continued)

2. Enter new password/passphrase, and re-enter it to confirm.



Disk encryption - select password or passphrase

The password / passphrase will protect the patient data on the device.

Enter password / passphrase:

Re-enter password / passphrase:

Continue Cancel

Figure 4-35. Change Password 2

3. Press **Continue** to complete changing password.

Change Recovery Key

After the encryption process is completed, you can change the recovery key as you prefer.

1. Press **Utility -> Admin -> System Admin -> Disk Encryption**. Press **Change Recovery Key**.

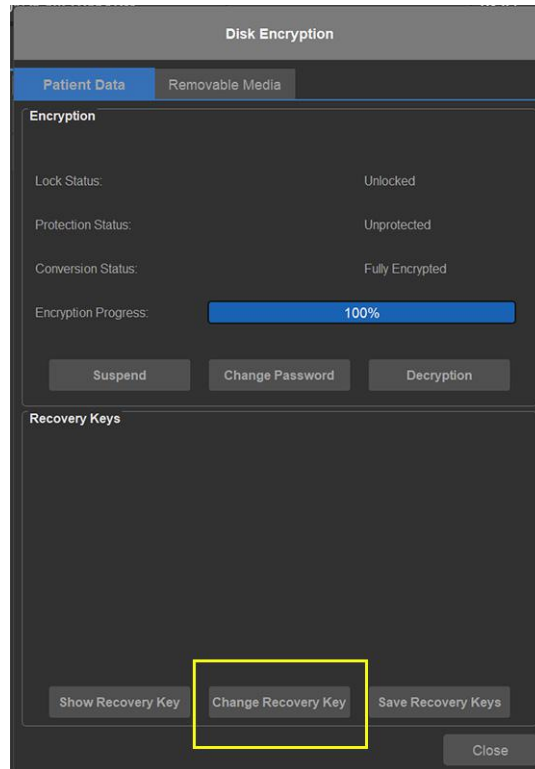


Figure 4-36. Change Recovery Key 1

2. Insert a USB to store the new recovery key.

Unlock with user entered key & recovery key

When the patient data is in locked status, you can unlock it with user entered key and recovery key.

You can insert the USB with recovery key, or you can input the password or recovery key manually to unlock the system.

NOTE: *If you press **Cancel**, the system will stay in locked status and some of the functions will be not available.*



The patient data stored on the device is encrypted. The encryption key is not stored on the device and there is no USB storage device containing the key connected.

Connect USB device with Recovery key, enter Password or enter Recovery key, or press Cancel to continue for Emergency scanning:

☒ USB with Recovery key is now connected, try reading from USB

☐ Password:

☐ Recovery key:

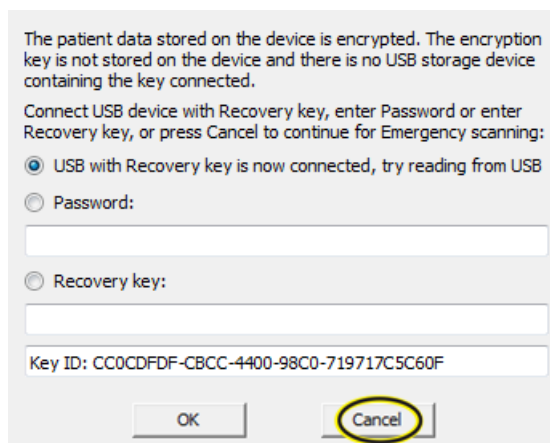
Key ID: CC0CDFDF-CBCC-4400-98C0-719717C5C60F

OK Cancel

Figure 4-37. Unlock Dialog

Emergency Scanning

1. Boot scanner.
2. Press **Cancel** on unlock dialog.



The patient data stored on the device is encrypted. The encryption key is not stored on the device and there is no USB storage device containing the key connected.

Connect USB device with Recovery key, enter Password or enter Recovery key, or press Cancel to continue for Emergency scanning:

☒ USB with Recovery key is now connected, try reading from USB

☐ Password:

☐ Recovery key:

Key ID: CC0CDFDF-CBCC-4400-98C0-719717C5C60F

OK Cancel

Figure 4-38. Cancel Unlock Process

3. Continue as before (Press Emergency in login dialog).

Disk Decryption

1. If you want to decrypt the patient data, you can press **Utility** -> **Admin** -> **System Admin** -> **Disk Encryption**. Select **Decryption**.

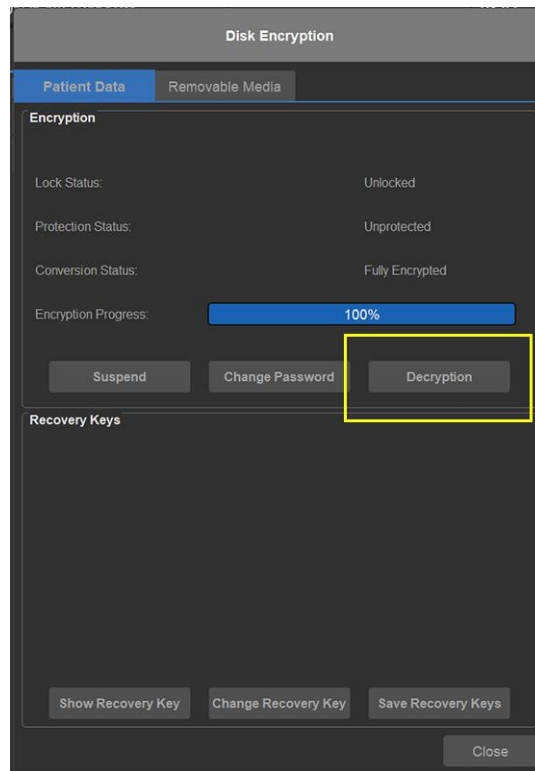


Figure 4-39. Decryption 1

2. Enter a password or a passphrase and re-enter to confirm. Press **Continue**.

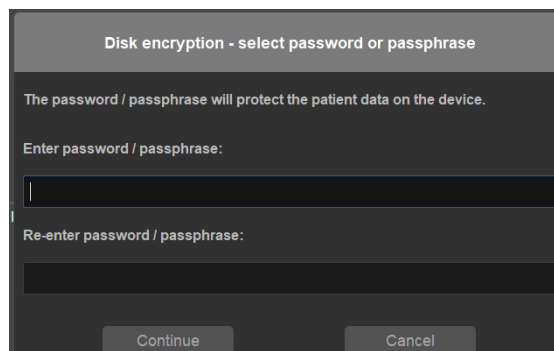


Figure 4-40. Decryption 2

Functional checks

Overview

In this section, the functional checks for Versana Balance™/Versana Balance™ Vet are described. Functional checks are used to verify that the product works as intended. Functional checks may also be used during troubleshooting.

Contents in this Section

Preparation

Turn on power to Versana Balance™/Versana Balance™ Vet. For detailed description, [See 'Power ON/Boot Up' on page 4-5 for more information.](#)

Basic Controls

Control Panel

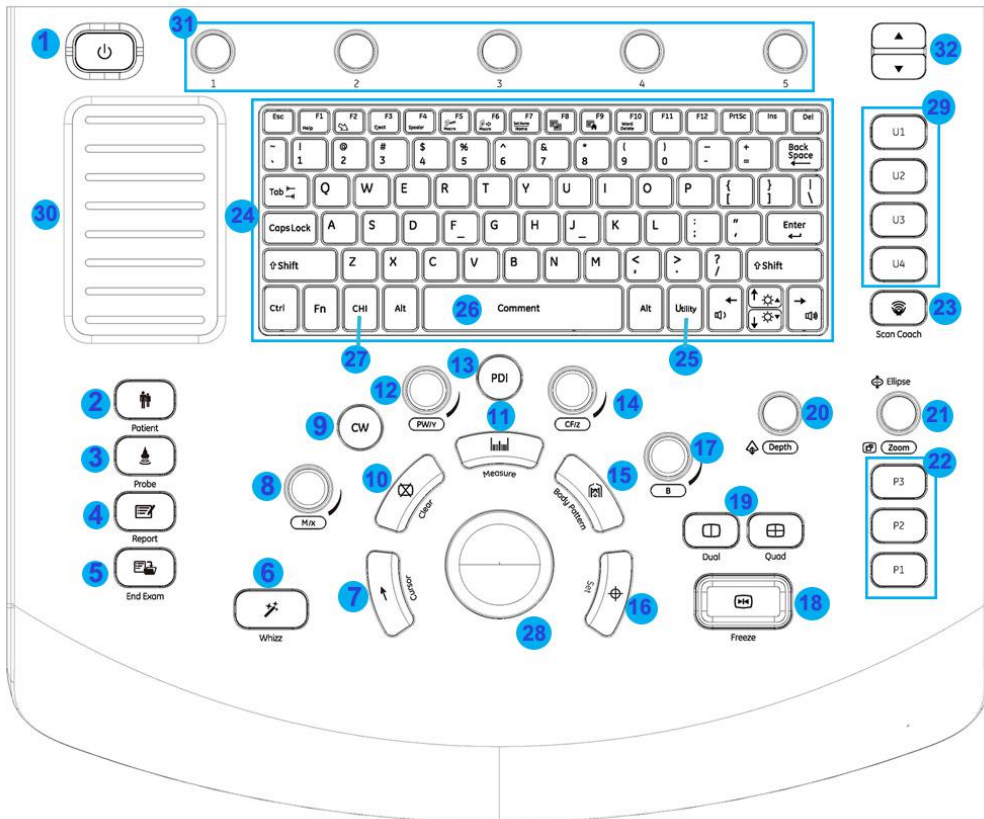


Figure 4-41. Control panel map

- | | | |
|-----------------|--|--------------------------------------|
| 1. Power On/Off | 12. PW Mode/Y | 23. Scan Coach key |
| 2. Patient key | 13. PDI | 24. Alphanumeric Keyboard |
| 3. Probe key | 14. CF Mode/Z | 25. Utility |
| 4. Report key | 15. Body Pattern key | 26. Comment key |
| 5. End Exam key | 16. Set key | 27. CHI key |
| 6. Whizz key | 17. B Mode key | 28. Trackball |
| 7. Cursor key | 18. Freeze key | 29. User Configurable Keys |
| 8. M Mode/X | 19. Dual key&Quad key | 30. TGC |
| 9. CW | 20. Depth/Probe Rotation key | 31. Combination Rotaries/
Buttons |
| 10. Clear key | 21. Ellipse/Zoom key | 32. Up and Down
Button |
| 11. Measure key | 22. Utility -> Connectivity ->
Button | |

Primary Menu Key Tour

1. Rotary key: Rotate to adjust the menu.
2. Page Up/Down key: To turn the menu page up and down.



Figure 4-42. Primary Menu Key Tour

Monitor Display

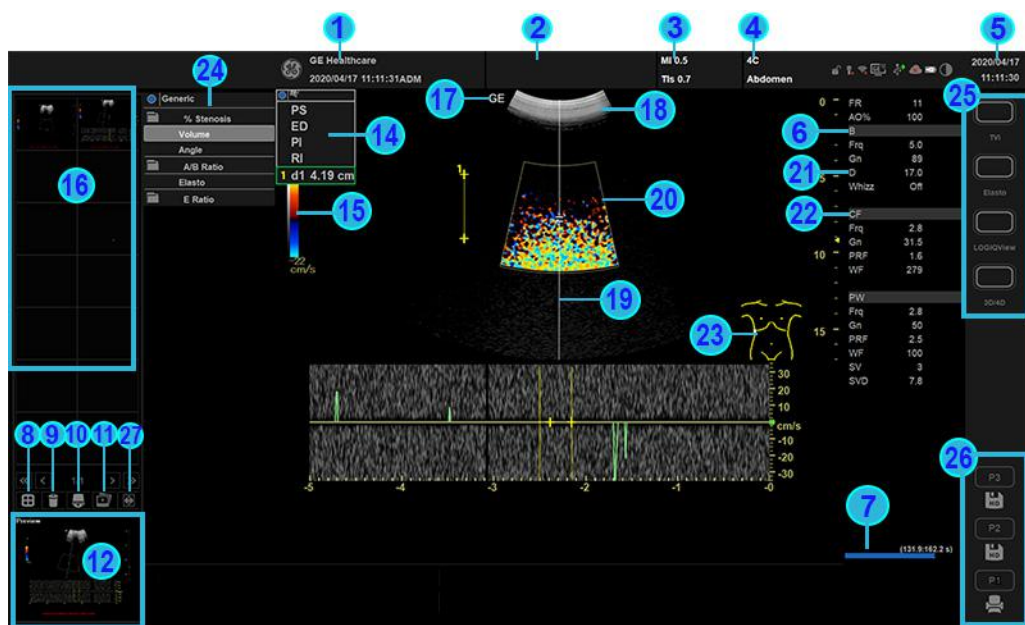


Figure 4-43. Monitor Display Tour for Touch Panel System

Monitor Display(continued)

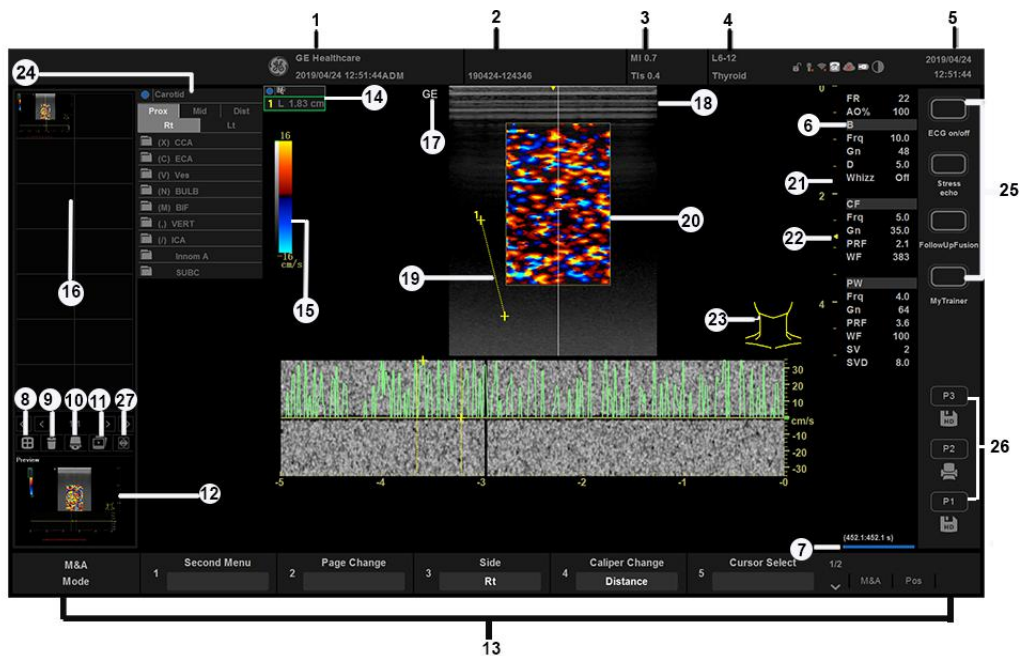


Figure 4-44. Monitor Display Tour for Non-Touch Panel System

1. Institution/Hospital Name, Date, Time, Operator Identification.
2. Patient Name, Identification.
3. Power Output Readout.
4. Probe Identifier. Exam Preset.
5. Current date and time, Caps Lock: (lit when on), network connection indicator (PC=connected, PC with X=not connected), system messages display, InSite status, InSite controls.
6. Imaging Parameters by Mode.
7. Cine Gauge.
8. Active Images screen.
9. Delete Image.
10. Save As Menu.
11. Slide Show
12. Image Preview.
13. Primary Menu (for Touch Panel system, the primary menu is displayed on touch panel).
14. Measurement Results Window.
15. Gray/Color Bar.
16. Image Clipboard.
17. Probe Orientation Marker.
18. Image.
19. Measurement Calipers.
20. Region of interest.
21. Depth Scale.
22. Focal Zone Indicator.
23. Body Pattern.
24. Measurement Summary Window.
25. User Configurable Keys.
26. P1, P2, P3.
27. Follow-up tool.

Performance Tests

Image Quality Check (IQC) preset for service

Image Quality Check (IQC) is intended to facilitate Image Quality checks during Quality Assurance Evaluation. Quality Assurance tests are used to determine whether a scanner is providing the same level of performance year after year.

By using the same setting year after year, this ensures that the data collection consistent, independently of who performs the test.

This preset only includes fundamental settings for 2D mode. Processing modes like SRI, Harmonics, etc., are turned off.

To do IQC, follow the steps below:

- NOTE: The IQCforService is only visible when service dongle is connected to the system.*
1. Activate IQC via **Utility--> Admin--> System Admin**. Check the “Enable IQC for Service” box. Select **Save**, then select **Exit**.

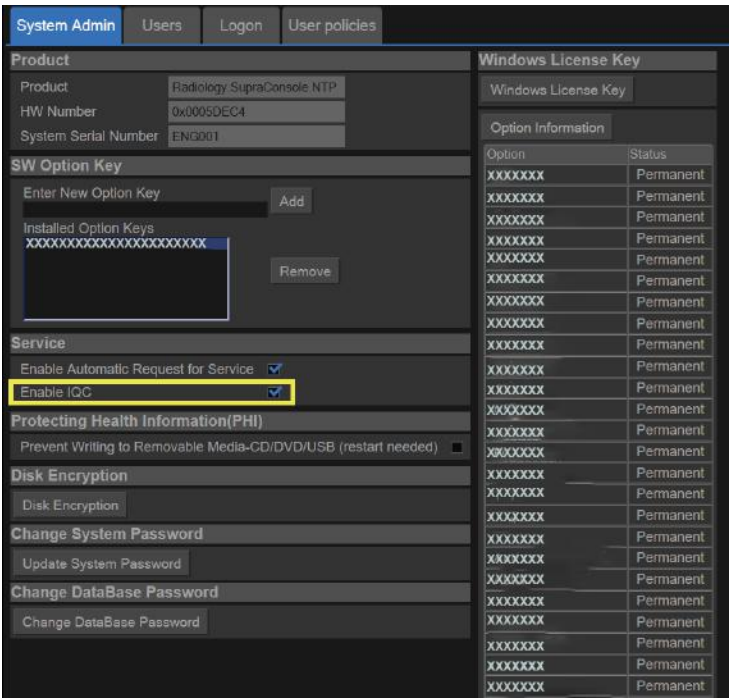


Figure 4-45. Check “Enable IQC”

Image Quality Check (IQC) preset for service(continued)

2. Press **Utility -> Imaging Preset Manager**. Select IQC from the left column, and select ">>" to move it to the **Imaging Preset Selections**. Then Select **Exit**.

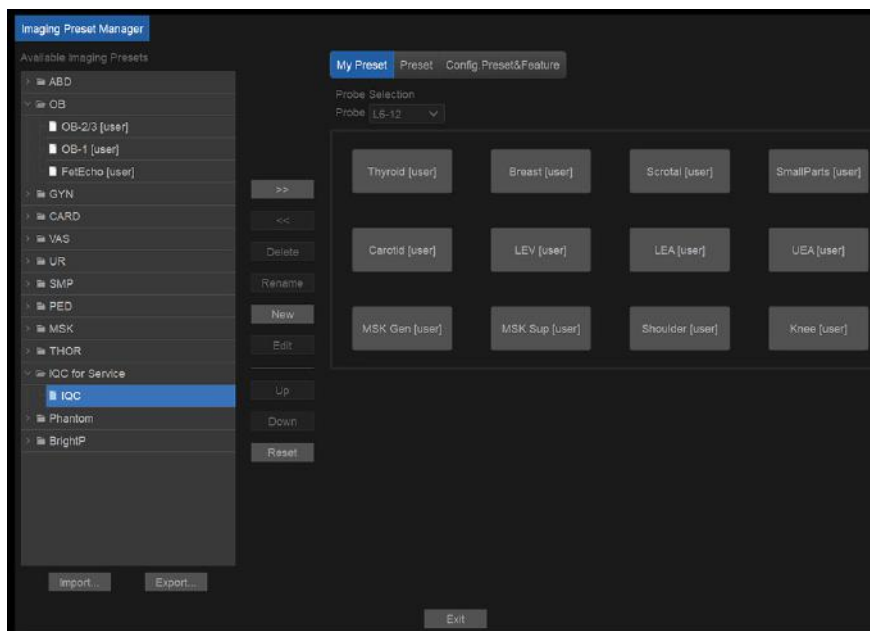


Figure 4-46. Image Quality Check

3. Press **Probe/Preset** on the control panel. Then select IQC.

Test Phantoms

The use of test phantoms is only recommended if required by your facility's (customer's) QA program.

B Mode Checks

Introduction

The B Mode is the system's default mode.

Preparations

- Connect one of the probes.
- Turn ON the scanner.

The B Mode is displayed (default mode).

Adjust the B mode controls

Press **B Mode** on the Operator Panel to access B mode.

These Image Controls are used to optimize the B Mode picture. Verify that all the listed controls are working as intended:

- Use **Gain** and TGC controls to optimize the overall image together with the Power control.
- Use **Depth** to adjust the range to be imaged.
- Use **Focus** to center the focal point(s) around the region of interest.
- Use **Frequency** (move to higher frequencies) or **Line Density** (move to higher line density) to increase resolution in image.
- Use **Frequency** (move to lower frequency) to increase penetration.
- Use the **Rejection** control to reduce noise in the image.

M Mode Checks

Preparations

- Connect one of the probes to the scanner's left-most probe connector.
- Turn ON the scanner.
The 2D Mode window is displayed (default mode).
- Press **M Mode** on the Operator panel to bring up an M-Mode picture on the screen.
Use the trackball to position the cursor over the required area of the image.

Adjust the M Mode controls

These Image Controls are used to optimize the M mode picture. Verify that all the listed controls are working as intended:

- Adjust **Horizontal sweep** to optimize the display resolution.
Adjust **Gain** and TGC controls to adjust the range to be imaged.
Adjust **Compression** and **Edge Enhance** to further optimize the display.
Adjust **Rejection** to reduce noise while taking care not to eliminate significant low-level diagnostic information.

Color Mode Checks

Introduction

Color Flow screens are 2D or M Mode screens with colors representing blood or tissue movement.

Color Flow may be selected both from 2D mode or from M mode or a combination of these.

Preparations

- Connect one of the probes to the scanner's left-most probe connector.
- Turn ON the scanner.

The 2D Mode window is displayed (default mode).

Select Color 2D Mode

1. From an optimized 2D image, press **CF**.
2. Use the trackball to position the ROI frame over the area to be examined.
3. Press **Set**. The instruction **Size** should be highlighted in the trackball status bar. Use the trackball to adjust the dimension of the ROI.

Adjust the Color Mode controls

- Adjust the **Active mode gain** to set the gain in the color flow area.

Adjust **Scale** to the highest setting that provides adequate flow detection.

NOTE: The scale value may affect FPS, Low Velocity Reject, and Sample Volume.

Adjust **Wall Filter** to remove low velocity blood flow and tissue movement that reduces image quality.

Adjust **Sample volume** (SV) to a low setting for better flow resolution, or a higher setting to more easily locate disturbed flows.

Adjust **Frequency** to optimize the color flow display. Higher settings improve resolution. Lower settings improve depth penetration and sensitivity. This does not affect the frequency used for 2D and M-Mode.

NOTE: Frequency setting may affect FPS, SV and Low Velocity Reject.

Adjust **PowerOutput** to obtain an acceptable image using the lowest setting possible.

NOTE: The Power setting affects all other operating modes.

Adjust the following settings to further optimize display of the image:

- Use **Invert** to reverse the color assignments in the color flow area of the display.

Use **Threshold** to emphasize either the color flow overlay, or the underlying grey scale tissue detail.

Use **Baseline** to emphasize flow either toward or away from the probe.

Use **Spatial Filter** to reduce noise in the color flow area. Spatial Filter smooths the image by averaging collected data along the same horizontal line. An increase of the spatial filter will reduce noise, but this will also reduce the lateral resolution.

Select Color M Mode

1. Select M Mode.
2. Use the trackball to position the ROI frame over the area to be examined.
3. Press **Set**. The instruction **Size** should be highlighted in the trackball status bar. Use the trackball to adjust the dimension of the ROI.

Adjust the Color M Mode controls

- Adjust the Active mode gain to set the gain in the color flow area.

Adjust **Scale** to the highest setting that provides adequate flow detection.

NOTE: The scale value may affect FPS, Low Velocity Reject, and Sample Volume.

Adjust **Wall Filter** to remove low velocity blood flow and tissue movement that reduces image quality.

Adjust **Sample volume** (SV) to a low setting for better flow resolution, or a higher setting to more easily locate disturbed flows

Adjust **Frequency** to optimize the color flow display. Higher settings improve resolution. Lower settings improve depth penetration and sensitivity. This does not affect the frequency used for 2D and M-Mode.

NOTE: NOTE: Frequency setting may affect FPS, SV and Low Velocity Reject.

Adjust **PowerOutput** to obtain an acceptable image using the lowest setting possible.

NOTE: The Power setting affects all other operating modes.

Adjust the following settings to further optimize display of the image:

- Use **Invert** to reverse the color assignments in the color flow area of the display.

Use **Threshold** to emphasize either the color flow overlay, or the underlying grey scale tissue detail.

Use **Baseline** to emphasize flow either toward or away from the probe.

PW Doppler Mode Checks

Introduction

PW Doppler are used to measure velocity (most often in blood).

Doppler mode can be done with a special pencil probe or with an ordinary probe. By using an ordinary probe, you can first bring up a 2D picture for navigation purpose and then add PW Doppler.

Preparations

- Connect one of the probes to the scanner.
- See '[Probe/Connectors Check](#)' on [page 4-62](#) for info about connecting the probes.

For available probes, see '[Probe](#)' on [page 9-6](#):

- Turn ON the scanner.
The 2D Mode window is displayed (default mode).
- If needed, adjust the Display's Brightness and Contrast setting.

Press **PW** to start Pulsed Wave Doppler (PW).

Use the trackball to select the Area of Interest (Sample Volume) in PW.

Adjust the PW Doppler Mode controls

Adjust the **Active mode gain** to set the gain in the spectral Doppler area.

- Adjust **Wall Filter** to reduce unwanted low velocity blood flow and tissue movement.

In PW mode, adjust **Sample volume** to low setting for better resolution, or higher setting to more easily locate the disturbed flows.

Adjust the **Compression** setting to balance the effect of stronger and weaker echoes and obtain the desired intensity display.

Adjust **Frequency** to optimize flow display. Higher setting will improve resolution and the lower setting will increase the depth penetration.

Adjust **Frame rate** to a higher setting to improve motion detection, or to a lower setting to improve resolution.

NOTE: Frequency and Frame rate settings may affect the Low Velocity Reject.

Adjust **Power Output** to obtain an acceptable image using the lowest setting possible. This is particularly important in CW mode, as the energy duty cycle is 100% (constant).

NOTE: The Doppler Power setting affects only Doppler operating modes.

Adjust the following settings to further optimize the display of the image.

Use the **Sweep Speed** to optimize the sweep speed.

To view signal detail, adjust **Scale** to enlarge the vertical spectral Doppler trace.

Use **Invert** to reverse the vertical component of the spectral Doppler area of the display.

Use **Angle Correct** to steer the ultrasound beam to the blood flow to be measured.

Tissue Velocity Imaging (TVI) Checks

Introduction

TVI calculates and color codes the velocities in tissue. The tissue velocity information is acquired by sampling of tissue Doppler velocity values at discrete points. The information is stored in a combined format with grey scale imaging during one or several cardiac cycles with high temporal resolution.

Preparations

- Connect one of the probes, to the scanner's left-most probe connector.
- See '[Probe/Connectors Check](#)' on [page 4-62](#) for info about connecting the probes.
For available probes, see '[Probe](#)' on [page 9-6](#):
- Turn ON the scanner.
The 2D Mode window is displayed (default mode).
- If needed, adjust the Display's Brightness and Contrast setting.

Press **TVI**.

Use the trackball (assigned function: Pos) to position the ROI frame over the area to be examined.

Press **Set**. The instruction Size should be highlighted in the trackball status bar.

NOTE: *If the trackball control pointer is selected, press **trackball** to be able to select between Position and Size controls.*

Use the trackball to adjust the dimension of the ROI.

Adjust the TVI Controls

- To reduce quantification noise (variance), the Nyquist limit should be as low as possible, without creating aliasing. To reduce the Nyquist limit: Reduce the **Scale** value.

NOTE: The Scale value also affects the frame rate. There is a trade off between the frame rate and quantification noise.

TVI provides velocity information only in the beam direction. The apical view typically provides the best window since the beams are then approximately aligned to the longitudinal direction of the myocardium (except near the apex). To obtain radial or circumferential tissue velocities, a parasternal view must be used. However, from this window the beam cannot be aligned to the muscle for all the parts of the ventricle.

NOTE: PW will be optimized for Tissue Velocities when activated from inside TVI.

Basic Measurements

NOTE: *The following instructions assume that you first scan the patient and then press **Freeze**.*

Check Distance and Tissue Depth Measurement

1. Press **Measure** once to display an active caliper.
2. Move the trackball to position the active caliper at the start point (distance) or the most anterior point (tissue depth).
3. Press **Set** to fix the start point.
4. The system fixed the first caliper and displays a second active caliper.
5. Move the trackball to position the second active caliper at the end point (distance) or the most posterior point (tissue depth).
6. Press **Set** to complete the measurement. The system displays the distance or tissue depth value in the measurement results window.

Before you complete a measurement:

To toggle between active calipers, rotate Cursor Select button.

To erase the second caliper and the current data measured and start the measurement again, press Clear.

NOTE: *To rotate through and activate previously fixed calipers, rotate Cursor Select button.*

NOTE: *After you complete the measurement, to erase all data that has been measured to this point, but not data entered onto worksheets, press Clear.*

Probe/Connectors Check

NOTE: Probes can be connected at any time, whether the unit is ON or OFF.

To connect a Probe

1. Place the probe's carrying case on a stable surface and open the case.
2. Carefully remove the probe and unwrap the probe cable.
3. Put the probe in the probe holder.



CAUTION

DO NOT allow the probe head to hang free. Impact to the probe head could result in irreparable damage.

4. Hold the probe connector vertically with the cable pointing upward.
5. Slide the connector lock to the left (unlocked position).
6. Align the connector with the probe port and carefully push into place.
7. Slide the connector lock to the right position to secure the probe connector.
8. Carefully position the probe cable in the probe cord holder spot so it is free to move, but not resting on the floor.



CAUTION

TAKE THE FOLLOWING PRECAUTIONS WITH THE PROBE CABLES:

-KEEP AWAY FROM THE WHEELS

-DO NOT BEND

-DO NOT CROSS CABLES BETWEEN PROBES

Table 4-1: Probe and Connectors Checks

Step	Task	Expected Results
1	Select the appropriate connected probe from the probe indicators.	The probe activates in the currently-selected operating mode. The probe's default settings for the mode and selected exam are used automatically.
2	Launch the application. To change application, press Probe key on the Control Panel.	The selected application starts.
3	Verify there's no EMI/RFI or artifacts specific to the probe.	No EMI/RFI or artifacts.

Table 4-1: Probe and Connectors Checks

Step	Task	Expected Results
4	Test the probe in each active connector slot.	It will display pictorial data each time.
5	Do a leakage test on the probe, See 'Electrical safety tests' on page 10-20 for more information.	It passes the test.
6	Repeat this procedure for all available probes.	

Activating the probe

The probe activates in the currently-selected operating mode. The probe's default settings for the mode and selected exam are used automatically.

Deactivating the probe

1. Press the Freeze key.
2. Gently wipe the excess gel from the face of the probe. (Refer to the User Guide for complete probe cleaning instructions.)
3. Carefully slide the probe around the right side of the keyboard, toward the probe holder. Ensure that the probe is placed gently in the probe holder.

Disconnecting the probe

Probes can be disconnected at any time. However, the probe should not be selected as the active

1. Unlock the probe.
2. Pull the probe and connector straight out of the probe port.
3. Carefully slide the probe and connector away from the probe port and around the right side of the keyboard.
4. Ensure the cable is free.
5. Be sure that the probe head is clean before placing the probe in its storage box.



WARNING

Take the following precautions with the probe cables: Do not bend, be sure to keep probe cables free from the wheels.

ECG Check

Introduction

The ECG capability on this unit, is intended as use as a trigger for measurements, but can also be viewed on the screen.

Parts needed

- ECG Module

Preparations

None

ECG Check

Table 4-2: ECG Checks

Step	Task	Expected Result(s)
1	Connect the ECG harness to the connector under the control panel.	The unit displays a straight curve along the bottom edge of the image sector on the screen.
2	Connect the three leads to an ECG simulator, or Fasten the three ECG Pads to your body and connect the three leads to respective ECG Pad.	When connecting, the signal on the screen will be noisy. When the connection is completed, a typical clean ECG signal is displayed.

Cineloop Check

Introduction

A cineloop is a sequence of images recorded over a certain time frame. When using ECG the time frame can be adjusted to cover one or more heart cycles. When frozen, the System automatically displays the cineloop boundary markers on either side of the last detected heart cycle.

Preparation

- Connect one of the probes to the scanner.
- See '[Probe/Connectors Check](#)' on [page 4-62](#) for info about connecting the probes
For available probes, see '[Probe](#)' on [page 9-6](#):
- Turn ON the scanner. The 2D Mode is displayed (default mode).

Adjust the Cineloop controls

- Press Freeze.
The left and right markers are displayed on either side of the last detected heart cycle on the ECG trace.
- Press Freeze.
The selected heart beat is played back.
- Press **Freeze** to freeze the cineloop.
Use the trackball to scroll through the acquisition and find the sequence of interest.
- Adjust **Cycle** select to move from heart beat to heart beat and select the heart cycle of interest.
Adjust **Num cycles** to increase or decrease the number of heart beats to be played back.
Adjust **Left marker** and **Right marker** to trim or expand the cineloop boundaries.

Back End Processor checks

- If all the previous tests have been passed successfully, the Back End Processor is most likely OK.

If the system seems to be operating erratically, please refer to '[Diagnostics/Troubleshooting](#)' on [page 7-1](#).

Operator Panel Test

- The Operator Panel is tested when the Versana Balance™/Versana Balance™ Vet is powered up as part of the start-up scripts, run at every start-up.

For more info, please refer to '[Diagnostics/Troubleshooting](#)' on [page 7-1](#).

Peripheral checks

Check that peripherals work as described below:

Table 4-3: Peripheral Checks

Step	Task to do	Expected Result(s)
1.	Press FREEZE	Stop image acquisition.
2.	Press PRINT on the Control Panel	The image displayed on the screen is printed on B&W printer.
3.	Connect with Foot Switch on USB port and press once.	To start image acquisition (the same function as FREEZE key).

Printer checks

The internal printer is controlled from the assigned **Print** and **Store** keys on the Versana Balance™/Versana Balance™ Vet's Operator Panel.

The factory default is:

- **Print** for the standard printer
Store for the screen capture to clipboard

Turn OFF Power to Versana Balance™/Versana Balance™ Vet

See 'Power off' on page 4-9 for more information.

Mechanical Functions Checks

Operator Panel Movement

Please refer to:

- 'Monitor Adjustments' on page 6-6

Casters (Wheels) and Brakes Checks

Examine the wheels frequently for defects to avoid breaking or jamming.

Table 4-4: Wheel Characteristics

Wheel	Characteristics
Front and Rear	Swivel and Brake

Power supply test & adjustments

Power Supply Test Procedure

There is no need to do any special tests on the Power Supplies if there don't seem to be a problem that may be related to the Power Supply.

Refer to '[System Doesn't Boot \(Hang-up\)](#)' on [page 7-102](#), if you appear to have a problem that may be related to the Power Supplies.

Power Supply Adjustment

There are no adjustments on the power supply. The DC Power is self-regulated. If a voltage is outside the specified range, it means that something is wrong, either with the power supply itself or with a unit connected to that specific power outlet. When an error occurs, the power will be turned off immediately.

Refer to '[System Doesn't Boot \(Hang-up\)](#)' on [page 7-102](#), if you appear to have a problem that may be related to the Power Supplies.

Application Turnover Check List

Complete these checks before returning the scanner to customer for use:

Software Configuration Checks

Table 4-5: Software Configuration Checks

Step	Task to do	Notes
1	Verify Date and Time is correct.	
2	Verify that Location (Hospital Name) is correct.	
3	Verify Language settings are correct.	
4	Verify assignment of Print Keys.	
5	Verify all of the customer's options are set up correctly.	Demo Option strings turn on

Site Log

Table 4-6: Site Log

DATE	SRVICE PERSON	PROBLEM	COMMENTS

My Trainer

Overview

My Trainer provides a quick guide to operate the system.

To access My Trainer,

1. Press Alt + H to enter My Trainer.

Or,

Press Utility -> System -> User Configurable Key. Check Enable Keyboard Key, then set **My Trainer** in the Keyboard Key or User Defined Key.

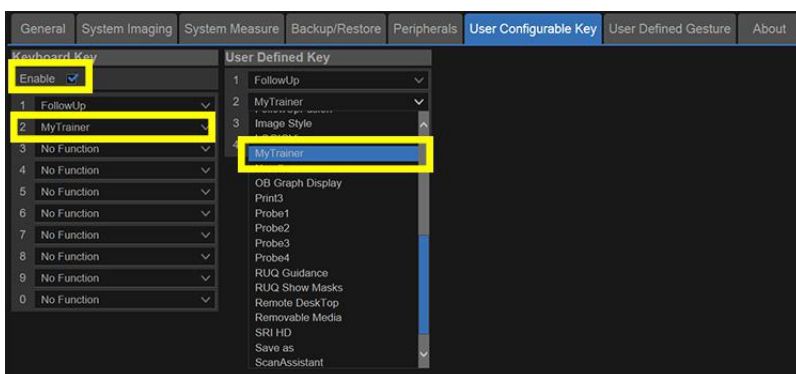


Figure 4-47. Set My Trainer

2. Press defined key to access My Trainer.

Overview(continued)

There are five sections in My Trainer. The five sections are displayed on the left side of the My Trainer interface.

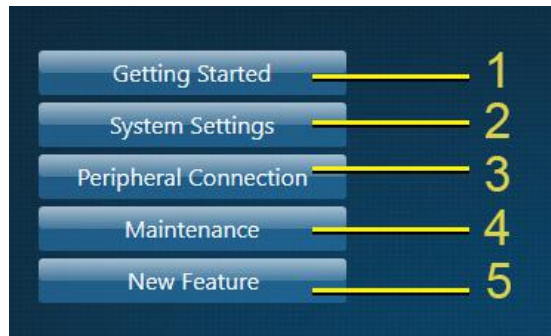


Figure 4-48. Sections display

1. Getting Started: Circuit Breaker, Probe Connection, Control Panel Up/Down, Touch Panel, Whizz Label, Multi-Touch, Simplified Workflow
2. System Settings: EZ-Configuration Wizard, Enable Option Checks, Option key activations, Numeral key Configuration, User Defined key Configuration, Preset Creation, My Preset Archival and restore, Patient Archive and Restore, Image archival, My Preset Configuration, Backup/Restore the Patient Preset, System Software Update, Standby Mode, Software Version, Cyber Security
3. Peripheral Connection: Back Panel Ports, Wired Connectivity, Wireless Connectivity, Bluetooth Connectivity, Thermal Printer Connection, Network printer connection, DICOM Worklist Setting, DICOM Image Storage
4. Maintenance: Contact GE service, Connect to Insite, Log export, Isolation USB connection, Trackball Cleaning, Air Filter Replacement, AN Key Film, Keycaps, Probe And Gel holder, Gel warmer
5. New Feature: TI-RADS® ACR, LI-RADS® ACR, e-Delivery, EZ Setting Restore

Overview(continued)







Figure 4-49. Interface Illustration

The interface of the My Trainer includes below information:

- 1. The product name of the system.
- 2. Sections. Select the button to expand the section to show the list of subsections.
- 3. Subsections.
- 4. The highlighted subsection shows this subsection is currently opened and displayed on the right side.
- 5. Exit. Press this button to exit this interface.
- 6. The left number shows the current page of the subsection. The right number shows the total pages of the subsection.
- 7. Illustration with graphic.
- 8. Previous, Next Home, End icons.

Table 4-7: Page turning

	Select the arrow to go to the previous page.
	Select the arrow to move to the next page.
	Select the arrow to go to the home page.
	Select the arrow to go to the end page.

- 9. Step Description.

Chapter 5

Components and Functions (Theory)

This chapter explains Versana Balance™/Versana Balance™ Vet's system concepts, component arrangement, and subsystem functions.

It also describes the power distribution and the Common Service Desktop interface.

Overview

Contents in this chapter

- 'Overview' on *page 5-2*
- 'Block Diagram and Theory' on *page 5-3*
- 'Common Service Desktop' on *page 5-5*

Block Diagram and Theory

General Information

Versana Balance™/Versana Balance™ Vet is an ultrasound imaging scanner.

The system can be used for:

- 2D Gray Scale
- 2D Color Flow imaging
- M-Mode Gray Scale imaging
- Color M-Mode
- Doppler
- Different combinations of the above

Signal flow from the Probe Connector Panel to the Front End, to the Mid Processors and Back End Processor and finally to the monitor and peripherals.

System configuration is stored on a hard disk drive and all necessary software is loaded from the hard disk drive on power up.

Block Diagram

System Diagram

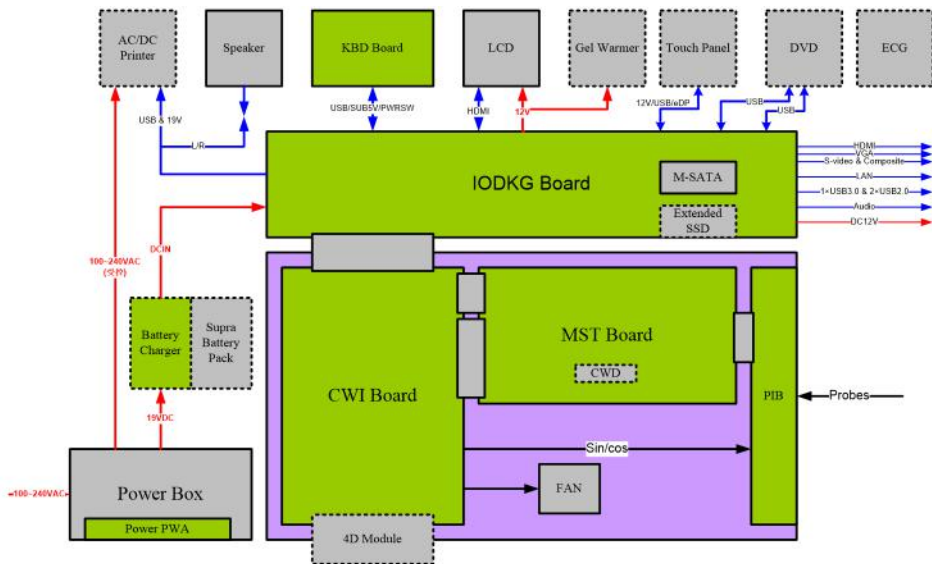


Figure 5-1. Versana Balance™/Versana Balance™ Vet System Block Diagram

System Diagram Introduction

The system is composed with top modules, Internal cage and power box which is located at the bottom side of the machine.

The top modules include Keyboard, Speaker, 21.5 inch Monitor and optional peripherals (AC/DC printer, ECG, DVD, Gel warmer and Touch panel).

The Internal cage has 4 PWAs: CWI, MST, RLY board and CWD(optional). System FANs are assembled in the Box.

IODKG board is fixed on the mechanical frame, this is the power and I/O signals connection of Internal cage.

4D module is mounted on Internal cage.

The power box includes power switch and ACDC module which provides DC19V power to system.

Common Service Desktop

Introduction

The Service Desktop is an interface that provides access to system information, status and diagnostics.

The Service Desktop has different content or views depending on the access level. The access level is determined by the user profile as well as the service options enabled on the Versana Balance™/Versana Balance™ Vet.

- Basic view is the standard view, restricted only by the user through the user profile settings. Administrator default user has access to the Service Desktop. Any user with "local Service access" in their user profile can have access to this view.
- Class C view is the view enabled by the service options purchased.
 - Service Advanced
 - Service Expert (requires Service Advanced)
 - Service Pro (requires Service Advanced)

Chapter 6

Service Adjustments

This chapter describes how to test and make adjustments to the Versana Balance™/Versana Balance™ Vet. You can use these to test the system for errors.

Overview

Contents in this chapter

- 'Overview' on *page 6-2*
- 'Preset Region' on *page 6-3*
- 'Monitor Adjustments' on *page 6-6*

Preset Region

Only factory default presets are supported. User is allowed to select region presets according to where the system is used with service support.

Table 6-1: Preset Region

Region	Preset Region
USA, Canda and Latin America	USA_LA Preset
Europe	EU Preset
China	China Preset
APAC	Asia Preset
South Asia	India Preset
Middle East, Africa and other countries	EAGM Preset

Region presetting procedure

The Region Presetting procedure:

- In Utility--> System--> General, select the correct region from Preset Region (restart needed), refer to [Figure 6-1 on page 6-4](#).

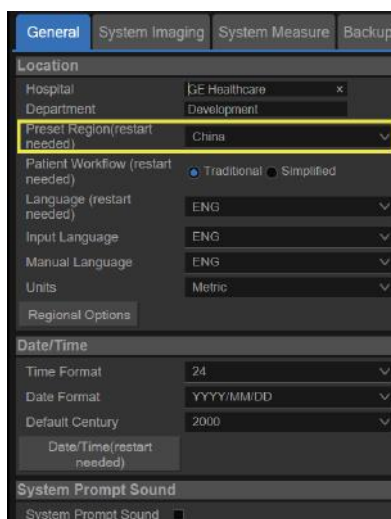


Figure 6-1. Region Preset

- The window below will display after the region being selected. Select "Ok", refer to [Figure 6-2 on page 6-4](#).

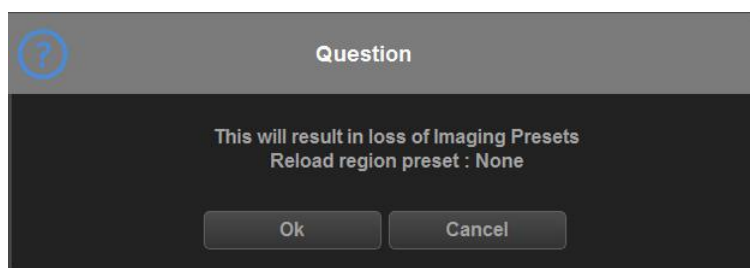


Figure 6-2. Quesiton

Region presetting procedure(continued)

- After "Ok" is selected, the window below will display. Select "Ok" and then restart the system.

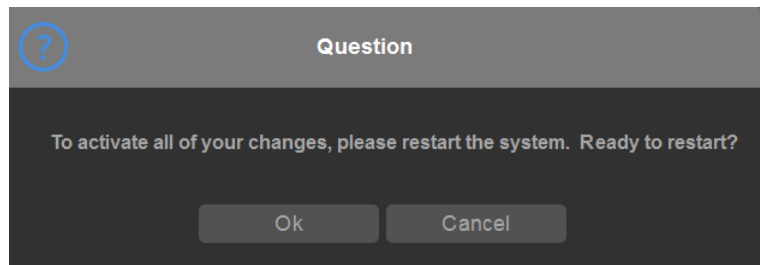


Figure 6-3. Restart the system

Monitor Adjustments

Purpose of this section

This section describes how to test and adjust the scanner. These tests are optional. You may use them to check the system for errors.

Monitor Adjustments

Please refer to User Manual for how to adjust the Monitor Position, Brightness and Contrast.

To adjust the brightness and volume:

1. On the alphanumeric keyboard,
 - adjust brightness with ***Fn +Up/Down*** keys;
 - adjust volume with ***Fn +Left/Right*** keys.



Figure 6-4. Monitor Adjustment

Brightness and Contrast

1. Press **Cursor** key on the control panel. Move the trackball to position the cursor over the adjustment icon, then press **Set** to display the setting menu.



Figure 6-5. Setting Menu Icon

2. Follow the procedure below to adjust the Color Temperature, Contrast, Brightness and LED Light:
 - To adjust the color temperature: press **Standard**, **Brown**, or **Blue** to choose the color temperature. The chosen color temperature displays in the **Color Temp** area.

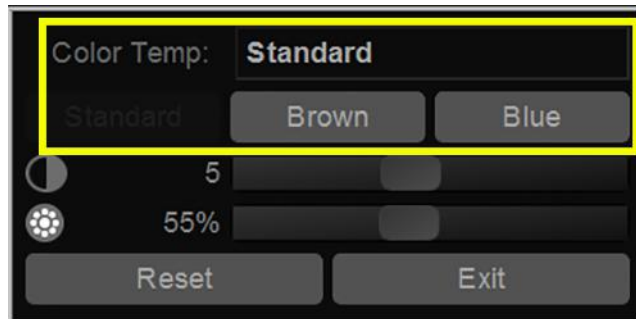


Figure 6-6. Color Temperature

- To adjust the Contrast: Press **Set** to choose the adjustment button, hold down the **Set** key and move the trackball to move the adjustment button. Move the adjustment button to the left to decrease the contrast or move the adjustment button to the right to increase the contrast.

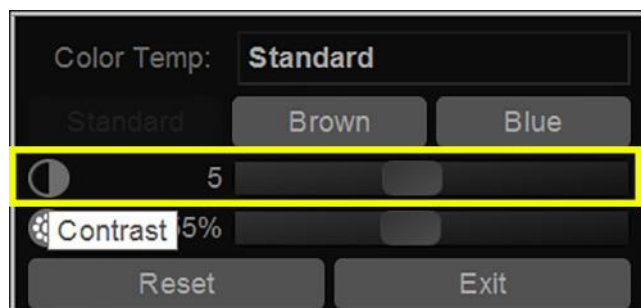


Figure 6-7. Contrast

Brightness and Contrast(continued)

- To adjust the Brightness: Press **Set** to choose the adjustment button, hold down the **Set** key and move the trackball to move the adjustment button. Move the adjustment button to the left to decrease the brightness or move the adjustment button to the right to increase the brightness.

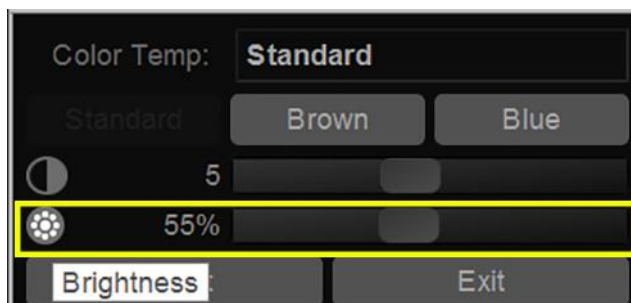


Figure 6-8. Brightness

- To adjust the LED Light (at the bottom of the Monitor): Press **Set** to choose the adjustment button, hold down the **Set** key and move the trackball to move the adjustment button. Move the adjustment button to the left to decrease the LED brightness or move the adjustment button to the right to increase the LED brightness.

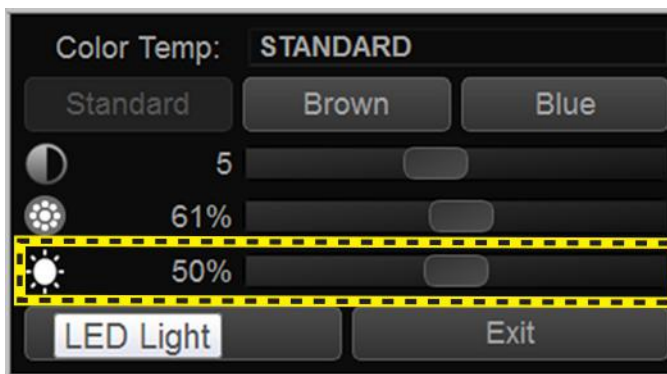


Figure 6-9. LED Brightness

- Press **Reset** to return to the default setting; Press **Exit** to exit the setting menu.

NOTE: Press **Reset** button and the three color temperature settings will return to the default settings.

Chapter 7

Diagnostics/Troubleshooting

This chapter describes how to setup Versana Balance™/Versana Balance™ Vet and run the tools and software that help maintain image quality and system operation. Very basic host, system and board levels are run whenever power is applied. Some Service Tools may be run at the application level. However most software tests are required.

Overview

Contents in this chapter

- 'Overview' on *page 7-2*
- 'Gathering Trouble Data' on *page 7-3*
- 'Screen Capture' on *page 7-5*
- 'System Warning/Error and Logs' on *page 7-11*
- 'Common Service Desktop' on *page 7-14*
- 'Network and Common Diagnostics' on *page 7-80*
- 'Troubleshooting' on *page 7-102*

Gathering Trouble Data

Overview

There may be a time when it would be advantageous to capture trouble images and system data (logs) for acquisition to be sent back to the manufacturer for analysis. There are different options to acquire this data that would give different results.

Collect Vital System Information

The following information is necessary in order to properly analyze data or images being reported as a malfunction or being returned to the manufacturer:

Product Name = Versana Balance™/Versana Balance™
Vet

From the **Utility>System>About** screen:

Applications Software

- Software Version
- Software Part Number

System Image Software

- Image Date
- Image Part Number

Additional Information

Collect a Trouble Image with Logs

If the system should malfunction, press the Alt+D keys simultaneously. This will collect a screen capture of the image monitor, system presets and several log files in a date and time stamped “.zip” file.

NOTE: *This function may also be used to make a Print Screen.*

This **Alt+D** function is available at all times.

When **Alt+D** is pressed, a menu box appears that allows for:

- a place to enter a description of the issue
- a checkbox to indicate a System lockup
- a choice to Export a pre-formated CD-R/DVD-R or save to the Export directory D: drive (for remote viewing through FFA)

The dialog box is titled "Export stored reports". It contains the following sections:

- Description of issue:**
 - Address the following:
 - 1) Date and time of occurrence
 - 2) Sequence of events leading to issue
 - 3) Is this repeatable?
 - Address the following, as applicable:
 - 4) Imaging mode, probe, preset/application
 - 5) Media brand, speed, capacity, type(eg. CD-R, DVD-R, etc.)
 - 6) Save secondary image capture, cine loop, 4D multi volume loop
- A large empty text area for the user to input details.
- ☐ System lockup(application has been restarted after problem)
- Please include the date and times when the problem occurred.
- ☐ Include protected information, requires related privilege
- (This may be required for GE determine the cause of your problem.)
- Destination:** A dropdown menu currently showing "CD / DVD Recordable (G:)" with a downward arrow.
- Buttons:** "Store", "Complete Log", "Service Log" (selected with a blue dot), and "Cancel".

Figure 7-1. Alt+D Dialog Box

Screen Capture

There may be times when the customer or field engineer will want to capture a presentation on the screen. This is accomplished by first saving the image(s) to the clipboard using a Print Key.

Capturing a Screen

Set the P1 key to screen capture:

1. Press **Utility** -> **Connectivity** -> **Button**.
2. Select **Print1**. Then select **Copy to Dataflow** and press >> button to add it to Printflow View, press **Save**. Now when you press the **P1** key, the image will be saved to the clipboard.

The following is a generic process to capture any screen from the scanner:

1. Navigate to and display the image/screen to be captured.
2. Press **P1** key. This will place a snapshot of the screen on the “clipboard” displayed at the left side of the scan image display.

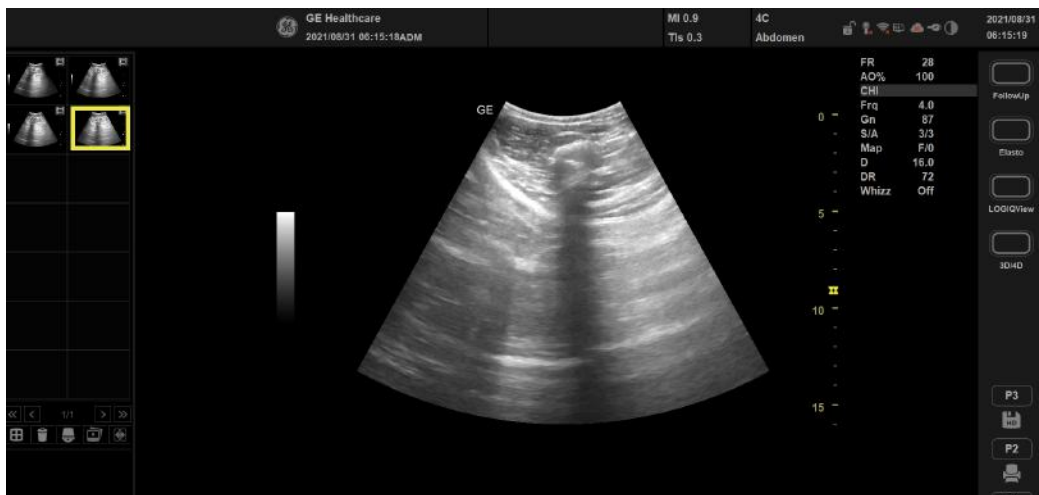


Figure 7-2. Select Image to Capture

3. Select and highlight the snapshot to be stored.
4. Select Save As Icon on the lower left of the image screen.



Figure 7-3. Menu > Save As

Capturing a Screen(continued)

5. A Save dialog box will be opened. Choose the archive location to save image on the USB Drive or CD/DVD.

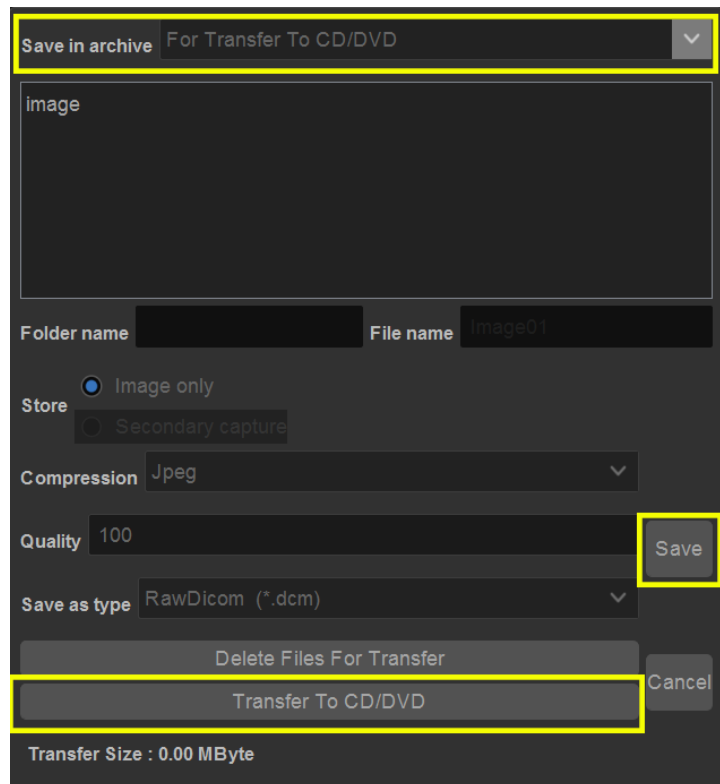


Figure 7-4. Save Dialog Box

NOTE: Click **Save** -> **Transfer To CD/DVD**, if the archive location is DVD/CD; Click **Save**, if the archive location is USB.

NOTE: It is better to save the image in Jpeg format. Image of this format can be easily reviewed in the computer.

Capturing a Screen with Service Key

The following is a generic process to capture the whole screen (including the Touch Panel screen if needed) from the scanner:

1. Insert the Service Key in the system's USB port.
2. Press **Prtsc** key on the control panel, the whole screen is captured.
3. Press **Ctrl+Alt+Delete**, the **Start Task Manager** dialog is displayed.

NOTE: *It is also available to Exit to Windows and save the image on the system or removal media. For how to Exit to Windows, please refer to Proprietary Service Manual.*

4. In **Windows Task Manager**, select **File-> New Task (Run...)**.

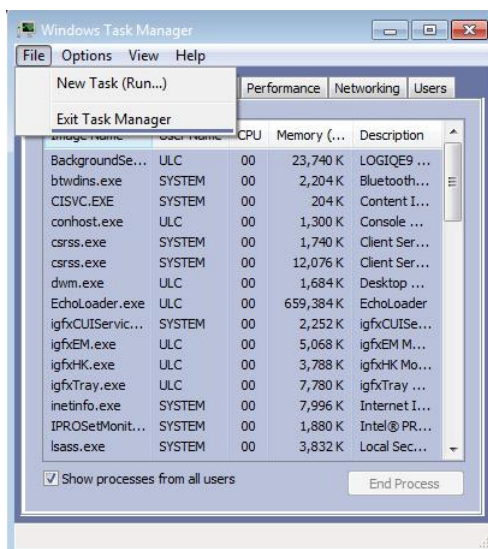


Figure 7-5. Windows Task Manager

5. Type in the program name: **mspaint**.

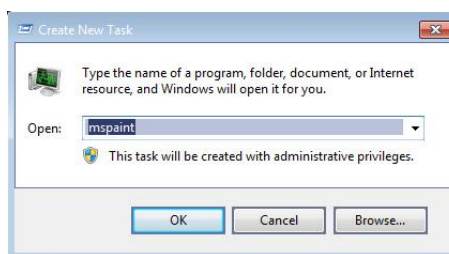


Figure 7-6. Create New Task

Capturing a Screen with Service Key(continued)

6. The paint screen is displayed, press **Ctrl+V** to paste the captured screen. And then save the image in the appropriate destination.

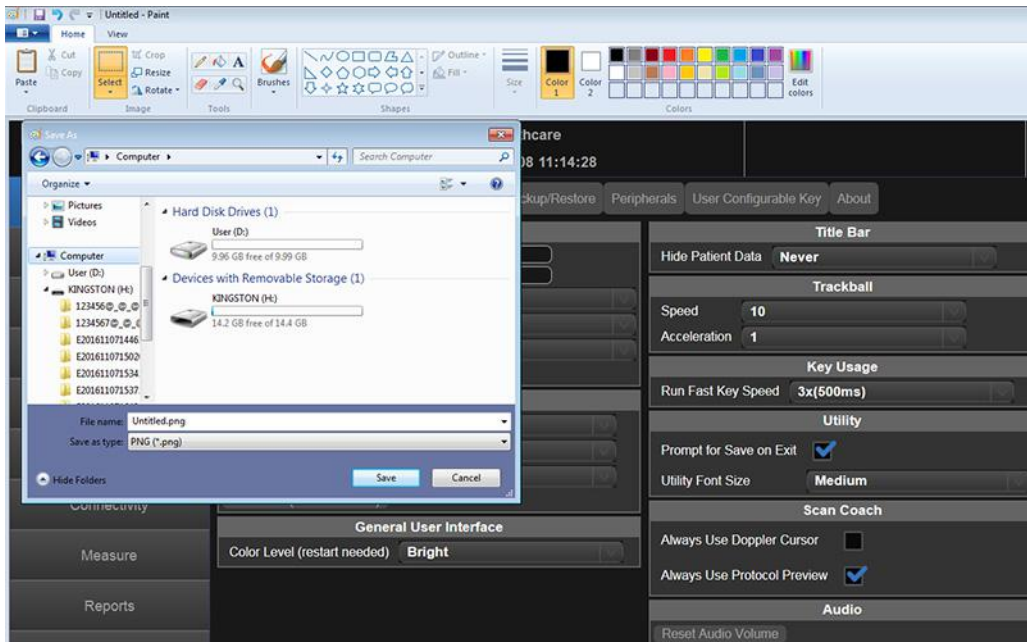


Figure 7-7. Save Image

Capturing a Screen by physical print buttons

The following is a generic process to capture the whole screen (not including the Touch Panel screen) from the scanner:

1. Press **Utility -> Connectivity -> Button** to configure Physical Print Buttons for the button to capture screens.
2. Select any key from Print1, Print2 or Print3 from **Physical Print Buttons**.
3. Select **Secondary Capture Screen** from **Format**.
4. Select **USB Quick Save**, press >> to move to right column. Press **Save** and **Exit**.

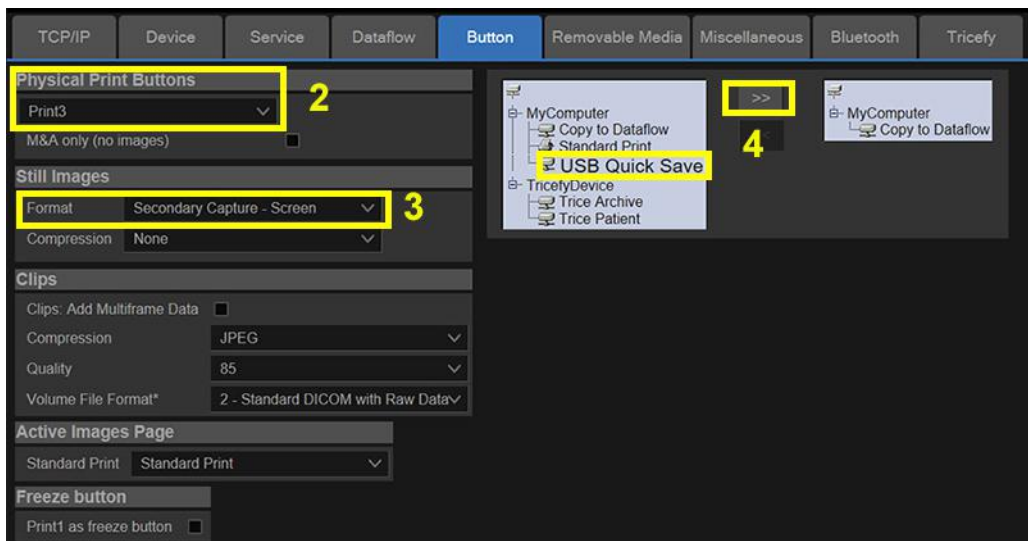


Figure 7-8. Windows Task Manager

5. After Print key configuration complete, press the configured Print key, the captured screen will be saved to the USB directly.

System Warning/Error and Logs

Temperature warning

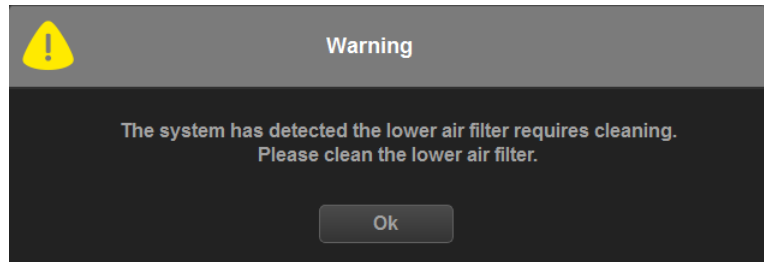


Figure 7-9. Temperature Warning

- Cause: CPU temperature exceeds threshold (95 degrees)
- What to do: shut down the system and clean the filter.

Temperature exceeds threshold

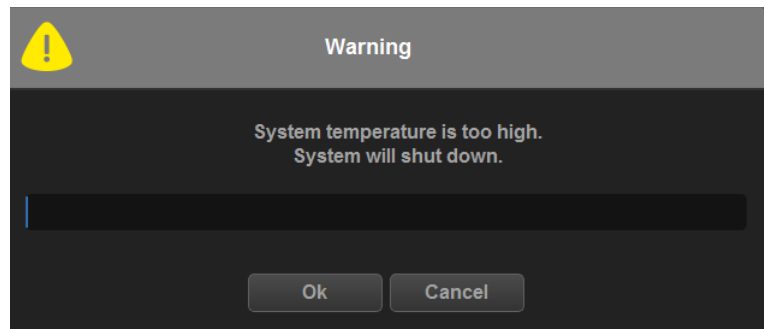


Figure 7-10. Temperature exceeds threshold

- Cause: CPU temperature exceeds threshold (100 degrees) and therefore, system must be shutdown immediately.
- What to do: shut down the system and clean the filter.

System voltage failure

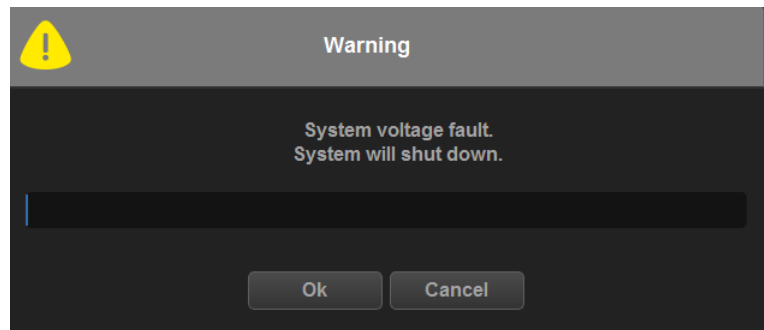


Figure 7-11. System voltage failure

- Cause: Hardware and/or voltage error detected.
- What to do
 1. Press OK and reboot the system.
 2. if the problem persists, shut down the system, turn OFF the Supply Mains Switch and then reboot the system.

Hardware configuration error

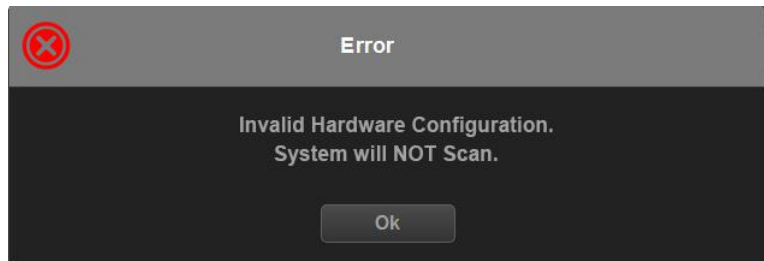


Figure 7-12. Hardware configuration error

- Cause: Hardware(s) is not detected as valid system. System is able to boot up but not able to scan.
- What to do
 1. Press OK and reboot the system.
 2. If the problem persists, shut down the system, turn OFF the Supply Mains Switch and then reboot the system.
 3. if the problem persists, shut down the system and analyze the log files in Technical Support Mode.

System error

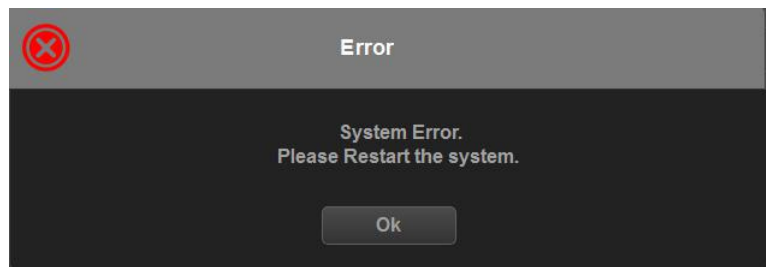


Figure 7-13. System error

- Cause: Hardware(s) is not detected as valid system. System is able to boot up but not able to scan.
- What to do
 1. Press OK, turn off the system and then reboot it.
 2. If the problem persists, shut down the system and analyze the log files.

Common Service Desktop

Purpose of this section

This section describes the features of the Service desktop.
These are the different levels of access to the Service desktop:

- Service Basic access (Class A) - a user locally logged into the machine with Local Service Access privilege. This level provides limited access to Service desktop widgets and utilities.
- Service Expert, Pro, and Advanced access (Class C) Local - Depending on the purchase level, includes an option string to control access.
- GE Service access (Class M) and an SSA key. For users with local Service Access privileges, this level provides unrestricted access to all Service desktop widgets and utilities.
- Remote access - a user remotely accessing the Versana BalanceTM/Versana BalanceTM Vet. This level provides unrestricted access to all Service desktop widgets and utilities. Disruptive mode is limited to the user access privileges to Remote Service Access.

Disruptive mode

Disruptive mode is a way to control interruptions to operation of the Versana Balance. Disruptive mode is required whenever service performs a function that may disrupt a normal scan. Activating Disruptive mode results in a red message displayed on the task bar. This message indicates that the Versana Balance needs to be restarted once the service activity is complete. The message remains until the Versana Balance™/Versana Balance™ Vet is restarted. This prevents patient scanning while the Versana Balance™/Versana Balance™ Vet is not operating at an optimal status. For example, running a diagnostic may leave the Versana Balance. in a state that is not good for imaging.

Specifically, Disruptive mode is required to run diagnostics, clean presets, and reset the patient database, and turn on Virtual Console Observation (VCO).

- When Disruptive mode is On, all service functionality on the Service desktop is allowed but user operation of the Versana Balance may be limited.
- When Disruptive mode is Off, some service functionality on the Service desktop is not available and user operation of the Versana Balance is normal.

Additionally, the ability to enable Disruptive mode depends on the logged in user.

- Local user - a user locally logged into the machine will be able to set the Versana Balance to Disruptive mode or allow a Disruptive mode request from a remote user through the Service desktop. The local user must have Authorize Remote Service Access to allow Disruptive mode. If the local user does not have this right, the remote user's request will be automatically denied
- Remote user - a user remotely accessing the Versana Balance™/Versana Balance™ Vet will not be able to automatically switch Disruptive mode to On. The logged in user (user actually logged on to the Versana Balance) needs to have the ability to grant remote access. The logged in user will be notified through a dialog box and asked to allow Disruptive mode.

NOTE: *Change Password and Disk Defragment are not available for the remote user whether Disruptive mode is On or Off.*

For more information, see: '[Disruptive mode](#)' on page 7-15

Color statuses

Throughout the Service desktop, colors indicate the following:

- Green - Status is normal
- Orange - Status is a warning
- Red - Status is an error

Licenses

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

- HOME
- Utilities
 - Change Password
 - Data Transfer
 - Delete Files
 - Gather Logs
 - Network Capture
 - SSA License
 - Thirty Party Licenses
- Options
- Agent Configuration

With Service Advanced (Class C), these are the available options:

NOTE: *With a Class C license, options display according to these purchased level of access.*

- HOME
- Diags
 - Run Diags
 - Diag History
- Utilities
 - Change Password
 - Checkpoints
 - Delete Files
 - Disk Defragment
 - Data Transfer
 - Gather Logs
 - Network Capture
 - SSA License

Licenses(continued)

- System Shutdown
- Thirty Party Licenses
- Options
- Agent Configuration

With Service Advanced plus Service Expert (Class C), the Clean Userdefs, Reset Patient Database, and Software Reload utilities are added to the Service Advanced options listed.

With Service Advanced and Service Expert plus Service PRO (Class C), the probe assessment tool (ePAT) diagnostic is added to the Service Advanced and Service Expert options listed.

With GE Service access (Class M) and an SSA key, these are the available options:

- HOME
- Diags
 - Run Diags
 - Diag History
- Utilities
 - Change Password (not available through a remote connection)
 - Checkpoints
 - Clean Userdefs
 - Data Transfer
 - Delete Files
 - Disk Defragment (not available through a remote connection)
 - Disruptive Mode Utility
 - Gather Logs
 - Network Capture
 - Reset Patient Database
 - Software Reload
 - SSA License
 - SSH
 - Thirty Party Licenses
 - Virtual Console Observation
- Options
- Agent Configuration

Licenses(continued)

If CSD is not responding to Service Class C or Class M key, try to restart SSA service program manually:

1. Press Ctrl+Shift+Esc to activate “Task Manager”;
2. Go to “Services” tab, select and right click the “SSAWrapperService”;
3. Click “Restart” to restart the service.

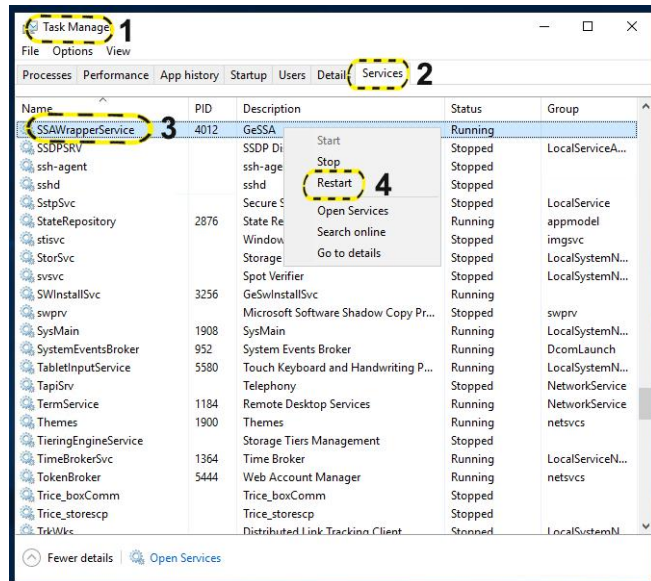


Figure 7-14. Restart SSA

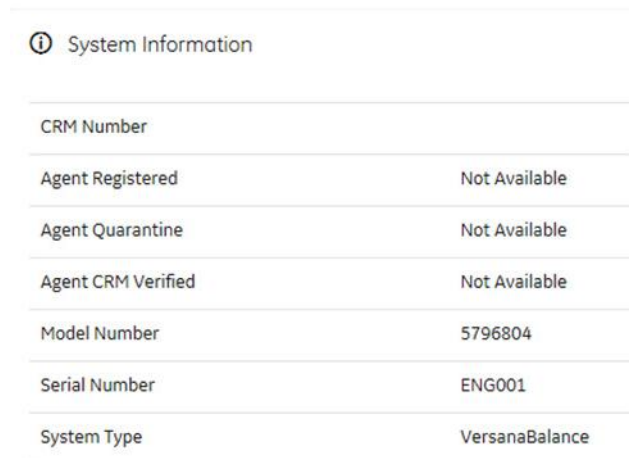
System Information

System Information displays general information about the Versana Balance. When the Versana Balance 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 all service class licenses.

To access **System Information**, navigate to **Utility > Service > Home**.



System Information	
CRM Number	
Agent Registered	Not Available
Agent Quarantine	Not Available
Agent CRM Verified	Not Available
Model Number	5796804
Serial Number	ENG001
System Type	VersanaBalance

Figure 7-16. System Information

System Information(continued)

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

Table 7-1: System Information

Element	DESCRIPTION
CRM Number	Customer Relationship Management (CRM) number. System identifier assigned to the customer unit by the region service team.
Agent Registered	Registered status of the agent. Valid values are: <ul style="list-style-type: none"> • 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.
Agent Quarantine	Quarantine status of the agent. Valid values are: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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 Versana Balance. The same number as listed on the rating plate.
Serial Number	Serial number of the Versana Balance. The same number as listed on the rating plate.
System Type	Product name of the Versana Balance.
Facility	Name of the hospital or facility where the Versana Balance is installed

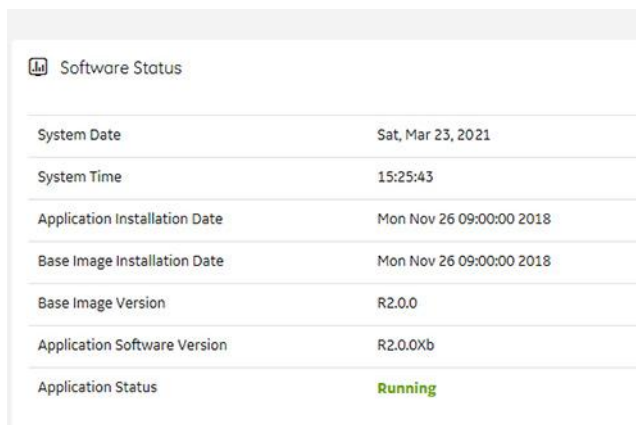
For more information, see: ['Home' on page 7-19](#)

Software Status

Use **Software Status** to view general information about the software installed on the Versana Balance.

The information on **Software Status** is available to all service class licenses.

To access **Software Status**, navigate to **Utility > Service > Home**.



Software Status	
System Date	Sat, Mar 23, 2021
System Time	15:25:43
Application Installation Date	Mon Nov 26 09:00:00 2018
Base Image Installation Date	Mon Nov 26 09:00:00 2018
Base Image Version	R2.0.0
Application Software Version	R2.0.0xb
Application Status	Running

Figure 7-17. Software Status

This table shows all the elements available on **Software Status** with descriptions.

Table 7-2: Software Status

Element	DESCRIPTION
System Date	Current date in the format <day>, <month> <date> <year>.
System Time	Local time based on the last time the system desktop was refreshed in the format <hh:mm:ss>.
Application Installation Date	Date the application software was built. The application software includes the Versana Balanceproduct-specific software.
Base Image Installation Date	Date the base image software was built. The base image software includes the Windows operating system and other supporting software.
Base Image Version	Version number of the base image software
Application Software Version	Version number of the application software
Application Status	Status of the application. Valid values are <ul style="list-style-type: none">• Running• Stopped

For more information, see:

- [‘Home’ on page 7-19](#)
- [‘Software Reload’ on page 7-56](#)

System Status

Use **System Status** to view status information on the Versana Balance. Specifically, do the following:

- View the hardware configuration file
- View temperatures for FRUs, fans, and a graphical representation of the monitored temperatures
- View voltages for FRUs and AC
- View the amount of time the Versana Balance has been running
- View the amount of time since the Versana Balance has last been rebooted

The information on **System Status** is available to Class C and Class M licenses.

To access System Status, navigate to **Utility > Service > Home**.

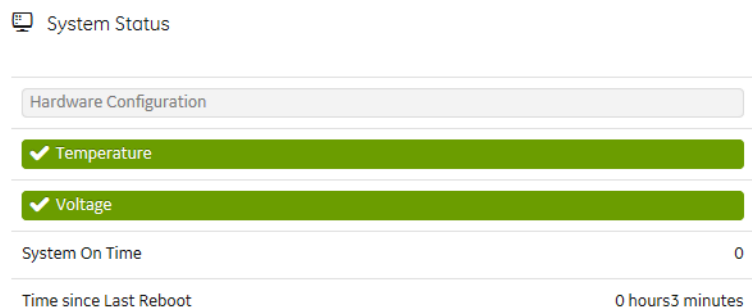


Figure 7-18. System Status

System Status(continued)

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

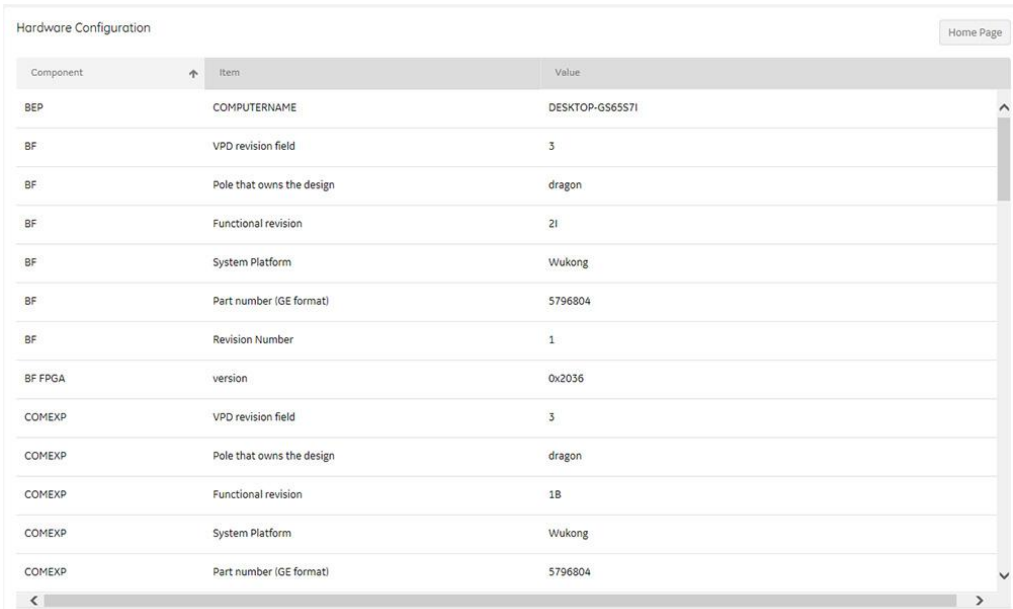
Table 7-3: System Status

Element	DESCRIPTION
Hardware Configuration	Displays the contents of the hardware configuration file.
Temperature	Displays the temperature monitoring of the Versana Balance as normal, warning, or error using the standard colors and icons. Includes temperature out-of-spec events including an overall count of event warnings and errors for the last 30 days or the last status checkpoint whichever is sooner. Temperature displays temperature a graph for the configured monitoring points.
Voltage	Displays the voltage monitoring of the Versana Balance as normal, warning or error using the standard colors and icons. Includes voltage out-of-spec events including an overall count of the event warnings and errors for the last 30 days or last status checkpoint whichever is sooner.
System On Time	Displays the time the Versana Balance was turned on.
Time Since Last Reboot	Displays the time the Versana Balance was last rebooted.

Hardware Configuration

Hardware Configuration displays the contents of the hardware configuration file which includes all the vital product data (VPD).

To access **Hardware Configuration**, navigate to **Utility > Service > Home**, and then under **System Status**, select **Hardware Configuration**.



Component	Item	Value
BEP	COMPUTERNAME	DESKTOP-GS65571
BF	VPD revision field	3
BF	Pole that owns the design	dragon
BF	Functional revision	2I
BF	System Platform	Wukong
BF	Part number (GE format)	5796804
BF	Revision Number	1
BF FPGA	version	0x2036
COMEXP	VPD revision field	3
COMEXP	Pole that owns the design	dragon
COMEXP	Functional revision	1B
COMEXP	System Platform	Wukong
COMEXP	Part number (GE format)	5796804

Figure 7-19. Hardware Configuration

This table shows all the elements available on **Hardware Configuration** with descriptions.

Table 7-4: Hardware Configuration

Element	DESCRIPTION
Component	Hardware component.
Item	Parameter with the vital product data (VPD).
Value	Actual value of the Item.

For more information, see:

- [‘System Status’ on page 7-23](#)
- [‘Home’ on page 7-19](#)

Temperature

Use **Temperature** to troubleshoot problems with monitored FRUs and the fans. Specifically, use these pages:

- FRU Status
- Graphs

To access **Temperature**, navigate to **Utility > Service > Home**, and then under **System Status**, select **Temperature**.

For more information, see:

- 'FRU Status' on [page 7-27](#)
- 'Graphs' on [page 7-28](#)
- 'System Status' on [page 7-23](#)
- 'Home' on [page 7-19](#)

FRU Status

FRU Status displays a summary of the FRUs being monitored and the details for each FRU.

To access this page, under **System Status**, select **Temperature** and then select **FRU Status**.

Name	Status	Lower Limit Warnings	Upper Limit Warnings	Lower Limit Errors	Upper Limit Errors
BEP_CPU_TEMPERATURE	Warning	1016	0	0	0
MST_AFE_TEMPERATURE	Normal	0	0	0	0
MST_BFO_TEMPERATURE	Normal	0	0	0	0
MST_MVP_TEMPERATURE	Normal	0	0	0	0

Figure 7-20. FRU Status

This table shows all the elements available on **FRU Status** with descriptions.

Table 7-5: FRU Status

Element	DESCRIPTION
FRU Status Summary	Number of the FRUs being monitored.
FRU Status Details	
Name	Name of the FRU. • ETX3 - Represents the ETX 64 transmitter board. • ETX4 - Represents the ETX 128 transmitter board.
Status	Status of the FRU. Valid values are: • Normal - Indicates that the FRU is operating within the allowable range. • Warning - Indicates that the FRU is operating close to the limit of the allowable range. • Error - Indicates that the FRU is operating outside the allowable range.
Low Level Warning	Number of low temperature warnings.
High Level Warning	Number of high temperature warnings.
Low Level Errors	Number of low temperature errors.
High Level Errors	Number of high temperature errors.

For more information, see:

- [‘Temperature’ on page 7-26](#)
- [‘Home’ on page 7-19](#)

Graphs

Graphs displays trend graphs for selected elements which have been selected as key indicators of overall temperature status inside the card rack.

To access this page, under **System Status**, select **Temperature** and then select **Graphs**.

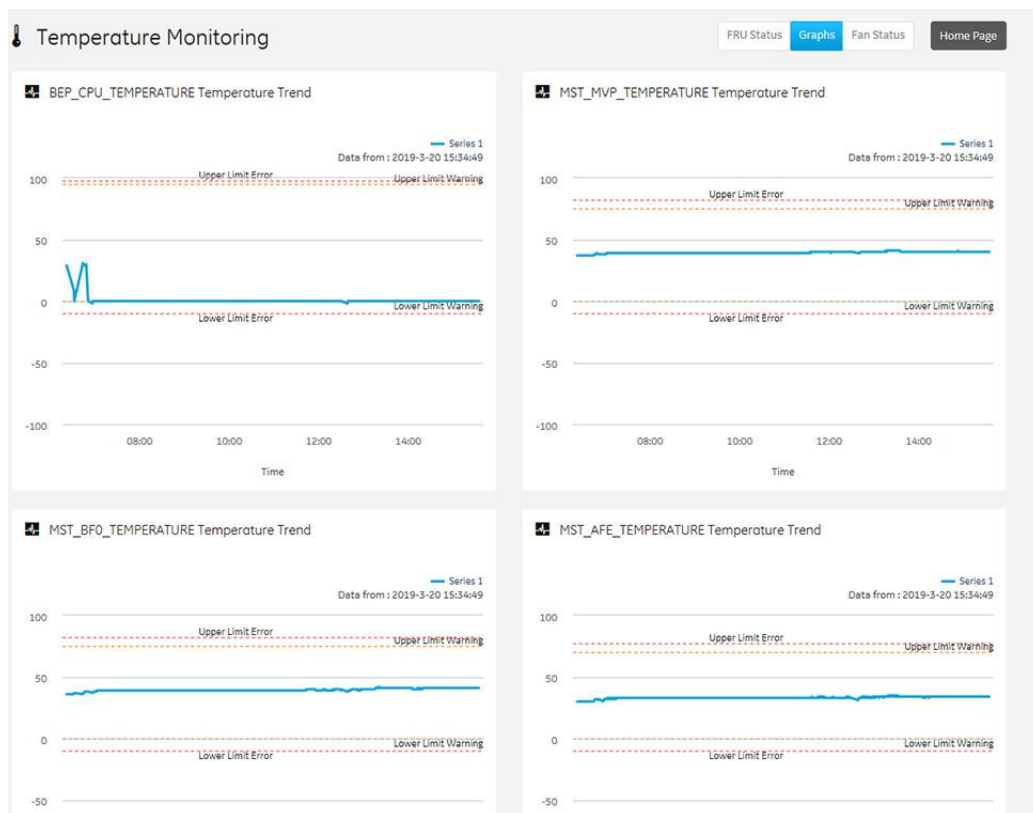


Figure 7-21. Graphs

For more information, see:

- [‘Temperature’ on page 7-26](#)
- [‘Home’ on page 7-19](#)

Voltage

Use **Voltage** to troubleshoot problems with monitored FRUs and the AC voltage of the Versana Balance.

Specifically, use these pages:

- FRU Status
- AC Voltage

To access **Voltage**, navigate to **Utility > Service > Home**, and then under **System Status**, select **Voltage**.

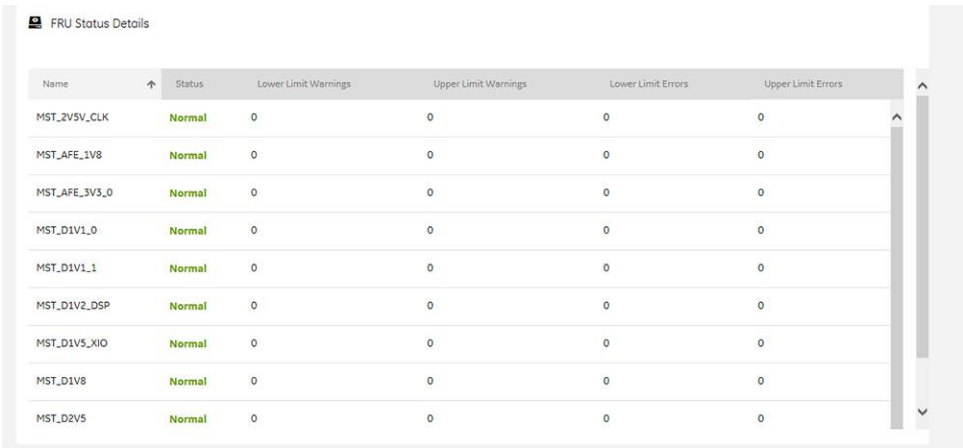
For more information, see:

- [‘FRU Status’ on page 7-27](#)
- [‘AC Voltage’ on page 7-31](#)
- [‘System Status’ on page 7-23](#)
- [‘Home’ on page 7-19](#)

FRU Status

FRU Status displays a summary of the voltages for the FRUs being monitored and the details for each FRU.

To access this page, under **System Status**, select **Voltage** and then select **FRU Status**.



Name	Status	Lower Limit Warnings	Upper Limit Warnings	Lower Limit Errors	Upper Limit Errors
MST_2V5V_CLK	Normal	0	0	0	0
MST_AFE_1V8	Normal	0	0	0	0
MST_AFE_3V3_0	Normal	0	0	0	0
MST_D1V1_0	Normal	0	0	0	0
MST_D1V1_1	Normal	0	0	0	0
MST_D1V2_DSP	Normal	0	0	0	0
MST_D1V5_XIO	Normal	0	0	0	0
MST_D1V8	Normal	0	0	0	0
MST_D2V5	Normal	0	0	0	0

Figure 7-22. FRU Status

This table shows all the elements available on **FRU Status** with descriptions.

Table 7-6: FRU Status

Element	DESCRIPTION
Name	Name of the FRU.
Status	Status of the voltage for the FRU. Valid values are: <ul style="list-style-type: none">• Normal - Indicates that the fan is within the allowable range.• Warning - Indicates that the voltage is close to the limit of the allowable range.• Error - Indicates that the voltage is outside the allowable range.
Lower Limit Warnings	Number of low limit voltage warnings.
Upper Limit Warnings	Number of high limit voltage warnings
Lower Limit Errors	Number of low limit voltage errors
Upper Limit Errors	Number of high limit voltage errors

For more information, see:

- [‘Voltage’ on page 7-29](#)
- [‘Home’ on page 7-19](#)

AC Voltage

AC Voltage graphically displays the voltage input over a period of time to help identify instabilities, or fault conditions, over time.

To access this page, under **System Status**, select **Voltage** and then select **AC Voltage**.

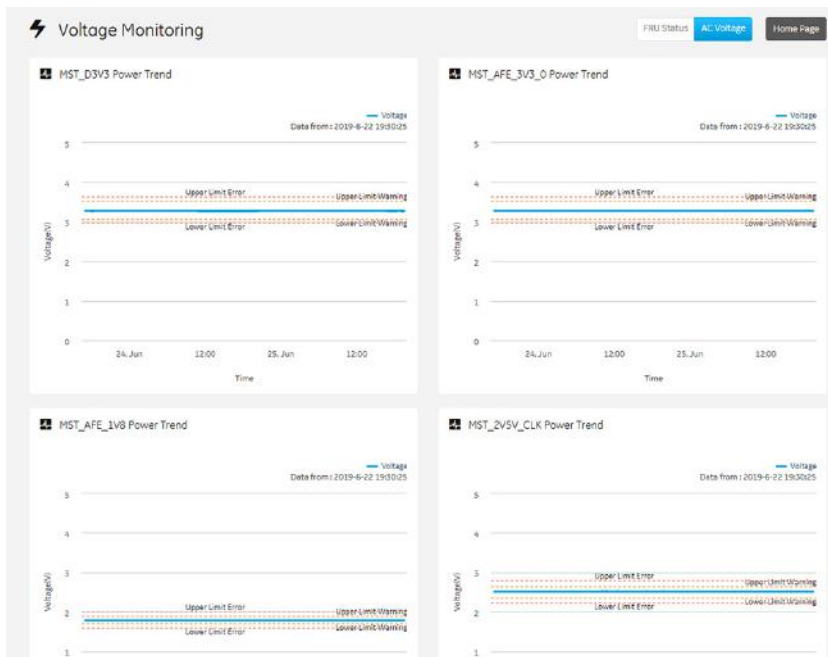


Figure 7-23. AC Voltage

For more information, see:

- [‘Voltage’ on page 7-29](#)
- [‘Home’ on page 7-19](#)

Disk Drive Space

Use **Disk Drive Space** to view the hard drive partitions including total size and available free space in GB. Includes the overall health of the drive in one of these colors:

- Red - Available free space is less than 10% of the total size.
- Orange - Available free space is more than 10% and less than 20% of the total size.
- Green - Available free space is more than 20% of the total size.

The information on **Disk Drive Space** is available to Class C and Class M licenses.

To access **Disk Drive Space**, navigate to **Utility > Service > Home**.

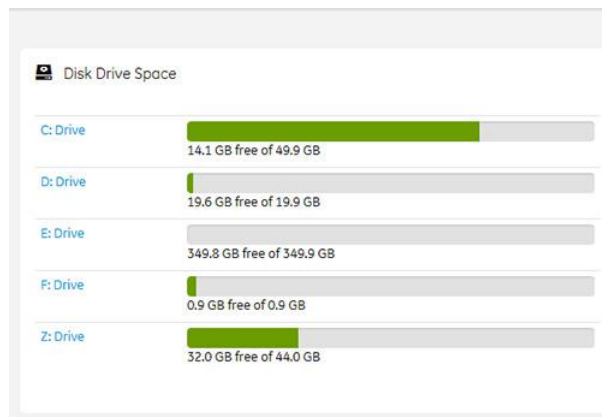


Figure 7-24. Disk Drive Space

Disk Drive Space(continued)

This table shows all the elements available on **Disk Drive Space** with descriptions.

Table 7-7: Disk Drive Space

Element	DESCRIPTION
C: Drive	C: partition shows the graphical representation of the following: <ul style="list-style-type: none"> • Used space in GB • Available free space in GB
D: Drive	D: partition shows the graphical representation of the following: <ul style="list-style-type: none"> • Service • Logs. • Temp • Export • Service configuration • Misc • Available free space in GB
E: Drive	E: partition shows the graphical representation of the following: <ul style="list-style-type: none"> • Printer spooler • Clipboard • Dicom spooler • Misc • Available free space in GB
F: Drive	F: partition shows the graphical representation of the following: <ul style="list-style-type: none"> • Serial Number • Available free space in MB
Z: Drive	Z: partition shows the graphical representation of the following: <ul style="list-style-type: none"> • Package repository • Misc • Available free space in GB

For more information, see:

- [‘Home’ on page 7-19](#)

Network Configuration

Use **Network Configuration** to view network (wired and wireless) information (the full ipconfig details)for the network configured with the Versana Balance.

The information on **Network Configuration** is available to Class C and Class M licenses.

To access **Network Configuration**, navigate to **Utility > Service > Home**.

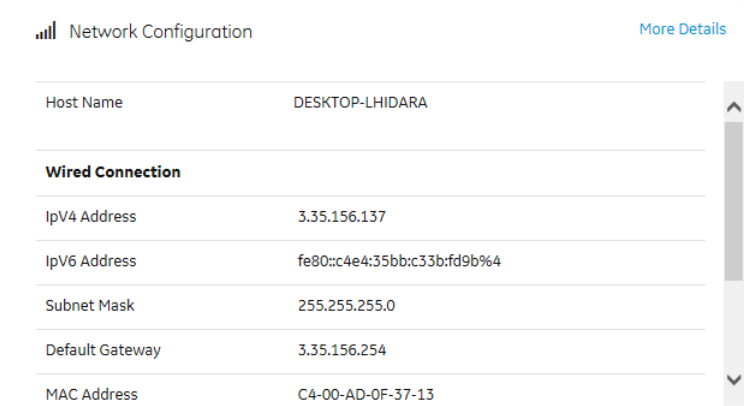


Figure 7-25. Network Configuration

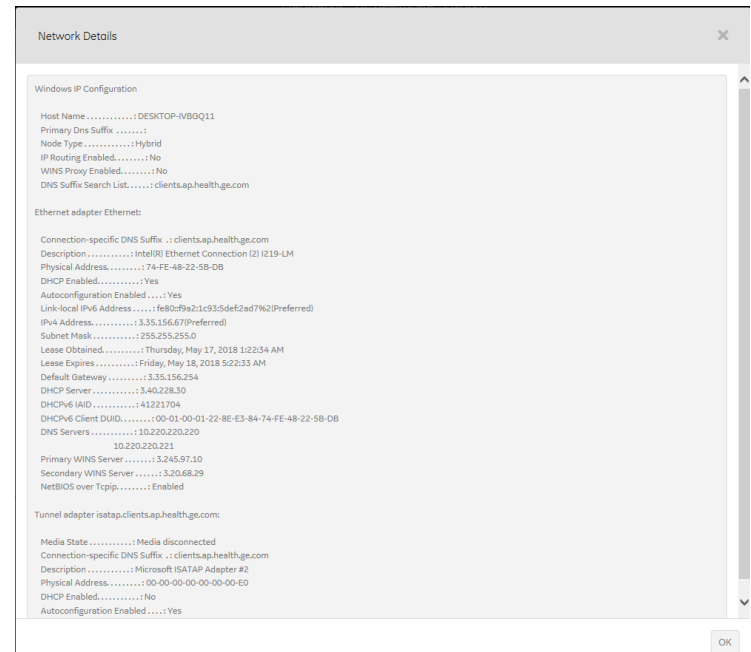


Figure 7-26. Network Configuration with More Details

Network Configuration(continued)

This table shows all the elements available on **Network Configuration** with descriptions.

Table 7-8: Network Configuration

Element	DESCRIPTION
Host Name	Name of the local host for the Versana Balance.
More Details	Displays the ipconfig details
Wired Connection	
IPv4 Address	Local IP address for the wired network connection.
IPv6 Address	Local IP address for the wired network connection.
Subnet Mask	Local subnet mask for the wired network.
Default Gateway	Default gateway for the wired network.
MAC Address	Address for the MAC for the wired network.
Speed (Mbps)	Speed of the wireless connection.
Wireless Connection	
IP Address	IP address for the wireless network connection.
Subnet Mask	Subnet mask for the wireless connection.
Default Gateway	Default gateway for the wireless connection.
MAC Address	Address for the MAC for the wireless connection.
Speed (Mbps)	Speed of the wireless connection
Status	Current status of the wireless connection.

For more information, see:

- [‘Home’ on page 7-19](#)

Connected Probes

Connected Probes shows probes connected to the Versana Balance. The order on the user interface is top down matching the left-to-right order on the Versana Balance.

The information on **Connected Probes** is available to all service class licenses.

To access **Connected Probes**, navigate to **Utility > Service > Home**.

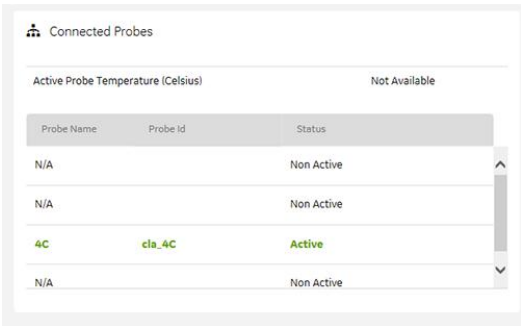


Figure 7-27. Connected Probes

This table shows all the elements available on **Connected Probes** with descriptions.

Table 7-9: Connected Probes

Element	DESCRIPTION
Active Probe Temperature (Celsius)	When available, temperature of the active probe. Not all probes report temperature. The most common probe to report temperature is the TEE probe.
Probe Name	Name of the probe connected to the Versana Balance.
Probe ID	Identifier of the probe connected to the Versana Balance.
Status	Statuses of the probe connected to the Versana Balance. Valid values are: <ul style="list-style-type: none">• Active• Non Active

For more information, see: ['Home' on page 7-19](#)

Diags

Use **Diags** to troubleshoot functionality with hardware components. With an active Service PRO license, probe diagnostics will be available. Specifically, use these pages:

- **Run Diags** - Run diagnostics on hardware components.
- **Diag History** - View a history of the diagnostics you have run and the results.

NOTE: Reboot the system after performing any diagnostics before returning the Versana Balance to customer use.

For more information, see:

- 'Run Diags' on [page 7-38](#)
- 'Diags History' on [page 7-41](#)

Run Diags

With Disruptive mode set to On, use **Run Diags** to run diagnostics on hardware components with the Versana Balance. For information on disruptive mode, see [‘Disruptive mode’ on page 7-15](#).

The information on **Run Diags** is available to Class C and Class M licenses.

To access **Run Diags**, navigate to **Utility > Service > Diags > Run Diags**.

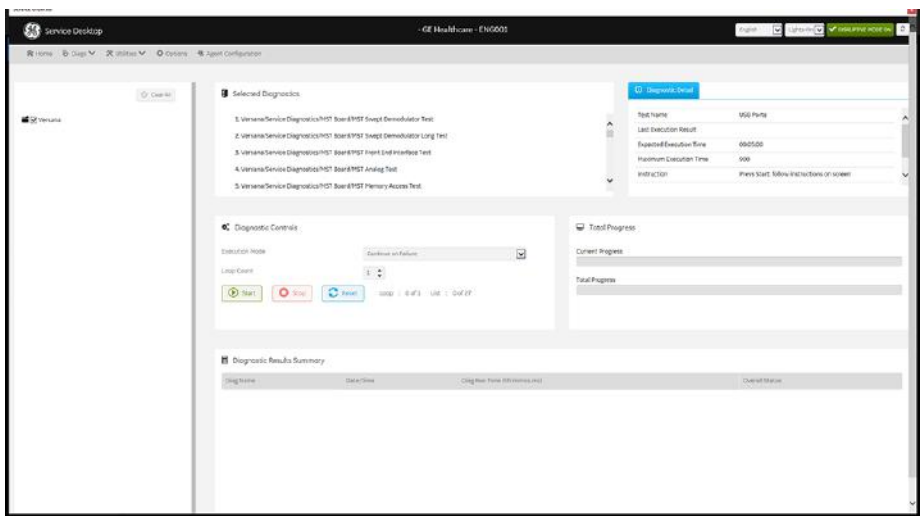


Figure 7-28. Run Diags(1)

This table shows all the elements available on **Run Diags** with descriptions.

Table 7-10: Run Diags

Element	DESCRIPTION
Menu	Available service diagnostics in a diagnostics tree.
Selected Diagnostics	Diagnostics that have been selected.
Diagnostic Detail	
Maximum Execution Time	Maximum amount of time allowed to run the diagnostic.
Instruction	Instruction Special instructions needed in order to perform the diagnostic.
Diagnostic Controls	

Table 7-10: Run Diags

Execution Mode	Way the diagnostic behaves when a failure occurs. Valid values are: <ul style="list-style-type: none"> • Continue on Failure • Finish Loop and Stop on Failure • Stop on Failure
Loop Count	Number of times to run the selected diagnostic.
Start	Starts the selected diagnostic.
Stop	Stops the selected diagnostic.
Reset	Resets the selections within the diagnostics tree.
Total Progress	
Current Progress	Progress the current diagnostic.
Total Progress	Progress for all of the selected diagnostics.
Diagnostic Results Summary	
Diag Name	Name of the diagnostic.
Date/Time	Date and time of the diagnostic run.
Diag Run Time	Amount of time taken to run the diagnostic.
Overall Status	Current status of the diagnostic.
Pass/Fail	Whether the selected diagnostic passed or failed. <ul style="list-style-type: none"> • Green - Diagnostic passed • Red - Diagnostic failed

To run a diagnostic:

1. Navigate to **Utility (second page) > Service > Utilities > Disruptive Mode Utility** and set Disruptive mode to On.
2. Navigate to **Utility (second page) > Service > Diags > Run Diags**.
3. From the **Service Menu** tab, select the diagnostic (for example, GRLY with Probes). The **Selected Diagnostics** and **Diagnostic Detail** areas populate with information specific to the selected diagnostic.
4. In **Execution Mode**, select the desired mode.
5. In **Loop Count**, select the number of times to run the diagnostic.

Run Diags(continued)

6. Click **Start**.

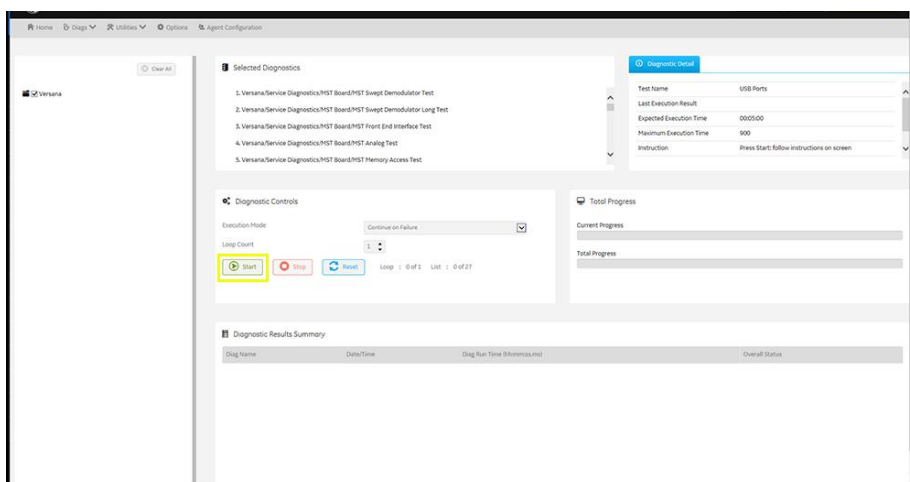


Figure 7-29. Run Diags(2)

7. View progress in the **Total Progress** area.
8. View the results (Passed or Failed) in the **Diagnostic Results Summary** area.

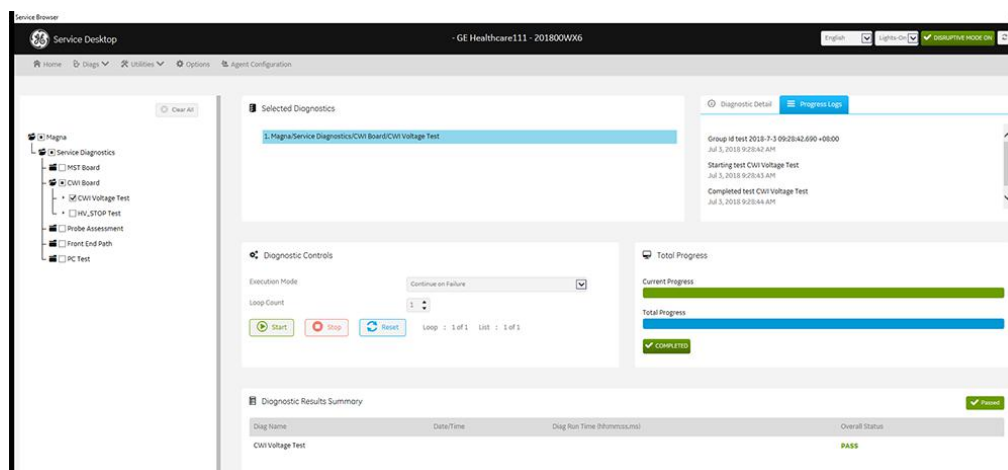


Figure 7-30. Results Summary

9. To view details about the diagnostics run, see.
For more information, see:

- 'Diags' on [page 7-37](#)
- 'Diags History' on [page 7-41](#)

Diags History

Use **Diags History** to view a history of the diagnostics run on the Versana Balance and the results.

The information on **Diags History** is available to Class C and Class M licenses.

To access **Diags History**, navigate to **Utility > Service > Diags > Diags History**.

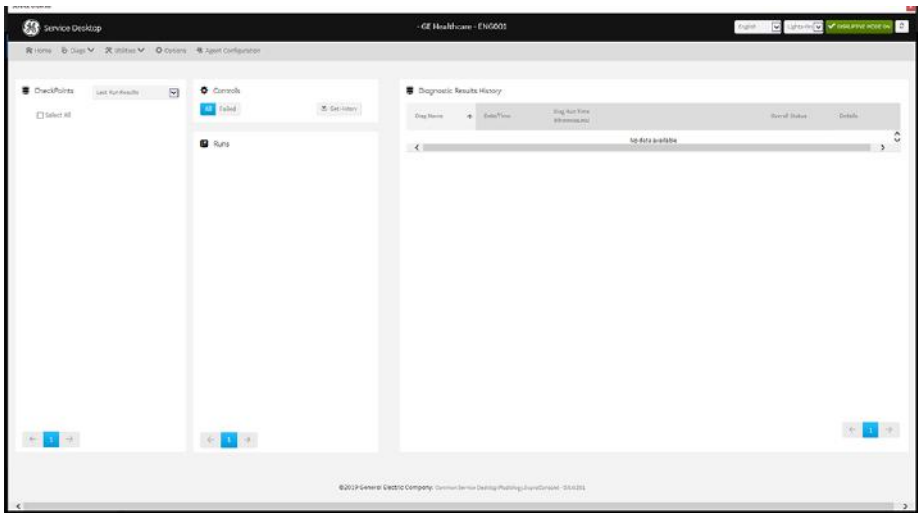


Figure 7-31. Diags History

This table shows all the elements available on **Diags History** with descriptions.

Table 7-11: Diag History

Element	DESCRIPTION
Checkpoints	
Select All	Selects all of the available checkpoints in the list.
Controls	
All	Filters results to show all of the diagnostics.
Failed	Filters results to show failed diagnostics.
Get History	Select to display a history of the run diagnostics.
Runs	
	List of diagnostics run on the Versana Balance.
Diagnostic Results History	
	Details about the diagnostics run.

Diags History(continued)

To view a history of diagnostics:

1. Navigate to **Utility (second page) > Service > Diags > Diag History**.
2. Select the options that you want to view.
3. Click **Get History**.
4. View the results of your query.
 - To view specific details, click **Details**.

Diagnostic Result

Diag Name : A_PCDR_ESSENTIAL

Last Start Time
: 06/08/2018 16:22:31 Coordinated Universal Time

End Time
: 06/08/2018 16:30:35 Coordinated Universal Time

Diag Run Time : 484000 ms

Overall Status : Passed

✓ A_PCDR_ESSENTIAL Results

Result	Errors	Test Name	Device	Description
Number of Tests: 34	Number of Errors: 0			
Passed	Configuration Test	PCI Subsystem		Verifies the configuration of detected PCI cards is valid.
Passed	PCI Express Status Test	Intel(R) HD Graphics 510		Verifies the PCI Express configuration space is free of errors.
Passed	PCI Express Status Test	Intel(R) 100 Series/C230 Series Chipset Family PCI Express Root Port #1 - A110		Verifies the PCI Express configuration space is free of errors.
Passed	PCI Express Status Test	GEHC-US PCI P2P Filter for TI XIO2001 PCIe2PCI bridge		Verifies the PCI Express configuration space is free of errors.
Passed	Pattern Test	CMOS		Verifies the CMOS memory successfully retains data.
Passed	Register Test	Intel(R) Celeron(R) CPU G3900E @ 2.40GHz (CPU:0)		Verifies the CPU registers successfully retain data.
Passed	Level 2 Cache Test	Intel(R) Celeron(R) CPU G3900E @ 2.40GHz (CPU:0)		Verifies the L2 Cache memory is functional.
Passed	Math Register Test	Intel(R) Celeron(R) CPU G3900E @ 2.40GHz (CPU:0)		Verifies the CPU co-processor, register stack, pointers, and commands are functional.
Passed	MMX Test	Intel(R) Celeron(R) CPU G3900E @		Verifies the CPU supports MMX features.

OK

Figure 7-32. Details

For more information, see:

- 'Diags' on [page 7-37](#)
- 'Diags History' on [page 7-41](#)

Utilities

Utilities configurations vary depending upon the service class.

For more information, see:

- [‘Change Password for Auto File Transfer’ on page 7-54](#)
- [‘Checkpoints’ on page 7-68](#)
- [‘Clean Userdefs’ on page 7-61](#)
- [‘Delete Files’ on page 7-48](#)
- [‘Disk Defragment’ on page 7-44](#)
- [‘Disruptive Mode’ on page 7-70](#)
- [‘Gather Logs’ on page 7-46](#)
- [‘Network Capture’ on page 7-73](#)
- [‘Reset Patient Database’ on page 7-59](#)
- [‘SSA License’ on page 7-64](#)
- [‘SSA License’ on page 7-64](#)
- [‘Software Reload’ on page 7-56](#)
- [‘System Shutdown’ on page 7-66](#)
- [‘Third Party Software Licenses’ on page 7-63](#)
- [‘Virtual Console Observation’ on page 7-51](#)

Disk Defragment

Disk Defragment provides a way to launch the Windows Disk Defragmenter tool to use to defragment the disks. Disk fragmentation can reduce the amount of disk space available, and slow computing speed. Use the disk defragmenter to restore optimum disk space and speed performance. If Versana Balance performance would be significantly reduced when the disk is being defragmented, a warning message displays. It is not possible to analyze the SSH drives.

The information on **Disk Defragment** is available to Class C (Service Advanced and Service Expert) and Class M licenses. **Disk Defragment** is not available through a remote connection.

To access **Disk Defragment**, select **Utility (second page) > Service > Utilities > Disk Defragment**.

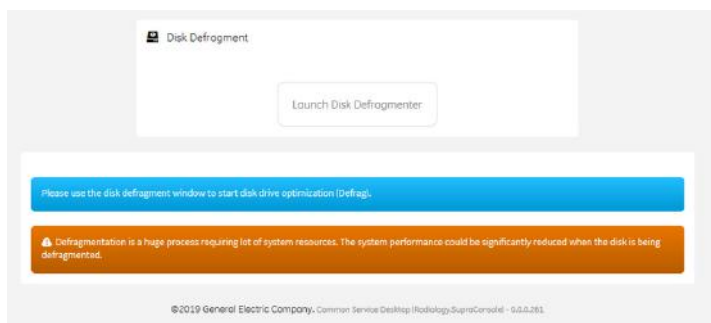


Figure 7-33. Disk Defragment

To analyze, optimize, or schedule optimization for a disk:

1. Navigate to **Utility (second page) > Service > Utilities > Disk Defragment**.
2. Click **Launch Disk Defragmenter**.

Disk Defragment(continued)

3. In the **Optimize Drives** dialog box, select the drive.

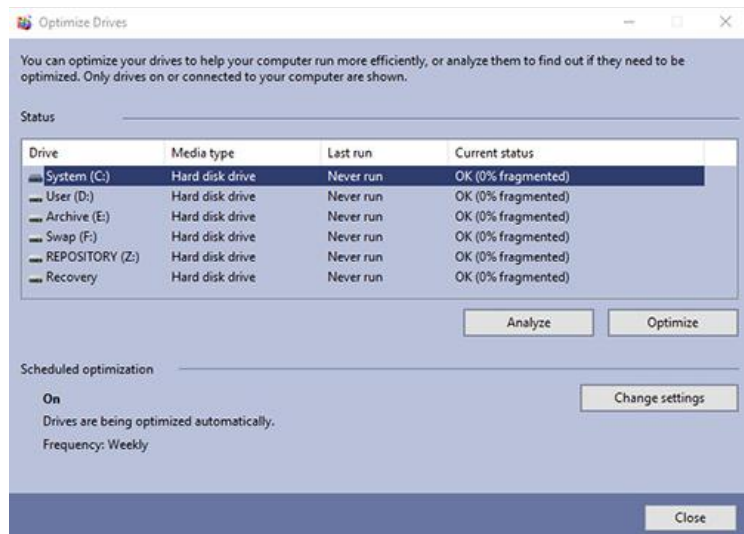


Figure 7-34. Optimized Drives

4. To analyze the selected drive, click **Analyze**.
5. To optimize the selected drive, click **Optimize**.
6. To set up a schedule, click **Change settings** and select the schedule

For more information, see:

- [‘Utilities’ on page 7-43](#)

Gather Logs

Gather Logs provides a way to collect system logs and place the log files in the D:\Service directory for retrieval by the online center. These log files do not include protected data such as crash dumps and keyboard shadow logs. The customer can collect logs (including protected data) using Alt+D when Protected Data is checked. Log files are compressed into a .zip file and the file path and name display.If the application software is not running, use the **Gather Logs** shortcut on the Windows desktop.

The information on **Gather Logs** is available to all service class licenses.

To access **Gather Logs**, select **Utility (second page) > Service > Utilities > Gather Logs**.

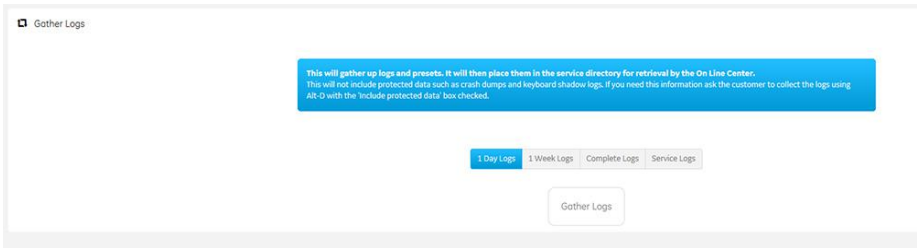


Figure 7-35. Gather Logs

This table shows all the elements available on **Gather Logs** with descriptions.

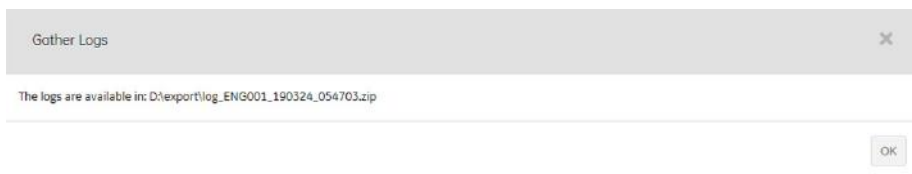
Table 7-12: Gather Logs

Element	DESCRIPTION
1 Day Logs	When selected, gathers log files for one day.
1 Week Logs	When selected, gathers log files for one week.
Complete Logs	When selected, gathers all available log files.
Service Logs	When selected, gathers service log files.

Gather Logs(continued)

To gather log files:

1. Navigate to select **Utility (second page) > Service > Utilities > Gather Logs**.
2. Select one of the following:
 - 1 Day Logs
 - 1 Week Logs
 - Complete Logs
 - Service Logs
3. Click **Gather Logs**. In the resulting dialog box, record the location of the log files and click **OK**.
 - When the gather log operation is complete, click the notification icon in the banner to view the location of the log files.



For more information, see:

- ['Utilities' on page 7-43](#)

Delete Files

Delete Files displays all the files and folders present in the D:\Service folder and allows for their deletion. Deleting unneeded files improves performance and reduces the need to defragment the disk drive.

The information on **Delete Files** is available to all service class licenses.

To access Delete Files, select **Utility (second page) > Service > Utilities > Delete Files**.

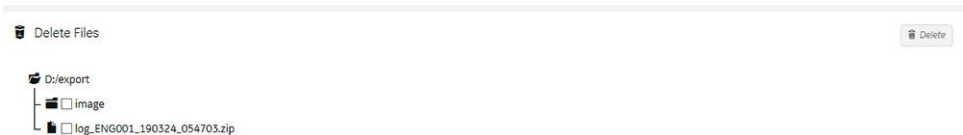


Figure 7-36. Delete Files

This table shows all the elements available on **Delete Files** with descriptions

Table 7-13: Delete Files

Element	DESCRIPTION
Delete Files	Displays the files that are available for deletion.
Delete	Deletes the selected files.

To delete files:

1. Navigate to select **Utility (second page) > Service > Utilities > Delete Files**.
2. Under **Delete Files**, select the available folders and files that you want to delete.
3. Click **Delete**.
4. In the resulting dialog box, click **Delete** and then click **OK**.

For more information, see:

- [‘Utilities’ on page 7-43](#)

Data Transfer

Data Transfer provides a way to do the following:

- View information about past transfers of (APM) information.
- Set up automatic/scheduled transfer of allowed data files from the Versana Balance to the server.
- Manually transfer allowed data files from the Versana Balance to the server.

The information on **Data Transfer** is available to all service class licenses.

To access Delete Files, select **Utility (second page) > Service > Utilities > Data Transfer**.

The screenshot displays the 'Data Transfer' utility window. At the top, there's a header bar with the title 'Data Transfer'. Below it is a table with four columns: 'Type of Upload', 'Last Upload Status', 'Last Upload Attempt', and 'Last Successful Attempt'. The first row of the table shows 'System Logs'. Below the table, there's a 'Scheduler' section with a checked checkbox. To the right of the checkbox are radio buttons for 'All Days', 'Mon', 'Tue', 'Wed', 'Thu', 'Fri', 'Sat', and 'Sun'. Below these are two buttons: 'Save Settings' and 'Send All' (which has an upload icon).

Figure 7-37. Data Transfer

This table shows all the elements available on **Data Transfer** with descriptions

Table 7-14: Data Transfer

Element	DESCRIPTION
Type of Upload	Type of log file. For example, Incremental Logs or Full Logs. Monitoring Logs, System Logs, and Windows Logs are incrementally transferred when automatic transfer is enabled. To enable automatic transfer, navigate to System Admin and, under Service, check Enable Automatic Request for Service.
Upload Permission	Whether the permission to upload the log file is allowed or not.
Last Upload Status	Whether the last log file upload was successful or not.
Last Upload Attempt	Date and time the last log file upload was attempted.
Last Successful Upload	Date and time the last log file was successfully uploaded.

Table 7-14: Data Transfer

Scheduler	When selected, enables the related day selections. For example, All Days, Monday, and Tuesday.
Save	Save the settings information.
Send All	Manually send the selected log files to the server.

To configure automatic data transfers (Auto File Transfer / AFT):

1. Navigate to **Utility (second page) > Service > Utilities > Data Transfer**.
2. On Data Transfer, select Scheduler, and then select the days to perform the data transfer.
3. Click Save Settings
4. To manually perform a data transfer, click Send All.

For more information, see:

- ['Utilities' on page 7-43](#)

Virtual Console Observation

Virtual Console Observation displays the status of the VNC server. Virtual console observation (VCO) is normally used to remotely access and modify settings and programs.

The information on **Virtual Console Observation** is available to Class M licenses. **Virtual Console Observation** is not available through a remote connection.

To access **Virtual Console Observation**, select **Utility (second page) > Service > Utilities > Virtual Console Observation**.

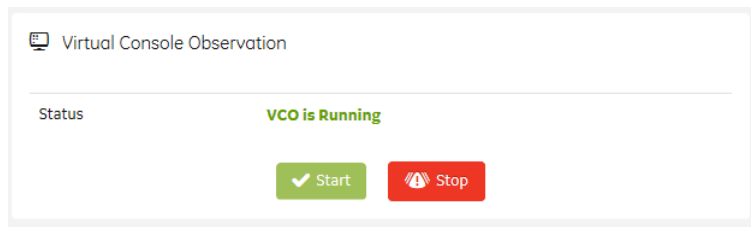


Figure 7-38. Virtual Console Observation


This table shows all the elements available on **Virtual Console Observation** with descriptions.

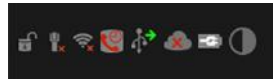
Table 7-15: Virtual Console Observation

Element	DESCRIPTION
Status	When Disruptive mode is on, displays the status of the VNC server. Valid values are: <ul style="list-style-type: none">• VCO is stopped• VCO is running
Start	When Disruptive mode is ON, starts the VNC server.
Stop	When Disruptive mode is ON and the VNC server is running, stops the VNC server.

Virtual Console Observation(continued)

To start virtual console observation:

1. Navigate to **Utility (second page) > Service > Utilities > Disruptive Mode Utility** and set Disruptive mode to On.
2. Or move the trackball to , press **Set** key, then select **Disruptive and VCO** from **Service Menu**.



Select Enable to turn on Disruptive mode and press Exit.

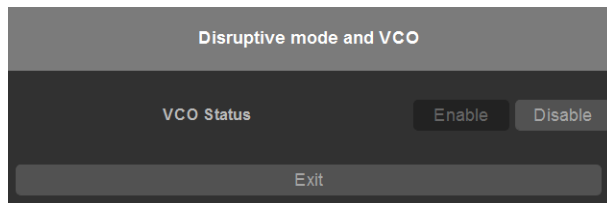


Figure 7-39. Select Enable

Here is the explanation for current design on “Disruptive mode and VCO” button function:

- a. The button is designed to Enable VCO in quick way, so when clicking “Enable”, it will enable both “Disruptive mode” and “VCO” (Disruptive mode ON is the prerequisites for VCO ON).
- b. When clicking “Disable”, it can only disable “VCO”, but will not disable the Disruptive mode.
- c. The user has to enter CSD to disable the Disruptive mode if he/she wants to do that, refer to [‘Disruptive Mode’ on page 7-70](#).

Virtual Console Observation(continued)

3. Navigate to **Utility (second page) > Service > Utilities > Virtual Console Observation**.
4. Select **Start**. When VCO starts, the Windows task bar and Windows desktop display.
5. Modify settings and programs as needed.
6. To stop virtual console observation, click **Stop**. When VCO is stopped, the Windows desktop is hidden.
7. Restart the Versana Balance.

For more information, see:

- ['Utilities' on page 7-43](#)

Change Password for Auto File Transfer

Change Password for Auto File Transfer allows you to change the password for a specified user type.



IF THE PASSWORD IS LOST, GE WILL NOT BE ABLE TO RECOVER OR RESET IT.LOSS OF A PASSWORD MAY RESULT IN THE LOSS OF PATIENT DATA.

The information on **Change Password for AFT** is available to all service class licenses. **Change Password for AFT** is not available through a remote connection.

To access **Change Password for AFT**, select **Utility > Service > Utilities > Change Password for Auto File Transfer**.

Figure 7-40. Change Password for Auto File Transfer

This table shows all the elements available on **Change Password for AFT** with descriptions.

Table 7-16: Change Password for AFT

Element	DESCRIPTION
User Type	Type of user for the password reset.
New Password	Password.
Confirm Password	Password.
Update Password	Select to update the password.
Reset	Select to reset the information.

Change Password for Auto File Transfer(continued)

To change the password:

1. Navigate to select **Utility > Service > Utilities > Change Password for Auto File Transfer**.
2. Under **User Type**, select the user.

NOTE:

Before changing the GEService password (the default is SvcForward123\$), make sure the Versana Balance is connected to the network and the agent is configured. The GEService password is used to perform portions of remote service. If the password is changed and the system information is not updated, it may slow down remote service. Both file transfer and SSH depend on the GEService password.

3. In **New Password** and **Confirm Password**, enter the new password.



CAUTION

GE WILL NOT BE ABLE TO RECOVER OR RESET CHANGED PASSWORDS. SECURELY RECORD THE NEW PASSWORD.

4. Click **Update Password**.
5. When a SVCService user password has been changed, reboot the Versana Balance to reflect the password change.

For more information, see:

- [‘Utilities’ on page 7-43](#)

Software Reload

Software Reload displays versions of the base image, application software, base patch, service platform, and documentation packages currently installed on the Versana Balance. **Software Reload** reimages the C:\ drive and installs the base image.

- If the drives are encrypted, **Software Reload** will have a catastrophic effect if the customer does not have the recovery key. All patient data will be lost.
- If the drives are not encrypted, software can be reloaded without a recovery key.

With Disruptive mode set to On, reload these software versions from repository partition on the hard drive. The software reload is automatic without any loss of presets, patient data, or connectivity settings.

The information on **Software Reload** is available to Class C (Service Expert) and Class M licenses.

To access **Software Reload**, select **Utility > Service (second page) > Utilities > Software Reload**.

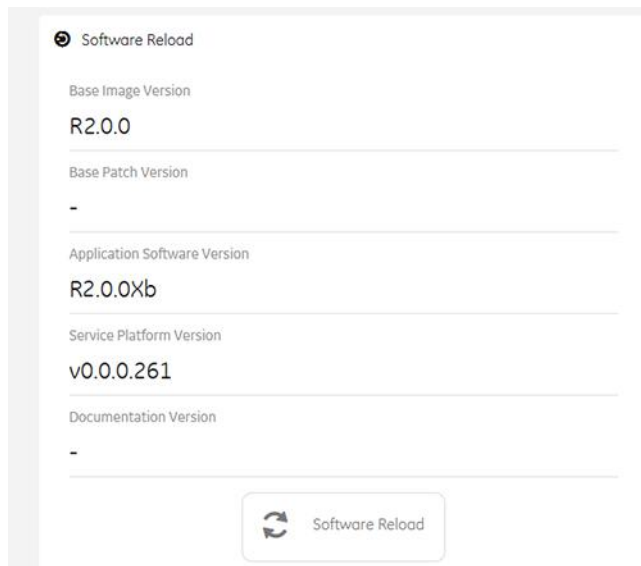


Figure 7-41. Software Reload

Software Reload(continued)

This table shows all the elements available on **Software Reload** with descriptions.

Table 7-17: Software Reload

Element	DESCRIPTION
Base Image Version	Displays the version number of the base image software.
Base Patch Version	Displays the version number of the base patch.
Application Software Version	Displays the version number of the application software.
Service Platform Version	Displays the version number of the service platform.
Documentation Version	Displays the version number for the documentation.
Software Reload	Reloads the versions listed.

To reload software:

1. If the drives are encrypted, obtain the recovery key.
2. Navigate to **Utility (second page) > Service > Utilities > Disruptive Mode Utility** and set Disruptive mode to On.
3. Navigate to **Utility (second page) > Service > Utilities > Software Reload**.
4. View the current version numbers.
5. Click **Software Reload**.

**CAUTION**

RELOADING SOFTWARE WITHOUT A RECOVERY KEY
WILL RESULT IN THE LOSS OF PATIENT DATA.

Software Reload(continued)

6. If you have a recovery key, select **I have a recovery key** and then click **Continue**.

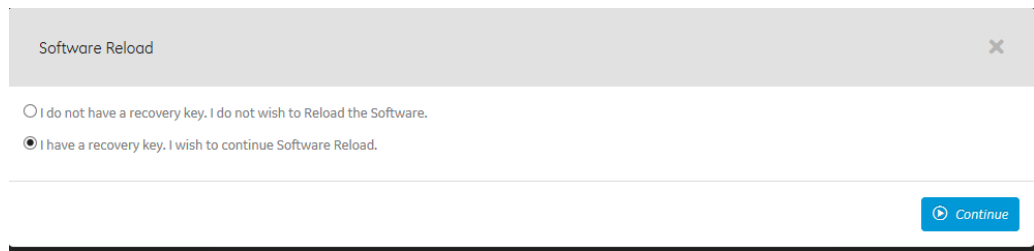


Figure 7-42. Software Reload (1)

7. If you have a recovery key, select **I Agree** and then click **Continue Reload**.

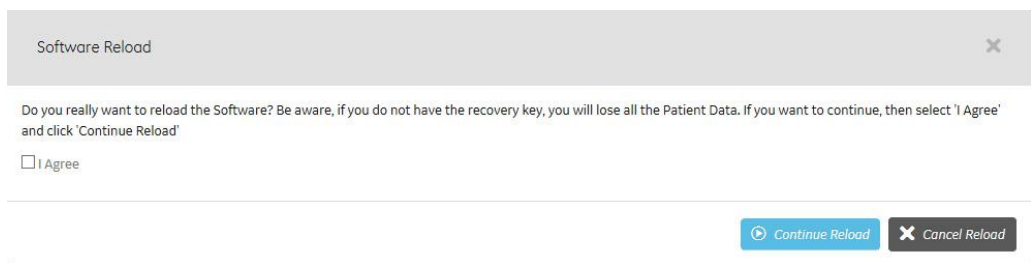


Figure 7-43. Software Reload (2)

For more information, see:

- [‘Utilities’ on page 7-43](#)

Reset Patient Database

Reset Patient Database resets the Versana Balance™/Versana Balance™ Vet patient database. This operation automatically shuts down the application before cleaning the patient database. Once the operation is complete, the Versana Balance™/Versana Balance™ Vet reboots with an empty database. Disruptive mode must be On to reset the patient database. If Disruptive mode is Off, a warning message displays asking to turn on Disruptive mode.

Reset Patient Database deletes the contents of the following folders:

- E:\Scanner\GEMS_IMG
- E:\Scanner\GEMS_REP
- E:\Scanner\GEMS_DB

After deleting all the contents of the folders, the folder E:\Scanner\GEMS_DB will be reset to factory setup.

The information on **Reset Patient Database** is available to Class C (Service Expert) and Class M licenses.

To access **Reset Patient Database**, select **Utility (second page) > Service > Utilities > Reset Patient Database**.

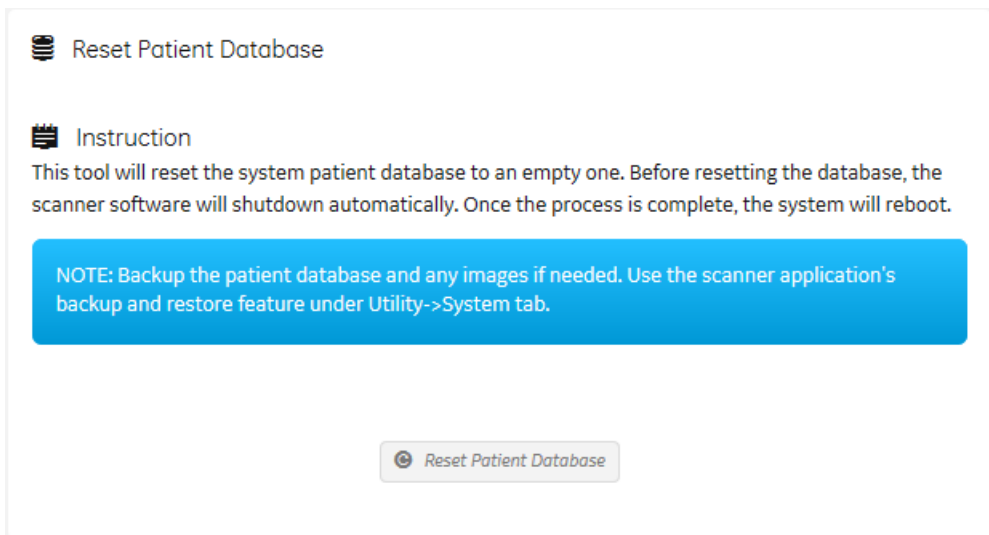


Figure 7-44. Reset Patient Database

Reset Patient Database(continued)

This table shows all the elements available on **Reset Patient Database** with descriptions.

Table 7-18: Reset Patient Database

Element	DESCRIPTION
Instruction	Information about the database reset.
Reset Patient Database	When Disruptive mode is ON, resets the Versana Balance™/Versana Balance™ Vet patient database.

Reset Patient Database(continued)

To reset the patient database:

1. Back up the patient database.
2. Navigate to **Utility (second page) > Service > Utilities > Disruptive Mode Utility** and set Disruptive mode to On.
3. Navigate to **Utility (second page) > Service > Utilities > Reset Patient Database**.
4. Click **Reset Patient Database**.
5. Confirm the patient database has been emptied.

For more information, see:

- ['Utilities' on page 7-43](#)

Clean Userdefs

Clean Userdefs provides a way to delete user-defined data when user presets may be inhibiting proper operation. User-defined data returns the user-defined settings to the factory default values. **Clean Userdefs** provides information to backup the current settings if you want to use them later. Disruptive mode must be On to clean user-defined data. If Disruptive mode is Off, a warning message displays asking to turn on Disruptive mode.

Before cleaning user-defined data, the Versana Balance™/Versana Balance™ Vet application software automatically shuts down. Once the operation is complete, the system reboots.

Clean Userdefs provides a way to selectively delete the following user-defined data:

- Connectivity - Deletes this file:
%TEST_ROOT%\resources\userdefs\connectivity.res
- Imaging - Deletes this folder:
%TEST_ROOT%\resources\userdefs\ImagingPresets\
- Measurement - Delete this folder:
%TEST_ROOT%\resources\userdefs\EchoMeasure\
- Annotation/Bodymark - Deletes the folder:
%TEST_ROOT%\resources\userdefs\EchoAnnotation\

The information on **Clean Userdefs** is available to Class C (Service Expert) and Class M licenses.

To access **Clean Userdefs**, select **Utility (second page) > Service > Utilities > Clean Userdefs**.

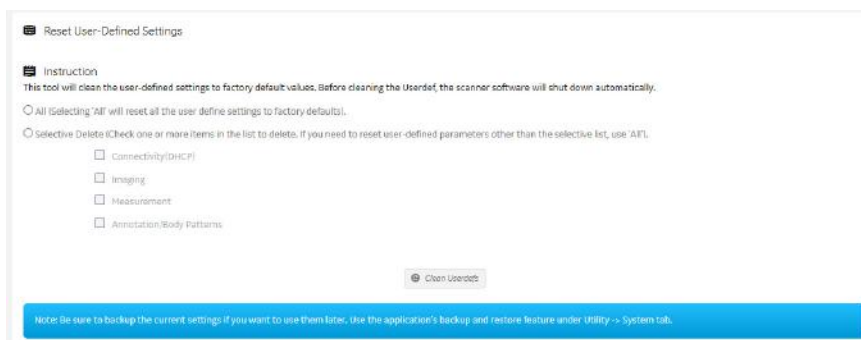


Figure 7-45. Clean Userdefs

Clean Userdefs(continued)

This table shows all the elements available on **Clean Userdefs** with descriptions.

Table 7-19: Clean Userdefs

Element	DESCRIPTION
Connectivity	When Selective Delete is selected, deletes this file: %TEST_ROOT%\resources\userdefs\connectivity.res
Imaging	When Selective Delete is selected, deletes this folder: %TEST_ROOT%\resources\userdefs\ImagingPresets\
Measurement	When Selective Delete is selected, delete this folder: %TEST_ROOT%\resources\userdefs\EchoMeasure\
Annotation/Body Patterns	When Selective Delete is selected, deletes this folder: %TEST_ROOT%\resources\userdefs\EchoAnnotation\

To clean user-defined data:

1. If you want to use the current settings later, back them up now.
2. Navigate to **Utility (second page) > Service > Utilities > Disruptive Mode Utility** and set Disruptive mode to On.
3. Navigate to **Utility (second page) > Service > Utilities > Clean Userdefs**.
4. Select the data you want to set to the default settings.
5. Click **Clean Userdefs**.

For more information, see:

- [‘Utilities’ on page 7-43](#)

SSA License

SSA License provides a way to do the following:

- When inserted, view the details of an SSA key.
- View the status of the service class options.
- Restore an SSA license when the SSA key is not validating or when a remote log in shows as a Class A user.

The information on **SSA License** is available to all service class licenses.

To access **SSA License**, select **Utility (second page) > Service > Utilities > SSA License**.

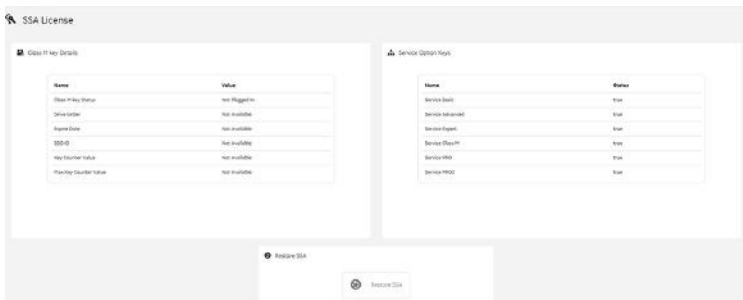


Figure 7-47. SSA License

This table shows all the elements available on **SSA License** with descriptions.

Table 7-20: SSA License

Element	DESCRIPTION
Class M Key Details	
Class M Key Status	Status of the SSA key. Valid values are: <ul style="list-style-type: none">• Not Plugged In• Plugged In
Drive Letter	Drive where the SSA key is plugged into the Versana Balance
Expire Date	Date the SSA key is set to expire.
SSO ID	Identifier for the user assigned to the SSA key.
Key Counter Value	Number of times the SSA key has been used.
Max Key Counter Value	Number of remaining times the SSA key can be used.
Service Option Keys	
Name	Name of the service class option.

Table 7-20: SSA License

Status	Status of the access to the associated service class option. Valid values are: • True • False
Restore SSA	Restores the SSA license to the SSA key.

To view the Class M license information:

1. Insert the SSA key.
2. Navigate to **Utility (second page) > Service > Utilities > SSA License**.
3. Under **Class M key Details**, view the values. For example, the **SSO ID** for the user assigned to the SSA key.
If **Not Available** displays for all of these values, the SSA key is not validating.

To restore an SSA key that is not validating:

1. Remove the SSA key from the Versana Balance.
2. If open, close the Service desktop.
3. Restart the Versana Balance™/Versana Balance™ Vet.
4. Once the Versana Balance has restarted, plug in the SSA key.
5. Navigate to **Utility (second page) > Service > Utilities > SSA License**.
6. Click **Restore SSA**.
7. Check to see if the SSA key validates.

For more information, see:

- ['Utilities' on page 7-43](#)

System Shutdown

With remote access, **System Shutdown** provides a way to shut down or restart the Versana Balance™/Versana Balance™ Vet. Disruptive mode must be On to shut down or restart the Versana Balance™/Versana Balance™ Vet. If Disruptive mode is Off, a warning message displays.

The information on **System Shutdown** is available to Class M licenses.

To access **System Shutdown**, select **Utility (second page) > Service > Utilities > System Shutdown**.

System Shutdown

Select Operation

☒ Shutdown System

☐ Restart System

Disruptive Mode

☐ Retain Disruptive Mode

Submit Request

Figure 7-48. System Shutdown

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

Table 7-21: System Shutdown

Element	DESCRIPTION
Select Operation	
Shutdown System	When Disruptive mode is On, shuts down the Versana Balance™/Versana Balance™ Vet when Submit Request is pressed.
Restart System	When Disruptive mode is On, restarts the Versana Balance™/Versana Balance™ Vet when Submit Request is pressed.
Shutdown Application	When Disruptive mode is On, shuts down the application software when Submit Request is pressed.
Disruptive Mode	
Retain Disruptive Mode	Determines whether Disruptive mode is retained after an operation has been performed. Generally used by the remote engineer to regain access to disruptive functions after a reboot without having to request Disruptive mode be enabled again.
Submit Request	Performs the operation selected under Select Operation .

System Shutdown(continued)

To remotely start, restart, or shut down the Versana Balance™/Versana Balance™ Vet:

- Navigate to **Utility (second page) > Service > Utilities > Disruptive Mode Utility** and set Disruptive mode to On.
- 8. Navigate to **Utility (second page) > Service > Utilities > System Shutdown** and then select an operation:
 - To shut down the Versana Balance™/Versana Balance™ Vet, select **Shutdown System**.
 - To restart the Versana Balance™/Versana Balance™ Vet, select **Restart System**.
 - To shut down the application software, select **Shutdown Application**.
- 9. To retain the current setting for Disruptive mode, select **Retain Disruptive Mode**.
- 10. Click **Submit Request**.

For more information, see:

- [‘Utilities’ on page 7-43](#)

Checkpoints

Checkpoints allows for the creation of checkpoints and displays the history of those checkpoints. Checkpoints are used to indicate when the Versana Balance™/Versana Balance™ Vet has been serviced, status has been reset, and information related to the service performed has been added.

The information on **Checkpoints** is available to Class C (Service Advanced and Service Expert) and Class M licenses.

To access **Checkpoints**, select **Utility (second page) > Service > Utilities > Checkpoints**.

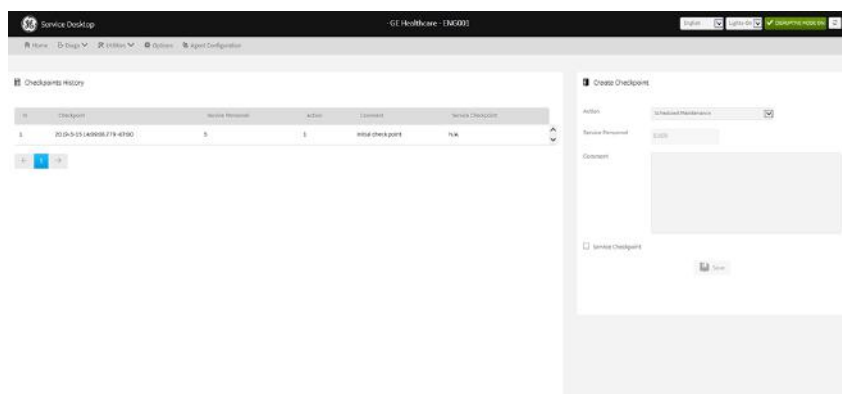


Figure 7-49. Checkpoints

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

Table 7-22: Checkpoints

Element	DESCRIPTION
Checkpoints History	
Checkpoint	Displays the name of the checkpoint.
Service Personnel	Displays the ID for the logged in user.
Action	Displays the service action.
Comment	Displays comment text entered when the checkpoint was created.
Service Checkpoint	Displays whether the checkpoint is a service checkpoint or not.
Create Checkpoint	

Table 7-22: Checkpoints

Action	Selects the service action. Value values are <ul style="list-style-type: none"> • Scheduled Maintenance • Unscheduled Maintenance • Upgrade • FMI
Service Personnel	ID for the logged in user. Value values are: <ul style="list-style-type: none"> • SSO ID: When a Class M key is plugged in, the SSO ID for the logged in user. • Remote user ID: If there is a remote connection, the remote user ID. • User ID: If the SSO ID and remote user ID are not available, the user ID for the logged in user. • Unknown: The logged in user ID is not available.
Comment	Enter comments for creating a checkpoint.
Service Checkpoint	Select whether to mark a service checkpoint or not.
Save	Saves the information.

To create a check point:

- Navigate to **Utility (second page) > Service > Utilities > Checkpoints**.
- 11. Under **Create Checkpoints**, from **Action**, select the action.
- 12. In **Comment**, enter notes for the checkpoint.
- 13. If this is a checkpoint for service, select **Service Checkpoint**.
- 14. Click **Save**.

For more information, see:

- [‘Utilities’ on page 7-43](#)

Disruptive Mode

Disruptive Mode provides a way to enable and disable Disruptive mode. When enabled, Disruptive mode allows a remote user to access the Versana Balance™/Versana Balance™ Vet which can disrupt normal operation of the Versana Balance™/Versana Balance™ Vet. Disruptive mode can be remotely turned on when the logged-in user has Authorize Remote Service Access privilege. If the logged-in user does not have remote service privilege, displays this error message: "You do not have the required permission to perform this operation."

When initiating Disruptive mode from a remote location, a message displays on the Versana Balance™/Versana Balance™ Vet asking whether the user will allow Disruptive mode and notifying them that normal operation might be disturbed.

- If **Yes** is selected, then Disruptive mode is turned on.
- If **No** is selected, then Disruptive mode is not turned on and an error message displays saying that permission to change the mode was denied.

When Disruptive mode is On, the GE icon in the status bar changes to red and displays this message: "Due to Service testing restart needed."

When Disruptive mode is changed to Off, the GE icon turns white and displays this message: "Due to Service testing restart needed." In addition, VCO and SSH stop if running.

The information on **Disruptive Mode** is available to Class C (Service Advanced and Service Expert) and Class M licenses.

To access **Disruptive Mode**, select **Utility (second page) > Service > Utilities > Disruptive Mode Utility**.

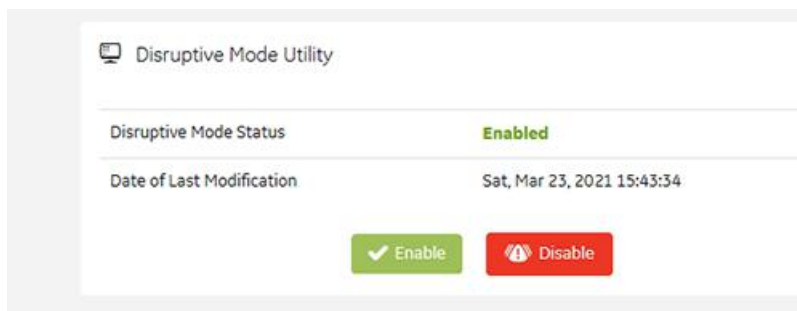


Figure 7-50. Disruptive Mode

For more information, see:

- [‘Utilities’ on page 7-43](#)

SSH

SSH displays the status of the Secure Shell (SSH) server. SSH is a cryptographic network protocol for operating network services securely over an unsecured network. This protocol is used for remote login to the operational system. SSH allows remote login to the Versana Balance™/Versana Balance™ Vet and remote file transfer from the Versana Balance™/Versana Balance™ Vet. Remotely log into the Versana Balance™/Versana Balance™ Vet using the username “GEService” and its password.

The information on **SSH** is available to Class M licenses.

To access **SSH**, select **Utility > Service > Utilities > SSH**.

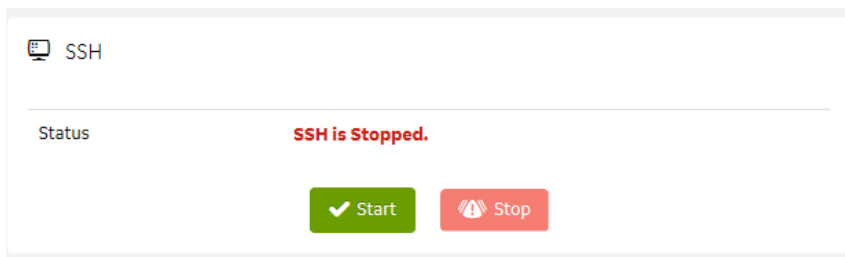


Figure 7-51. SSH

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

Table 7-23: SSH

Element	DESCRIPTION
Status	When Disruptive mode is on, displays the status of the SSH server. Valid values are: <ul style="list-style-type: none"> • SSH is stopped • SSH is running
Start	When Disruptive mode is ON, start the SSHD service.
Stop	When Disruptive mode is ON and the SSHD service is running, stops the SSHD service.

To start the SSH server:

1. Navigate to **Utility > Service > Utilities > Disruptive Mode Utility** and set Disruptive mode to On.
2. Navigate to **Utility > Service > Utilities > SSH**.
3. Click **Start**.
4. To stop the SSH server, select **Stop**.

For more information, see:

- [‘Utilities’ on page 7-43](#)

SSH(continued)

Remote File transfer through SSH

- 1. After start SSH server, enter Agent Configuration to register system to back office, refer to 7-51.
- 2. Connect to FFA, refer to 7-6-2 step 1 and step 2.
- 3. In connect page, click the **Connect** button to connect to FFA (Field Force Automation).

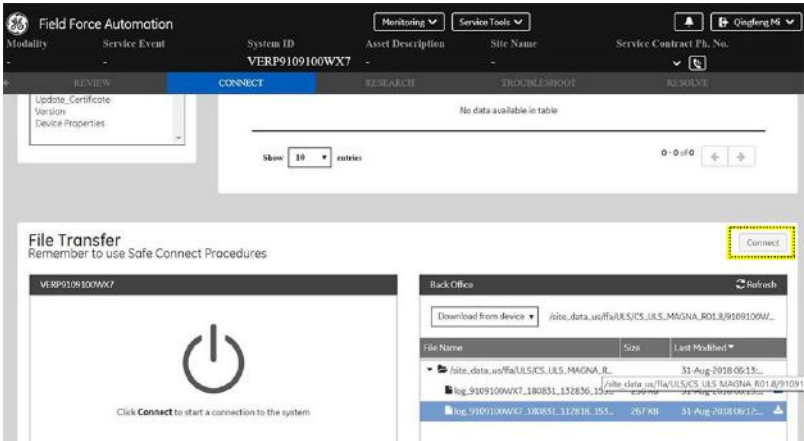


Figure 7-52. Connect to back office

- 4. Choose the file in **File Transfer**, click the **button** (4) to send the file to back office.

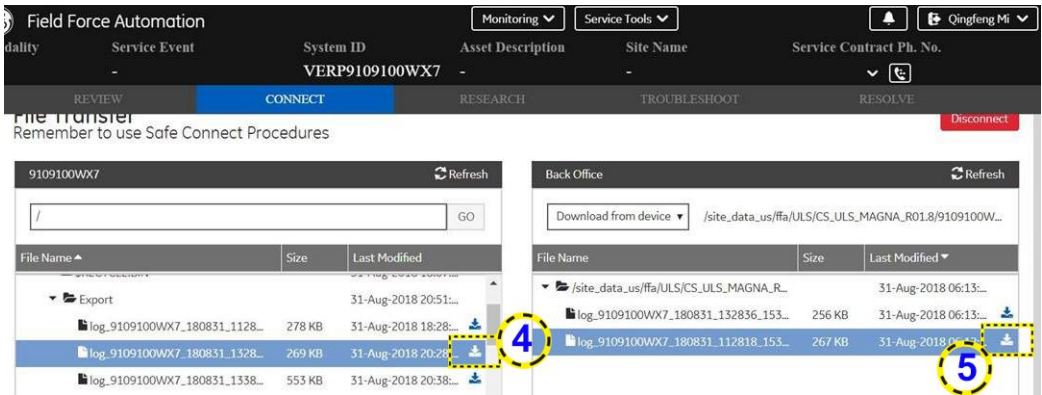


Figure 7-53. File Transfer

- 5. In back office page, click **button** (5) in **Figure 7-53** to download the file to PC.

Network Capture

Network Capture displays network traffic between the Versana Balance and configured devices. A network capture outputs two log files: one for main logging with no protected information and another including protected information. These log files are useful when debugging connectivity issues. Because these log files can be large, they are only kept for one week.

The information on **Network Capture** is available to all service class licenses.

To access **Network Capture**, select **Utility > Service > Utilities > Network Capture**.

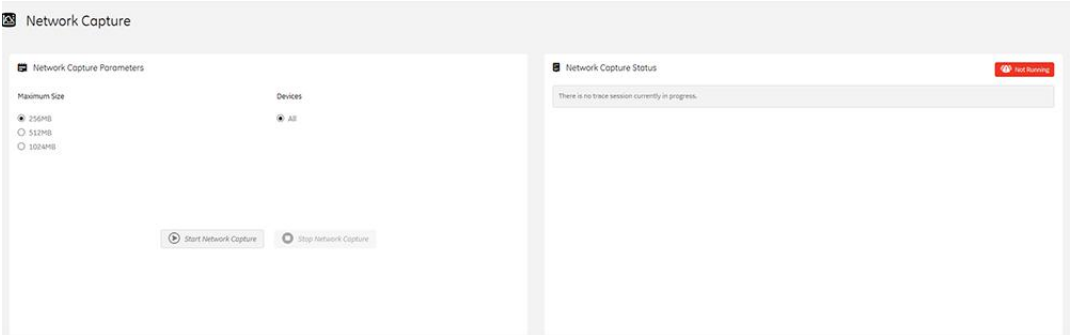


Figure 7-54. Network Capture

This table shows all the elements available on **Network Capture** with descriptions.

Table 7-24: Network Capture

Element	DESCRIPTION
Network Capture Parameters	
Maximum Size	Allowed size of the generated log file. Valid value are: <ul style="list-style-type: none"> • 256MB • 512MB • 1024MB
Devices	DICOM-configured devices for which you want to capture information. If no additional devices are configured, only All will be available.
Start Network Capture	Select to start the process. This causes the network capture to start, enables the Stop button, and updates the Network Capture Status pane and changes the Status to Running .
Stop Network Capture	Select to stop the process..
Network Capture Status	

Table 7-24: Network Capture

Displays information about the status of the network capture. The language setting for this information is set in Windows and not through the Service desktop or Versana Balance application software.
Displays the current status of the network capture. Valid values are: <ul style="list-style-type: none">• Not Running• Running

To perform a network capture:

1. Navigate to **Utility > Service > Utilities > Network Capture**.
2. From **Network Capture**, do the following:
 - Under **Maximum Size**, select the allowed size of the generated log file.
 - Under **Devices**, select the DICOM-configured device for which you want to capture information. If no additional devices are configured, only **All** will be available.
3. Select **Start Network Capture** to start the process. This causes the network capture to start, enables the **Stop** button, and updates the **Network Capture Status** panel and changes the **Status** to **Running**.
4. Click the **Stop** button to end data collection. Stopping is a two-step process:
 - Stops the data collection and immediately closes the .etl file.
 - Collects additional diagnostic data that may help diagnose network issues. When the file is closed, you see “There is no trace session currently in progress”. When the remaining data is collected and the .cab file is closed, you are notified in the banner.

For more information, see:

- [‘Utilities’ on page 7-43](#)

Table 7-25: Options

Software Option Details	
Product	Name of the product.
Hardware Number	Number for the hardware. The hardware number is the hash of the serial number that is used to generate the option key.
Serial Number	Serial number of the Versana Balance.
Software Option Keys	
Available Keys	List of the option keys installed on the Versana Balance.

Agent Configuration

Use **Agent Configuration** to:

- Edit and configure the following:
 - Enterprise host name in the agent
 - Enterprise port number in the agent
 - Proxy server in the agent
 - Proxy port in the agent
 - CRM number in the agent
 - Display name in the agent
- Set the serial number in the agent
- Enter the username and password for the proxy
- Reset the edited unsaved value
- Update contact details

The information on **Agent Configuration** is available to all service class licenses.

To access **Agent Configuration**, navigate to **Utility > Service > Agent Configuration**.

The screenshot displays the 'Agent Configuration' interface within the 'Service Desktop' application. The top navigation bar includes 'Home', 'Diags', 'Utilities', 'Options', and 'Agent Configuration'. The main content area is divided into several sections:

- Agent Configuration Summary:** Displays key status and identification fields.

Agent Status: Not Running	Agent Registered: Not Available	Agent Quarantine: Not Available	Agent CRM Verified: Not Available
Agent Model Number: CS_USL_SUPRACON_B01.3	Serial Number: ENG001	CRM No: VERSIONENG001	Display Name:
- Advanced Configuration:**
 - Enterprise Server:** Includes a dropdown for 'Production' (selected) and a checkbox for 'Production'.
 - Enterprise Host:** Text field containing 'insite.gehealthcare.com'.
 - Enterprise Port:** Text field containing '443'.
- Proxy Configuration:**
 - Checkbox for 'Enable Proxy' (unchecked).
 - Text fields for 'Proxy Server' and 'Proxy Port'.
- Credentials:**
 - Checkbox for 'Enable Proxy Credentials' (checked).
 - Text fields for 'Username' and 'Password'.

At the bottom, there are buttons for 'Submit Changes' and 'Reset Form'. A footer note states: '© 2019 General Electric Company. Common Service Desktop (Radiology, SupraCon) - 0.0.0.0.1'.

Figure 7-56. Agent Configuration

Agent Configuration(continued)

This table shows all the elements available on Agent Configuration with descriptions.

Table 7-26: Agent Configuration

Element	DESCRIPTION
Agent Configuration	
Contact Details	Phone number for the person at the customer site a GE remote service engineer would contact. The phone number is entered during installation and reviewed at every service call to make sure the information is correct.
Agent Status	Status for the agent. Valid values are: <ul style="list-style-type: none"> • Running • Not Running
Agent Registered	Registered status of the agent. Valid values are: <ul style="list-style-type: none"> • 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 configured or running.
Agent Quarantine	Quarantine status of the agent. Valid values are: <ul style="list-style-type: none"> • Yes - The agent has more than one device registered with the same CRM Number in the back office. This scanner cannot send data back to GE or be remotely accessed. • No - The agent has one device registered with the listed CRM Number in the back office. • Not Available - The agent is not configured or running.
Agent CRM Verified	CRM verified status of the agent. Valid values are: <ul style="list-style-type: none"> • 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 configured or running.
Agent Model Number	GE part number for the Versana Balance. The same number as listed on the rating plate.
Serial Number	Serial number of the agent (read-only). If the agent is not registered with a serial number, this field is populated with the serial number of the Versana Balance. The serial number of the agent is tied to the serial number of the Versana Balance.
CRM No	Customer Relationship Management (CRM) number. System identifier assigned to the customer unit by the service region. CRM is pre-populated by adding Versana Balance to the CRM number. The CRM number of the Versana Balance is editable.
Display Name	Displayed name of the agent.
Advanced Configuration	
Enterprise Server	Name of the enterprise server.

Table 7-26: Agent Configuration

Enterprise Host	Number of the enterprise host.
Enterprise Port	Number of the enterprise port.
Proxy Configuration	
Enable Proxy	Enables the proxy server.
Proxy Server	When Enable Proxy is selected, name of the proxy server IP.
Proxy Port	When Enable Proxy is selected, number of the proxy server port.
Credentials	
Enable Proxy Credentials	Enables the proxy credentials.
Username	When Enable Proxy Credentials is selected, name of the user.
Password	When Enable Proxy Credentials is selected, password for the user.

Network and Common Diagnostics

Network Configuration

Wire-LAN Network

1. Connect system with network.
2. Enter **Utility-> Connectivity-> TCP/IP**, in IP settings window, check **Enable DHCP**, and select the proper network speed in **Network Speed**.

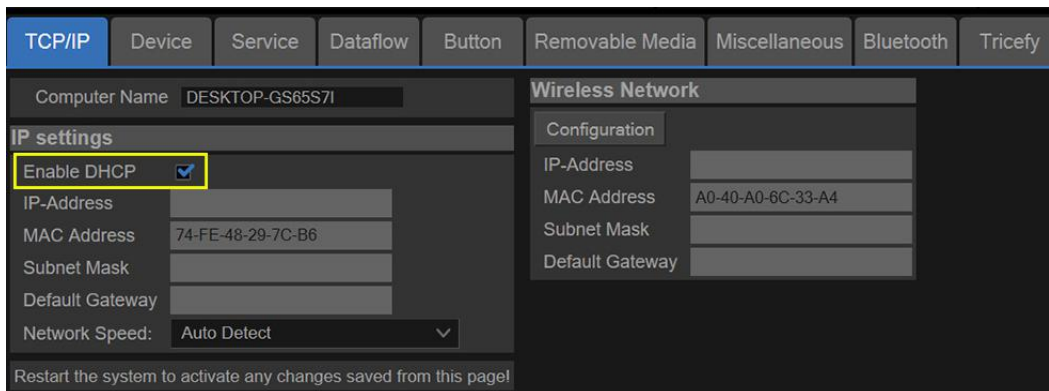


Figure 7-57. Enable DHCP

Network Configuration(continued)

NOTE: If user wants to setup static IP address, uncheck **Enable DHCP** option, input static address in **IP-Address box**, **Subnet Mask** and **Default Gateway** box. In **Network Speed**, choose the proper speed available.

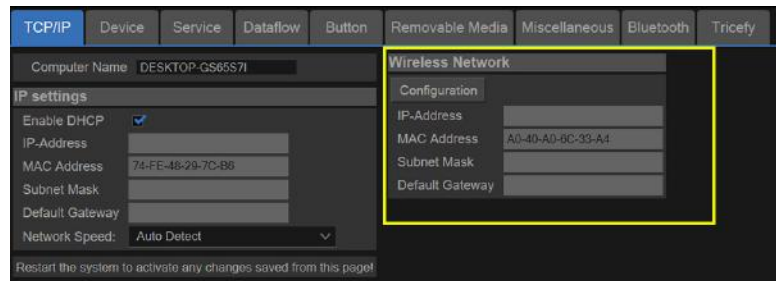


Figure 7-58. Network Settings

3. Select **Save**, and a popup window displays. Select **Restart Now** to restart the system and activate the changes.

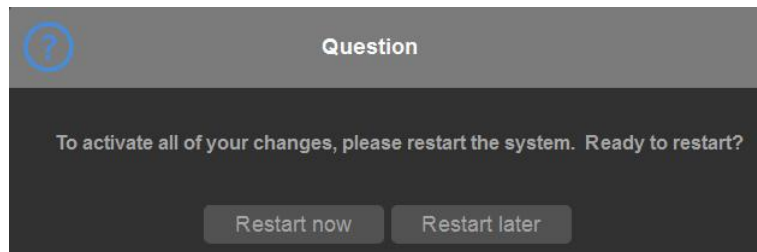


Figure 7-59. System Restart inquiry dialog

4. After the system restarts, the network icon on the right top of the screen shows that the network is available.

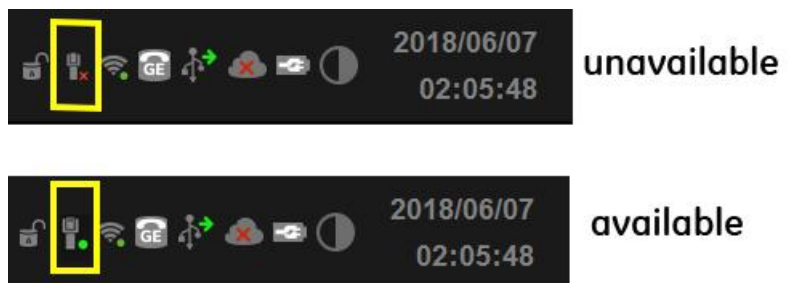


Figure 7-60. Network icon

Wireless-LAN Network

NOTE: To configure the Wireless-LAN network, the operator must login as administrator.

1. Connect the wireless adapter in the USB port.
2. Enter **Utility-> Connectivity-> TCP/IP**, press **Configuration**.
3. Double click **Wireless network**. you chosen, or click the **Connect** at the left bottom of screen.

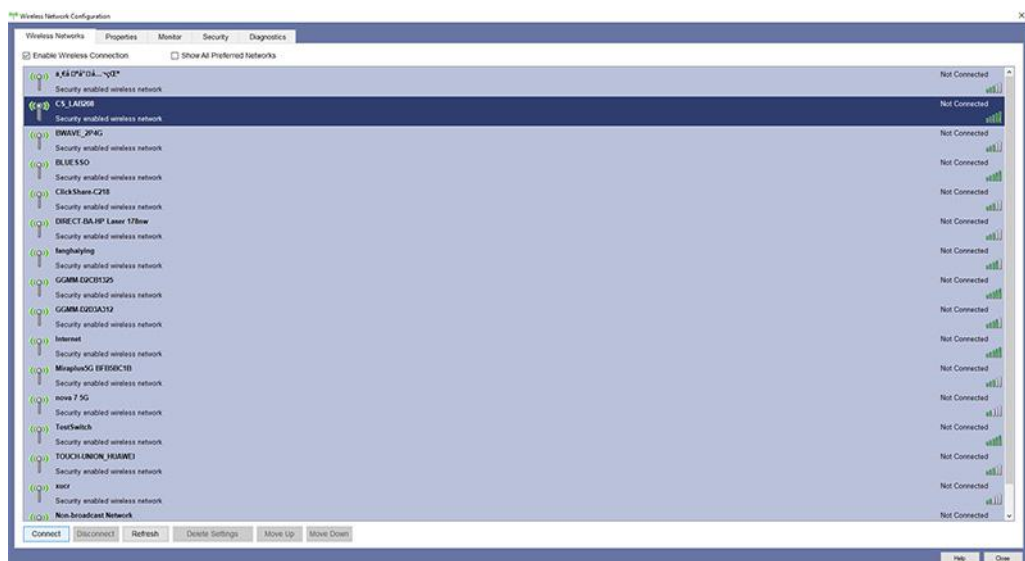


Figure 7-61. Wireless Network Connection

Wire-LAN Network(continued)

4. Enter Internet Wireless Network Properties, select Security type and Encryption type. Then input Network security key and click OK.

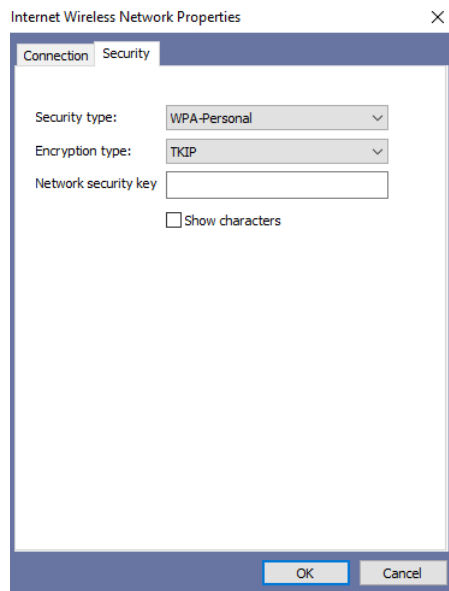


Figure 7-62. Connection Status

5. The network icon at the left bottom of screen shows that the wireless network is available.

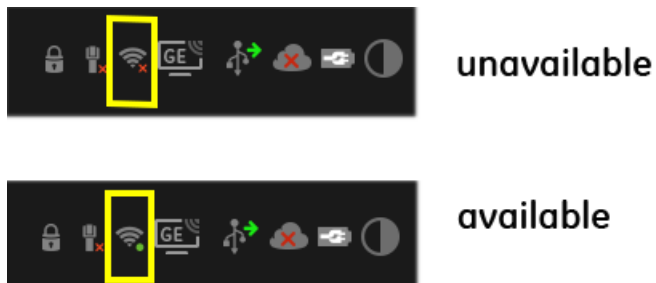


Figure 7-63. Wireless-LAN Connection

Remote Access

Remote Access is a feature designed to enable OLE's access to customer's desktop remotely, service engineers don't have to be on site to connect the physical dongle to exit to desktop, it's doable remotely by using this feature.

1. In the server side, type the CRM No. of the system which the OLE would remotely connect to, and select **Get Started**.

NOTE: Remote FFA link: <https://stg-ffa.am.health.ge.com/#/di/home>.

Start Remote Troubleshooting

Workflow Type

☒ Standard (Includes Insite1, Insite2, and RSvP)

Enter System or Service ID

☒ **System ID**

Devices using RSvP may utilize [Advanced Search](#) for filtering.

CRMNo

Service Request ID (Optional)

☐ **Service Request ID**

Country of System

Get Started

Figure 7-64. Input System ID

Remote Access(continued)

2. Select **Connect**. Then the **Connect** page is displayed.

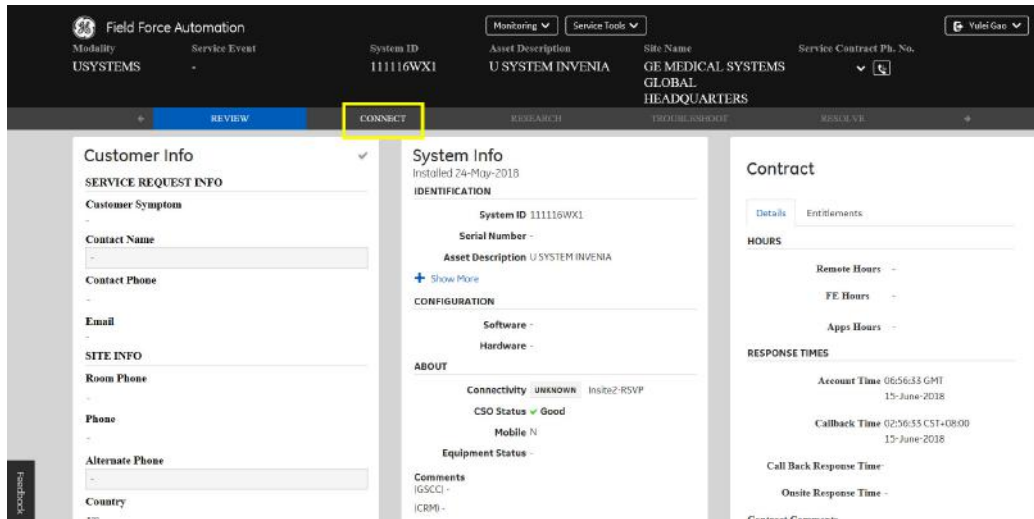


Figure 7-65. Connect Page

3. Select HTTPS to **Connect**. Then the OLE is remotely connected to the system.

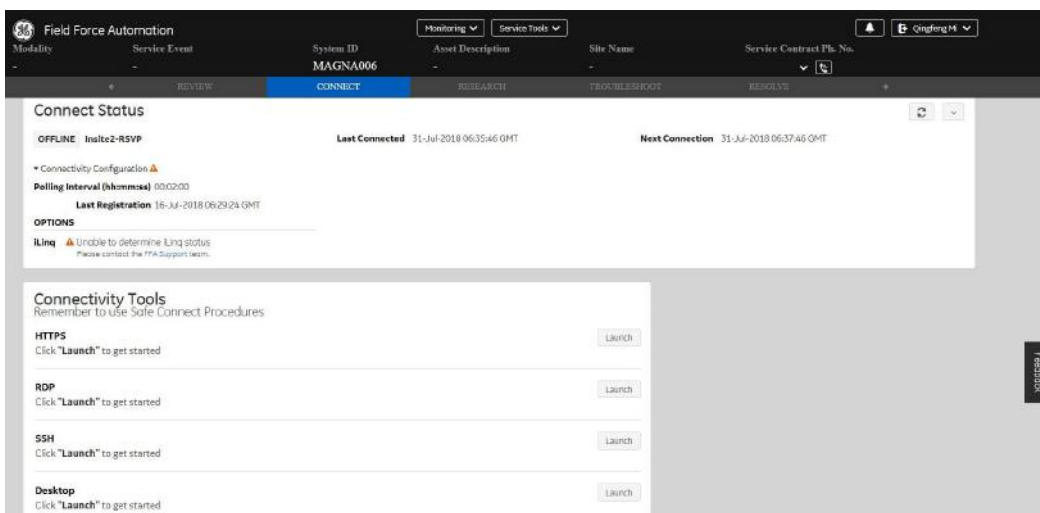


Figure 7-66. Select HTTPS to Connect

NOTE: RDP is not available in Versana Balance.

Remote Access(continued)

4. Enter **Otpions** to add service option key.

NOTE: Please delete the added service option key when your service work is done.

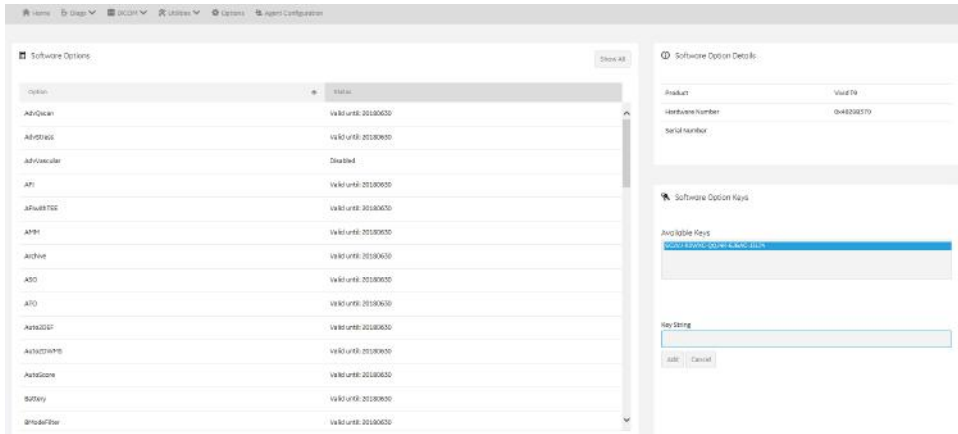


Figure 7-67. Add Service Option Key

5. Enter **Utility-> Disruptive Mode Utility**, select **Enable**.

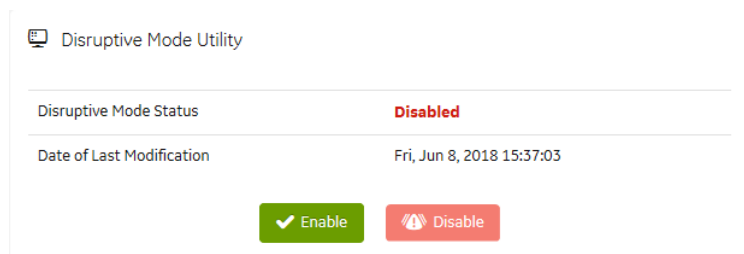


Figure 7-68. Enable Disruptive Mode

6. If we want to see the Scan screen or have control of the unit, we have to go to Virtual Console Observation and start it. Enter **Utility-> Virtual Console Observation**, select **Start**.

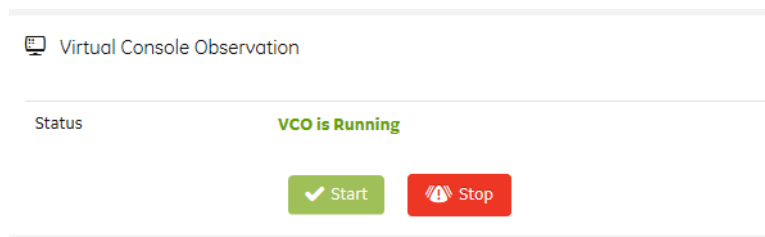


Figure 7-69. Start VCO

Remote Access(continued)

7. Select Desktop to Connect. Then the OLE is remotely connected to the system.

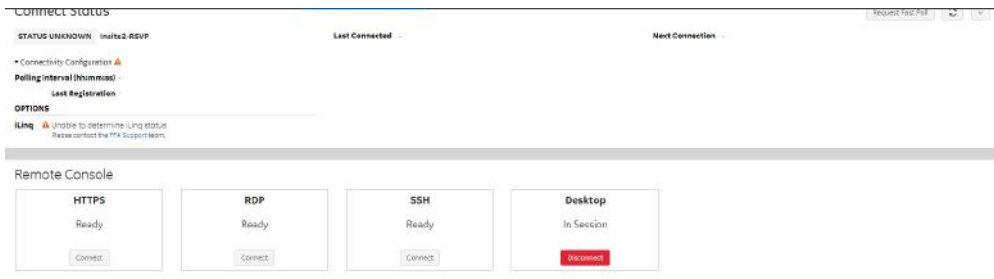


Figure 7-70. Select Desktop to Connect

NOTE: *You need to reboot the system before clinical scanning is resumed.*

Service Diagnostics

MST board

- MST Swept Demodulator Test performs a signal path test of the swept demodulator FPGA on the MST.
- MST Front End Interface Test tests that the MST can access Front-End boards.
- MST Analog Test.
- MST Memory Access Test tests that MST can access to the internal, external, external cache memory spaces.
- Front End Interface FPGA Test reads the version of the GFE FPGA.
- MST Fixed Demodulator Test: MST Fixed Demodulator signal path test.
- DSP Master Clock Check checks DSP Master Clock.
- MST Swept Demodulator Long Test.
- MST Temperature Test.
- MST Voltage.
- FPGA Internal Memory Test.

NOTE: *The FPGA Internal Memory test may fail if it is performed with other tests at the same time.*

- FPGA Version.

CWI board

- HV STOP Test tests HV-STOP mechanism and checks each board is able to assert HV_STOP using its HV_STOP source.
- CWI Voltage.
- Other Voltage test point.
- Memory tests the memory on the mother board.
- Network Interface.
- Network Interface Reliability Test.
- CPU Temperature Test.

Front End Path

- AFE IF Test checks digital path between AFE chips and FPGA.
- Complex Mixer Test checks the Mixer process chain of FPGA.
- CE Decoder Test checks the Code Excitation Decoder process chain of FPGA.
- Analog CW checks I-Q symmetry of pedof CW beamformer receiving signal.
- When AFE IF Test/Complex Mixer Test/CE Decoder Test fail, please try to replace MST. If it doesn't work, please try other PWA. When aCW IQ Symmetry Test fail, please try to replace MST. If it doesn't work, please try CWD or other PWA.

PC Test

- Hard Drive Test Long tests functionality of the hard drive.
- Hard Drive Test Short tests functionality of the hard drive.
- RTC clock:
- **AVI playback** tests playing back an AVI file.
 - Click "Play" to run the test. If the test is successful, you will see a brief video clipo with audio. For more information about the test, click "More Information".
 - Click "Pass" if the test successfully reproduces the video clip.
 - Click "Fail" if the test is unable to successfully reproduce the video clip.
 - Click "Cancel" button to quit the test without recording a test result.
- **Keyboard**
 - Press each key on the keyboard and it will be added to the History. Hold down a key to test the repeat of that key. To cancel, click Cancel or press Alt-X.
 - Special purpose keys like volume control or Internet access keys may not be detected. To test the Fn key of a notebook computer, hold down the Fn key while pressing another key.
 - Note: This diagnostic is intended to verify keyboard keys are in good working order. It is not intended to verify that keyboards produce desired characters.

PC Test(continued)

- **Monitor Test Patterns**

- This test is composed of various elements that verify a monitor functions correctly. To test a monitor feature, click the appropriate button. You can return to this dialog by clicking the mouse button or pressing any key.
- The Combination Test helps you verify your monitor is properly aligned, and set at the correct color depth and resolution. Use the crosshair pattern in each corner of the screen to visually determine if the monitor aligns correctly. If the crosshairs appear distorted or out of focus, a problem may exist with the monitor alignment. Use the color spectrum array for visually verifying the monitor color depth capacity. If the colors in the color spectrum do not blend smoothly together, a problem may exist with the monitor color depth. Use the graduated horizontal and vertical alignment bars to determine the monitor resolution capabilities. The better you can discern individual lines as they move closer together, the higher the resolution capabilities of the monitor.
- The Solid Color Test helps point out malfunctioning or dysfunctional pixels using five basic colors: red, green, blue, black, and white. Fill the screen with an appropriate color by clicking the associated button. If a pixel is malfunctioning, the pixel color will contrast with the color of all other pixels.
- The VESA Test Patterns allow you to test the monitor for proper luminance, geometry and focus. Click the appropriate button to fill the screen with the associated test pattern. You can return to this dialog by clicking the mouse button or pressing any key.

PC Test(continued)

- **Trackball**
 - The Mouse Status Test verifies the cursor position and mouse button state. When a mouse button is pressed, the corresponding button on the picture will change color. If the mouse is a wheel or scroll mouse, an arrow will indicate the direction the wheel is being rotated. Clicking the wheel will flash the picture of the mouse in the Mouse Status Test area.
 - The Drag and Drop Test verifies a mouse can successfully perform drag and drop operations. Left click the picture of the CD and drag it onto the picture of the drive. If successful, the picture will change.
 - The Double Click Test verifies a mouse can successfully perform double-click operations. Double-click on the picture of the monitor. If successful, the picture will change.
- **Sound Test** generates sounds for testing the speakers.
- **USB Ports Test** lists USB Devices.

Battery Test

Battery pack has a test function about the remaining fuel gauge. User can press TEST button, and then Fuel Gauge LEDs shall display below pattern for 5 seconds.

Table 7-27: Fuel gauge LED indication

SOC	LED1	LED2	LED3	LED4
0-25%	ON	OFF	OFF	OFF
26-50%	ON	ON	OFF	OFF
51-75%	ON	ON	ON	OFF
76-100%	ON	ON	ON	ON



NOTE: New battery shall be activated by starting system, or the LED lights is off while the user presses **Test**.

Assessment Utility

Probe Assessment

NOTE: *The probe assessment is only available for the probe connected in the first probe port.*



Figure 7-71. The first probe port

Assessment Utility(continued)

1. Place the probe's carrying case on a stable surface and open the case.
2. Carefully remove the probe and unwrap the probe cord.
3. Put the probe in the probe holder.



CAUTION

DO NOT allow the probe head to hang free. Impact to the probe head could result in irreparable damage.

4. Prior to inserting the probe, ensure that the connector locking handle is positioned to the left.
5. Align the connector with the probe port and carefully push into the left-most probe port.
6. Turn the connector locking handle to the right to secure the probe connector.
7. Carefully position the probe cord so it is free to move and is not resting on the floor.
8. Press **Probe** button on the control panel and select the first probe from the probe indicators.
9. Enter global service user interface as GE service.
10. In the **Diags-> Run Diags-> ProbeAssessment** to check the probe.

If there is no broken element and the probe is acceptable for diagnostic, the following result window displays.

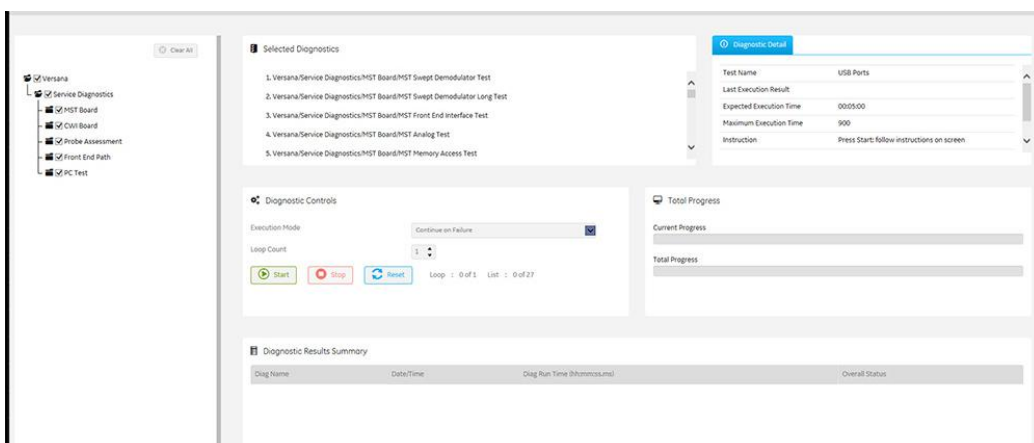


Figure 7-72. Probe Assessment Pass

Assessment Utility(continued)

11. In the **Diags-> Run Diags->Diags History** to check the probe diagnostic results.

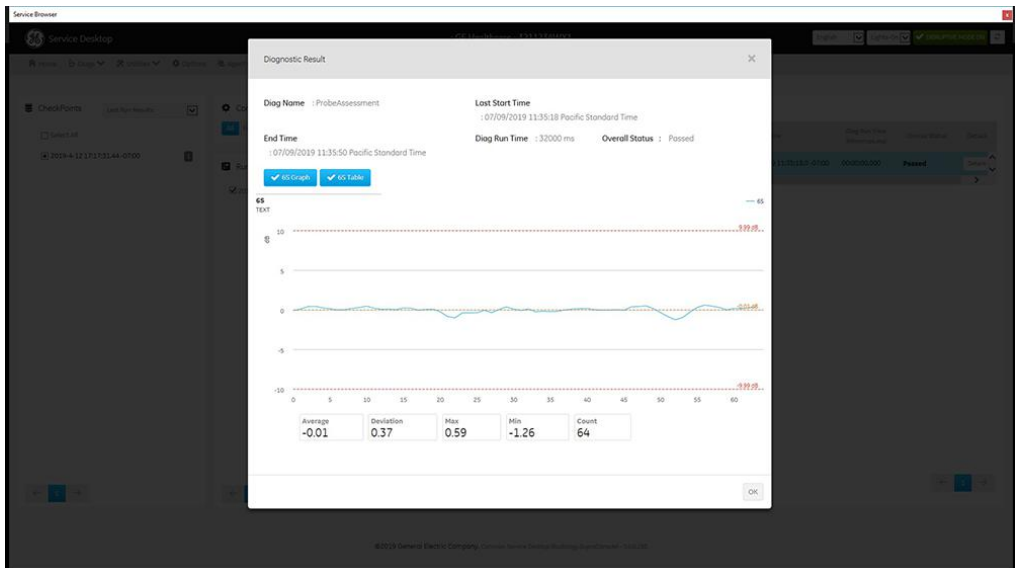


Figure 7-73. Probe Assessment Result



CAUTION

Reboot the system after the probe assessment.

Probe Pass/Fail Criteria

Pass

- No dead element
- Dead elements on the edge (#0, #1 or #end-1, #end)

Fail

- Max 2 weak elements on the scan line: $-3\text{dB} < \text{elements} < -2\text{dB}$
- Any one of the elements in one scan line: $\text{element} < -3\text{dB}$

Temperature Monitoring

The Versana Balance has monitoring function for CPU and MST temperature.

When the system is higher than warning temperature, a warning message will appear in the screen to remind the user to clean the air filter. And when the system is higher than limit temperature, a dialog will pop up to warn the overheat and the system will shut down automatically in 10 seconds.

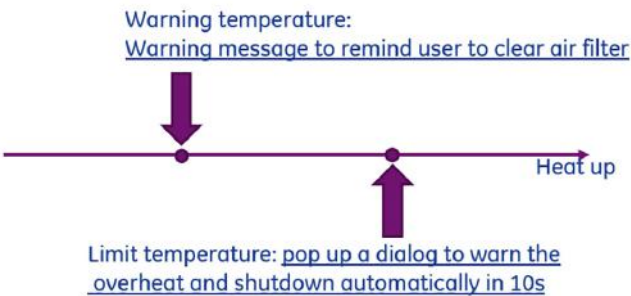


Figure 7-74. Temperature Alarm

Warning Temperature and Limit Temperature

Table 7-28: Temperature Value

Product	CPU/MST	Monitor Item	Warning Temperature	Limit Temperature
Supra Console	CPU	BEP_CHIPSET_TEMPERATURE	95	98
	MST	MST_AFE_TEMPERATURE	70	77
		MST_BF0_TEMPERATURE	75	82
		MST_MVP_TEMPERATURE	75	82

Temperature Monitoring Point

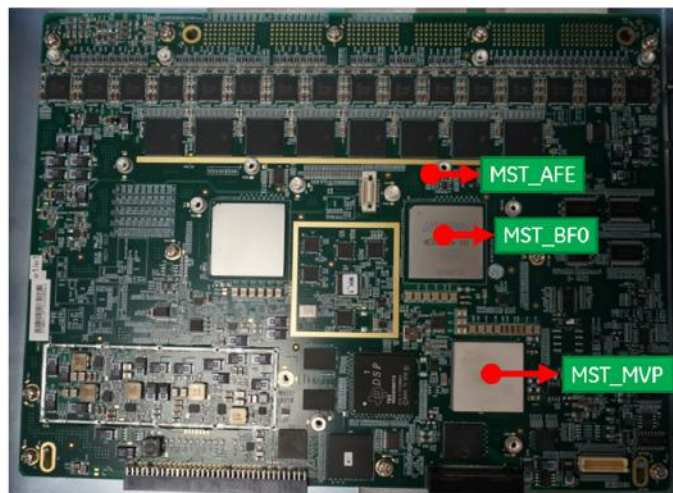


Figure 7-75. Temperature Monitoring Point - MST

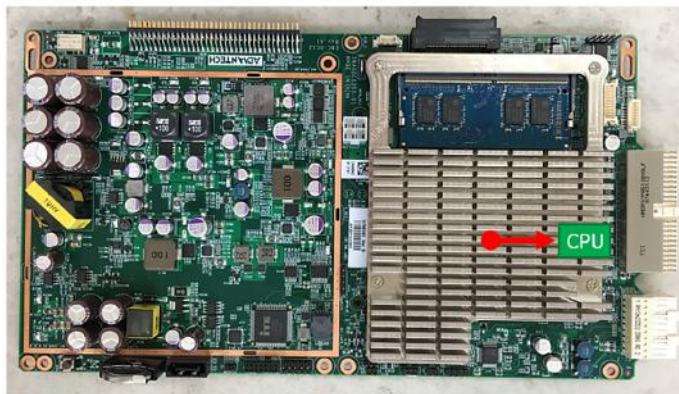


Figure 7-76. Temperature Monitoring Point - CWI

Voltage Monitoring

Voltage Monitoring Point - MST

Table 7-29: Voltage Monitoring Point - MST

Voltage	Function
MST_D3V3	For MVP, CPLD,DSP, CLK, Driver, etc
MST_AFE_3V3_0	For AFE
MST_AFE_3V3_1	For AFE
MST_AFE_1V8	For AFE Core
MST_2V5V_CLK	For Clock
MST_D2V5	For BF0, MVP, CPLD, etc
MST_D1V8	For MVP, DSP
MST_D1V1_0	For BF0
MST_D1V1_2	For MVP
MST_D1V5_XIO	For PCIe Bridge
MST_D1V2_DSP	For DSP

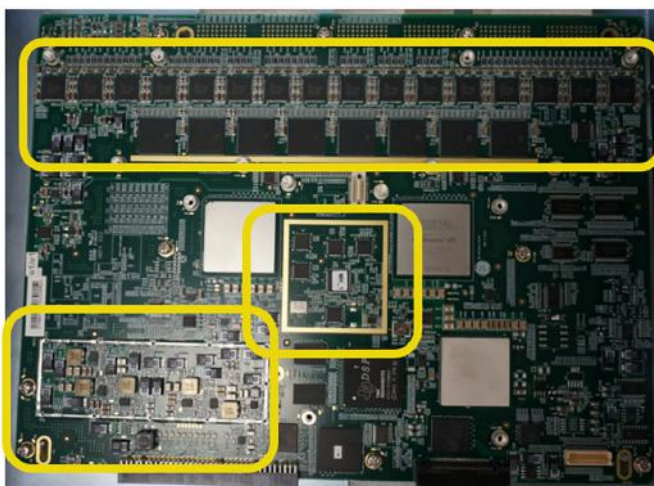


Figure 7-77. Voltage Monitoring Point - MST (1)

Voltage Monitoring Point - MST(continued)

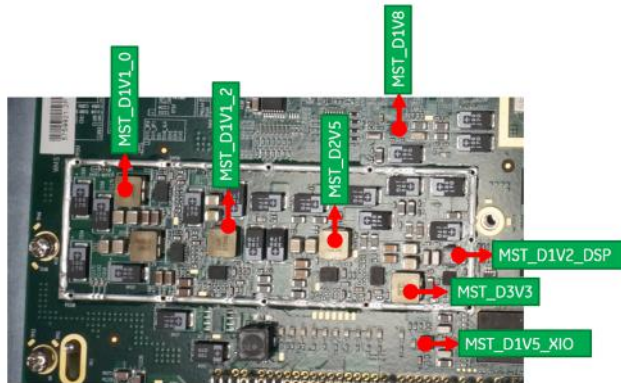


Figure 7-78. Voltage Monitoring Point - MST (2)



Figure 7-79. Voltage Monitoring Point - MST (3)

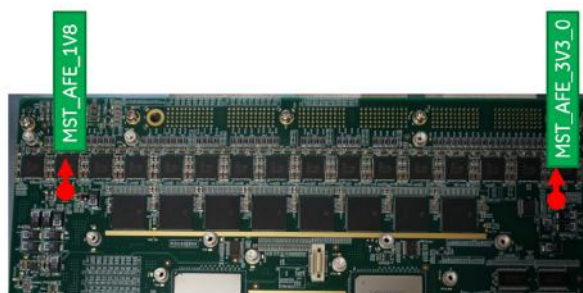


Figure 7-80. Voltage Monitoring Point - MST (4)

Voltage Monitoring Point - CWI

Table 7-30: Voltage Monitoring Point - CWI

Voltage	Function
CPS_D5V	For DSP, FPGA
CPS_D12V	For CPU
CPS_A3V5	For Analog Front End: Pluser, AFE, etc
CPS_A5V4	For Analog Front End: Pluser, AFE, etc
CPS_N5V	For Analog Front End: Pluser, AFE, etc
CPS_CWDP	For CWD
CPS_SHVP	For Analog Front End: Pluser, AFE, Probe, etc
CPS_SHVN	For Analog Front End: Pluser, AFE, Probe, etc
CPS_HVP0	THV+; For Analog Front End: Pluser, AFE, Probe, etc
CPS_HVM0	THV-; For Analog Front End: Pluser, AFE, Probe, etc
CPS_A2V	For Analog Front End: Pluser, AFE, etc

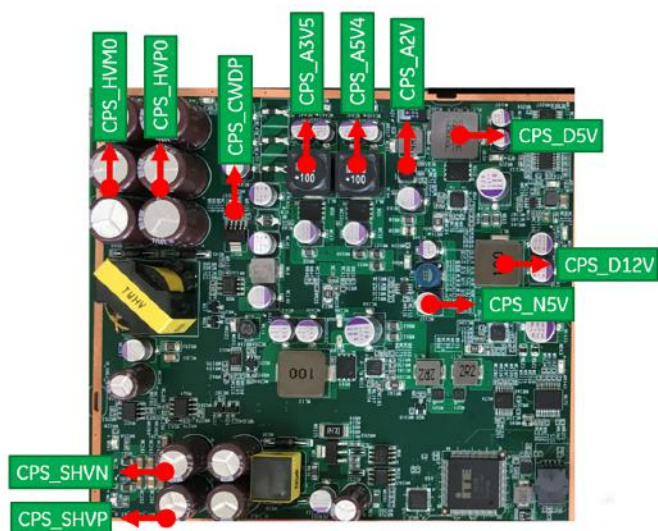


Figure 7-81. Voltage Monitoring Point - CWI

Temperature and Voltage Range

Table 7-31: Temperature and Voltage Range

Item	Upper Limit	Upper Normal	Lower Normal	Lower Limit
MST_MVP_TEMPERATURE	85	80	0	-10
MST_BF0_TEMPERATURE	85	80	0	-10
MST_AFE_TEMPERATURE	75	70	0	-10
MST_D3V3	3.63	3.53	3.07	2.97
MST_D2V5	2.8	2.65	2.35	2.25
MST_D1V8	2	1.9	1.7	1.6
MST_D1V5_XIO	1.7	1.6	1.4	1.3
MST_D1V2_DSP	1.4	1.3	1.1	1
MST_D1V1_2	1.2	1.15	1.05	1
MST_D1V1_0	1.2	1.15	1.05	1
MST_AFE_3V3_0	3.63	3.53	3.07	2.97
MST_AFE_1V8	2	1.9	1.7	1.6
MST_2V5V_CLK	2.8	2.65	2.35	2.24
BEP_CPU_TEMPERATURE	150	130	0	-10
CPS_SHVP	93.5	92	78	76.5
CPS_SHVN	93.5	92	78	76.5
CPS_N5V	5.8	5.7	4.84	4.74
CPS_HVP0	77	74	0	0
CPS_HVM0	77	74	0	0
CPS_D5V	5.6	5.5	4.7	4.6
CPS_D12V	13.53	13.43	11.17	11.07
CPS_CWDP	14	13	0	0
CPS_A5V4	5.9	5.8	4.92	4.82
CPS_A3V5	4.07	3.97	3.4	3.3
CPS_A2V	2.46	2.36	2.03	1.98

Troubleshooting

Console Troubleshooting

System Doesn't Boot (Hang-up)

Table 7-32: Hang-up black screen diagnostic table

	ON/OFF button	LED1 (HDD)	LED2	LED3	Failure module
Power connected . Power on button not pressed	White On		OFF	Blink "high"	some issue of power on/off button on Keyboard
	White On		Not Blink	Not blink	CWI PWA failure
	No anylight		OFF	OFF	1. ACDCor its related cable failure. 2. Charger module (if exist) failure or its related cable fail. 3. CWI PWA failure.
	No any light		Blink "low"	Blink "low"	1. KBD Cable Connection failure 2. IDOKG PWA failure 3. KBD PWA failure
Power on button pressed	Green ON	NA	Blink "low"	ON	This is correct status
	White		Blink "low"	Blink "low"	1. KBD Cable Connection failure 2. IODKG PWA failure. 3. KBD PWA failure. 4. CWI PWA failure.
	NA		Blink "high"	Blink "high"	CWI PWA failure - CWI power have fatal issue.
	NA		Blink "mid"	Blink "mid"	1. Docking PWA failure -Docking power have fatal issue. 2. Peripheral failure - please remove LCD/ speaker/KBD/DC printer/Gel Warmer connection to docking, remove and re-connect AC power supply, then try to power on system with the power button on docking board.
	Green ON		Blink "low"	Blink "low"	CWI PWA failure - CPU issue
	Green ON		Blink "low"	OFF	CWI PWA failure - BIOS self test error.

Chapter 8

Replacement Procedures

This chapter describes how to remove and install, or replace, modules and subsystems in the Versana Balance™/Versana Balance™ Vet. It also includes instructions for installing and re-installing the software.

Overview

Contents in this chapter

- 'Overview' on *page 8-2*
- 'Warnings and important information' on *page 8-3*
- 'Disassembly/Re-assembly' on *page 8-5*
- 'Loading the software' on *page 8-10*

Warnings and important information

Warnings



Energy Control and Power Lockout for Versana Balance™/Versana Balance™ Vet.

When servicing parts of the Ultrasound system where there is exposure to voltage greater than 30 volts:



1. Follow LOCK OUT/TAG OUT procedures.
2. Turn off the breaker.
3. Unplug the Ultrasound system.
4. Maintain control of the Ultrasound system power plug.
5. Wait for at least 30 seconds for capacitors to discharge as there are no test points to verify isolation.
6. Remove/disconnect the battery, if present.

Ultrasound System components may be energized.



Because of the limited access to cabinets and equipment in the field, placing people in awkward positions, GE has limited the lifting weight for one person in the field to 16 KG (35 LBS). Anything over 16 KG (35 LBS) requires 2 people.



DO NOT touch any boards with integrated circuits prior to taking the necessary ESD precautions.

Always connect yourself, via an arm-wrist strap, to the advised ESD connection point located on the rear of the Ultrasound system (near the power connector).



Follow general guidelines for handling of electrostatic sensitive equipment.

Warnings(continued)

NOTE: *Use an ESD compatible work space or the ESD-kit during parts replacement.*



The waste of electrical and electronic equipment must not be disposed as unsorted municipal waste and must be collected separately.



Please contact the manufacturer or other authorized disposal company to decommission your equipment.

Returning/shipping probes and repair parts

Equipment being returned must be clean and free of blood and other infectious substances.

GE policy states that body fluids must be properly removed from any part or equipment prior to shipment. GE employees, as well as customers, are responsible for ensuring that parts/equipment have been properly decontaminated prior to shipment. Under no circumstance should a part or equipment with visible body fluids be taken or shipped from a clinic or site (for example, body coils or an ultrasound probe). The purpose of the regulation is to protect employees in the transportation industry, as well as the people who will receive or open this package.

NOTE: *The US Department of Transportation (DOT) has ruled that “items that were saturated and/or dripping with human blood that are now caked with dried blood; or which were used or intended for use in patient care” are “regulated medical waste” for transportation purposes and must be transported as a hazardous material.*

NOTE: *Please remove the battery before system shipment to avoid any potential danger.*

Disassembly/Re-assembly

Warning and Caution



WARNING

For FRU (Field Replaceable Unit), only qualified service personnel should remove any covers or panels. Electrical hazards exists at several points inside. Become thoroughly familiar with all hazardous voltages and high current levels to avoid accidental contact.

CRU (Customer Replaceable Unit) can be replaced by customers, as these parts are not related to any electrical hazards, no tool is needed for the replacement.



CAUTION

Do wear the ESD wrist strap when you work on circuits.

Tools needed for servicing Versana Balance™/Versana Balance™ Vet

Table 8-1: Standard tools list for Versana Balance™/Versana Balance™ Vet

No	Part Name	Part No.	QTY	Screw Description	Screwdriver Description
1	screw	2327766	4	D2 SCREW M3X5 NYLOK	Common Phillips Screwdriver
2	screw	2327793	100	Screw-M3X8	Common Phillips Screwdriver
3	screw	5477579	4	DScrew_DIN 912 M6_20	Common Phillips Screwdriver
4	screw	5477414	8	Screw DIN 965A M4x10	Common Phillips Screwdriver
5	screw	5439265	51	Screw-M4X10	Common Phillips Screwdriver
6	screw	5495588	3	Screw M3X6 CSK	Common Phillips Screwdriver
7	screw	5138465	3	Screw FH M2.5X5-NL	Common Phillips Screwdriver
8	screw	5495588	7	Screw M3X6 CSK	Common Phillips Screwdriver
9	screw	5477414	5	Screw DIN 965A M4X10	Common Phillips Screwdriver
10	screw	2327785	3	D2 SCREW M2X4, NYLOK	Common Phillips Screwdriver
11	screw	5478161	48	Taping SCREW M3X6	Common Phillips Screwdriver
12	screw	5490719	4	PM_SW 4X8 Screw	Common Phillips Screwdriver
13	screw	1041-M10 C010-37	2	Magna M10 screw	Common Phillips Screwdriver
14	screw	5495592	7	Captive SCREW M4X16	Common Phillips Screwdriver

NOTE: Please use the correct Screwdrivers listed in [Table 8-1](#).

Overview of Versana Balance™/Versana Balance™ Vet



Figure 8-1. System Overview for Touch Panel System

- | | |
|------------------|-------------------------------|
| 1. Monitor Assy | 5. Speaker Assy |
| 2. Keyboard Assy | 6. Probe and Gel Holder - CRU |
| 3. Body Assy | 7. Gel Warmer Assy |
| 4. Base Assy | 8. Body Back Cover Kit |

Overview of Versana Balance™/Versana Balance™ Vet(continued)

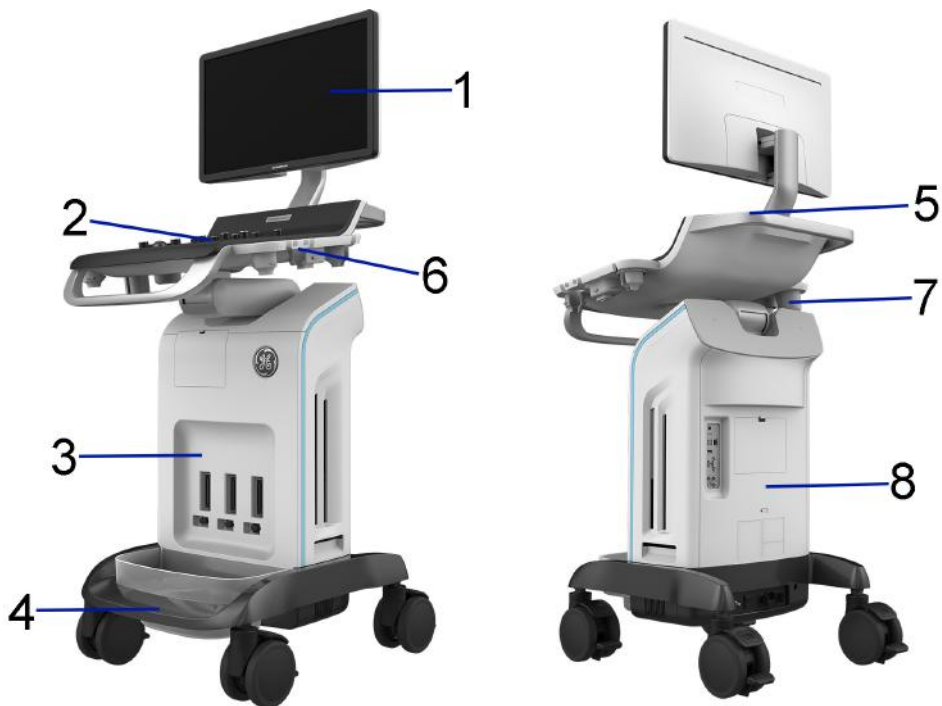


Figure 8-2. System Overview for Non-Touch Panel System

1. Monitor Assy
2. Keyboard Assy
3. Body Assy
4. Base Assy

5. Speaker Assy
6. Probe and Gel Holder - CRU
7. Gel Warmer Assy
8. Body Back Cover Kit

Overview of Versana Balance™/Versana Balance™ Vet(continued)

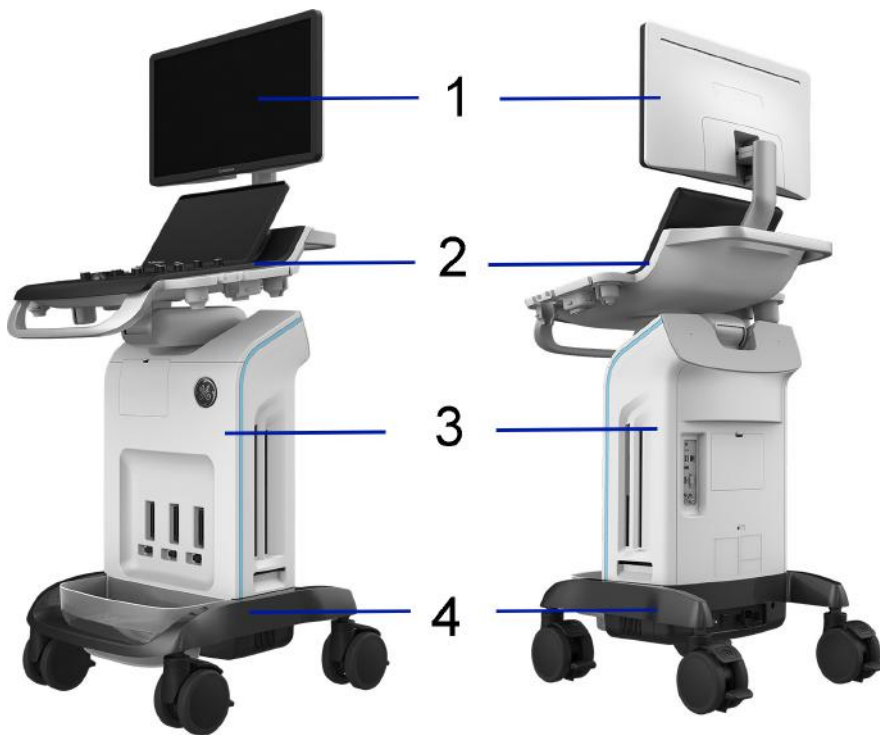


Figure 8-3. System Overview example

1. Monitor Assy
2. Keyboard Assy
3. Body Assy
4. Base Assy

Loading the software

Purpose of this section

This section describes how to reinstall software on Versana Balance™/Versana Balance™ Vet.

Customer provided prerequisite

- Formatted and labelled media for Images storage.
- Formatted and labelled media for Patient Archive and Presets (User Defined Settings).
- Password for the user ADM.

Software version compatibility

Versana Balance R2 software is R2.0.x. User only need to update software if user needs to switch between any software versions of Versana Balance R2.

The patient data and user defines are compatible on all R2.x.x version, which means the patient data and the user defines can be backup/export, and then restore/import between any versions of Versana Balance R2.

Backing up the Patient Archive and System Configurations



CAUTION

An error, or a power loss may occur.

Always backup the Patient Archive and the Presets (System Configurations) before loading the software!, refer to [Table 8-2: 'Checklist for reference before software reload' on page 8-12.](#)

In order to complete a successful restore of the Patient Database, as needed after a hard disk replacement, or if all the content on the hard disk has been erased, the images must be moved away from Versana Balance™/Versana Balance™ Vet before doing backup of the Patient Database.

Depending on the location set-up, either move the images to a remote server or to removable media like DVD or CD discs.

- Backup the Patient Archive and System Configurations.
For instructions, please see “Backup and Restore” in the User Manual.

Backing up the Patient Archive and System Configurations



CAUTION

An error, or a power loss may occur.

Always backup the Patient Archive and the Presets (System Configurations) before loading the software!

In order to complete a successful restore of the Patient Database, as needed after a hard disk replacement, or if all the content on the hard disk has been erased, the images must be moved away from Versana Balance™/Versana Balance™ Vet before doing backup of the Patient Database.

Depending on the location set-up, either move the images to a remote server or to removable media like DVD or CD discs.

- Backup the Patient Archive and System Configurations.
For instructions, please see “Data Backup and Restore” in the User Manual.

Restoring up the Patient Archive and System Configurations

Below is the checklist for reference before software reload:

Table 8-2: Checklist for reference before software reload

No.	Items	Backup solution
1.	Patient data	Backup/Restore Export/Import (Recommended)
2.	Preset	Backup/Restore
3.	Static IP address	Backup/Restore
4.	Hospital name/time format	Backup/Restore
5.	CRM ID/Port/Proxy	Backup/Restore
6.	Station name/AE title/port No./ Workflow	Backup/Restore
7.	DNS/subnet mask/default gateway	Please manually record this information and configure it back after the software reload as needed.
8.	Network printer IP address	Please manually record this information and configure it back after the software reload as needed.
9.	Date and time/default century	Please manually record this information and configure it back after the software reload as needed.
10.	UI language/manual language/ Unites/Keyboard setting	Please manually record this information and configure it back after the software reload as needed.
11.	User group settings/option keys	Please manually record this information and configure it back after the software reload as needed.

NOTE: *It is not suggested to manually delete the files in D:\Scanner\target\resources\userdefs.*



WARNING

To avoid not being able to connect to Local Archive, connectivity.res and IPSave in “D:\Scanner\target\resources\userdefs” should not be deleted. If they are deleted, please rewrite the serial number.

Recording important settings and parameters

Overview



CAUTION

An error, or a power loss may occur.

It is considered to be best practice to always keep a record on paper of the settings for the Versana Balance™/Versana Balance™ Vet. Verify if it is current before you start to load software!

Always keep a record of the settings for the Versana Balance™/Versana Balance™ Vet on paper. Verify if it is current before starting a software loading! If needed, record the settings.

Data Backup

NOTE: *The screen graphics in this manual are only for illustrational purposes. Actual screen output may differ with different users' systems.*

Figure 8-4.



CAUTION

An error, or a power loss may occur.

Always backup the Patient Archive and the Presets (System Configurations) before loading the software, refer to [Table 8-2: 'Checklist for reference before software reload' on page 8-12.](#)

NOTE: *For the upgrade option **Load the complete disk** or **Load the bootable C: partition only**, the information for Computer name and IP setting will be lost. Before upgrade, backup these information.*

Data Backup(continued)

1. Record the information for Computer name and IP setting in **Utility -> Connectivity -> TCP/IP**. Refer to [Table 8-3 on page 8-14](#).
 - If “Enable DHCP” is not selected, record all the information about IP setting. Refer to a) in [Figure 8-5 on page 8-14](#).
 - If “Enable DHCP” is selected, only record Computer name and Network Speed. Refer to b) in [Figure 8-5 on page 8-14](#).

Table 8-3: Record Table

Item Name	Setting
Computer Name	
IP-Address	
Subnet Mask	
Default Gateway	
Network Speed	

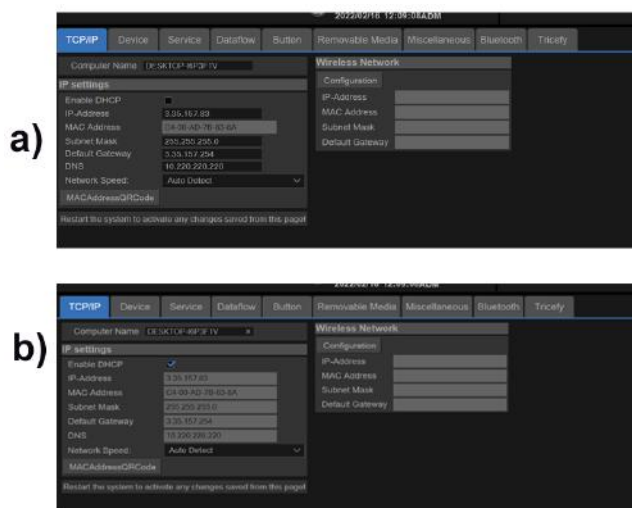


Figure 8-5. Record IP Setting

Data Backup(continued)

- Record the installed option keys in **Utility -> Admin -> System Admin**.

The screenshot shows the 'System Admin' window with tabs for 'System Admin', 'Users', 'Ligon', and 'User policies'. The 'System Admin' tab is active. It contains sections for 'Product' (with fields for Product, HW Number, and System Serial Number), 'License Key' (with a field for 'Enter Windows License Option Key' and an 'Add' button), and 'SW Option Key' (with a field for 'Enter New Option Key' and an 'Add' button). Below the 'SW Option Key' section, there is a list of 'Installed Option Keys' showing a single key 'xxxxx-xxxxx-xxxxx-xxxxx-xxxxx' with a 'Remove' button next to it.

Figure 8-6. Option Key

- Insert the backup media. Go to **Utility -> System -> Backup/Restore -> Media** to select the media.

The screenshot shows the 'Backup/Restore' window with tabs for 'General', 'System Imaging', 'System Measure', 'Backup/Restore', 'Peripherals', 'User Configurable Key', and 'About'. The 'Backup/Restore' tab is active. It contains sections for 'Backup' (with checkboxes for 'Patient Archive', 'User Defined Configuration', and 'Service'), 'Media' (with a dropdown menu for 'Media' showing 'CD / DVD' selected), 'EZMove' (with a field for 'Move Files Older Than in Days'), 'EZBackup' (with fields for 'Reminder Dialog Interval Days' and 'Media capacity for estimate (MB)'), and 'Restore' (with checkboxes for 'Patient Archive', 'User Defined Configuration', and 'Service'). The 'Media' dropdown menu is highlighted with a yellow box, showing options for 'CD / DVD' and 'USB Drive H'.

Figure 8-7. Media Menu

Data Backup(continued)

4. Go to **Utility -> System -> Backup/Restore**, select **Patient Archive**, **User Defined Configuration** and **Service** under **Backup** by placing a check mark in front of them. Then select **Backup** to backup the information.

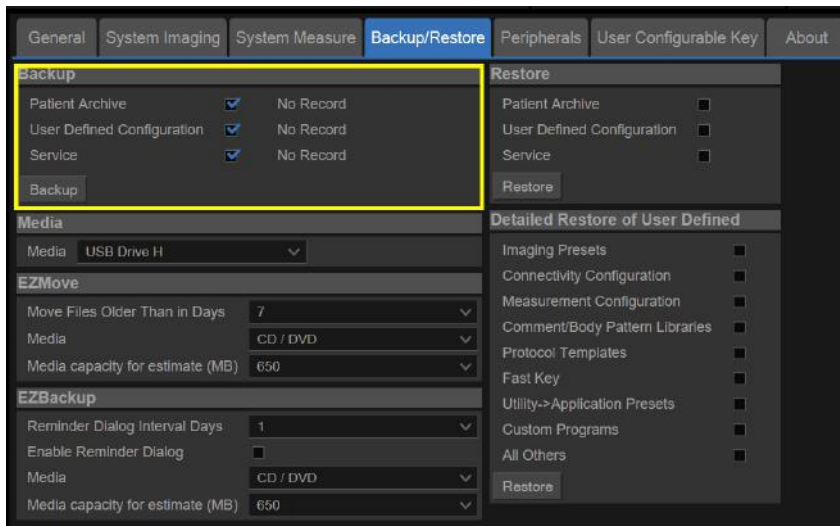


Figure 8-8. Backup Menu

Data Backup(continued)

5. Select OK to backup the system information when the following pop-up warning windows display.

NOTE: *After Patient Archive, User Defined Configuration and Service backup, remove all the external USB devices.*

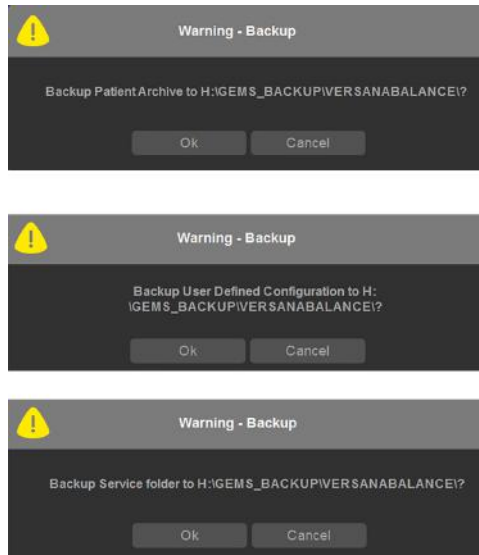


Figure 8-9. Backup Confirmation message

6. Go to **Utility -> System -> General**, record the **Preset Region** and the **Language**. Then select **Regional Options**.

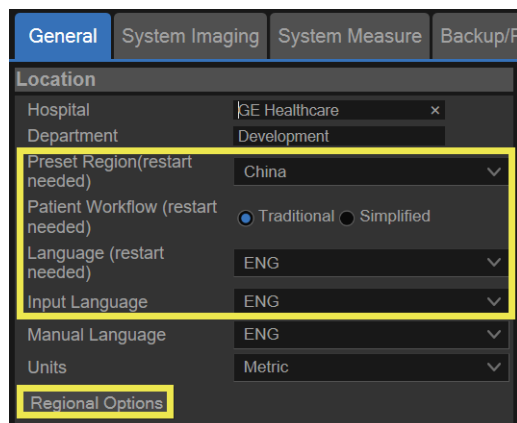


Figure 8-10. Preset region

Data Backup(continued)

7. In **Format** tab, record the Format. And in the **Administrative -> Change system locale...**, record current system locale.

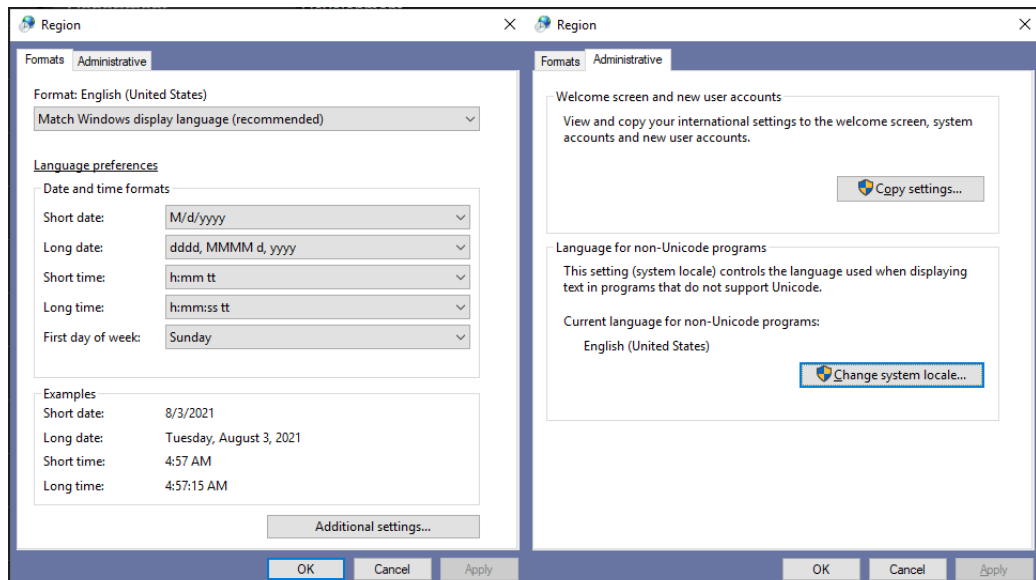


Figure 8-11. Region and Language

Data Backup(continued)

8. Press **Patient** key on the control panel, and then select **Data Transfer**. Select the task as Export and specify the destination to backup the patient information and images.

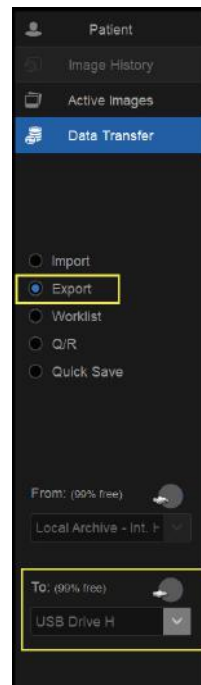


Figure 8-12. Data Transfer

9. Select **Select All**, and then select **Transfer** to backup all the patient information and images.

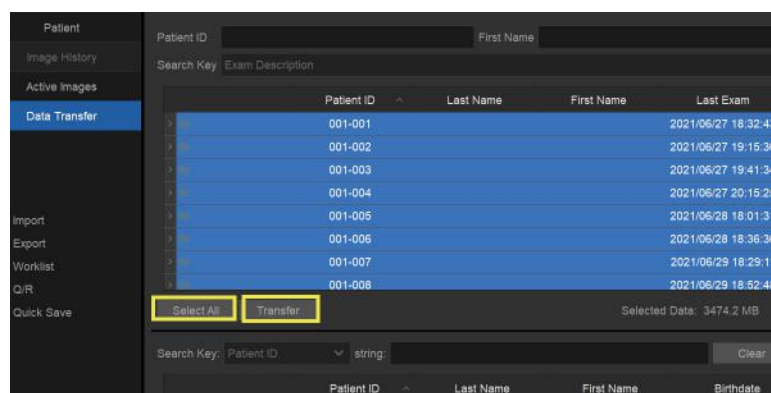


Figure 8-13. Export Patient Information

Loading the System Software



WARNING

While the software install procedure is designed to preserve data, you should save any patient data, images, system setups and customer presets to CD, DVD, USB Flash Drive, or USB Hard Disk before doing a software upgrade.

NOTE: *Before loading the system software, please ensure that the power can be continuously supplied and there is no risk of power cut off during loading procedure.*

NOTE: *Before loading/reload the system software, please change system language to English refer to [Figure 3-76 on page 3-83](#). Otherwise, there will be garbage on the system after software reload/loading.*

There is one method to load the system software:

- Load the system software with USB memory stick.

NOTE: *Finding the system software USB memory stick by removing the body left cover.*



Figure 8-14. Software USB memory stick position

Loading the System Software with USB memory stick

NOTE: Please ensure AC adapter is connected during system software update.

This section describes how to upgrade the software.

1. Insert the Upgrade USB memory stick labeled “System & Application Software” to the USB port of the system.
2. Properly turn off the system by momentarily pressing the **Power On/Off Switch**. Then select **Shutdown** in the System Exit Window.

NOTE: If the system does not shutdown normally, hold down the **Power On/Off Switch** until the light turns off.

3. Power on the system and it will detect the USB memory stick automatically.

NOTE: A window will pop out. Do not close the window, or the upgrade process will be terminated.

4. Select the option **Load the complete disk**, **Load the bootable C: partition only** or **Only reload/Upgrade Application Software** for software upgrade. Or select **Exit** to exit the upgrade process.

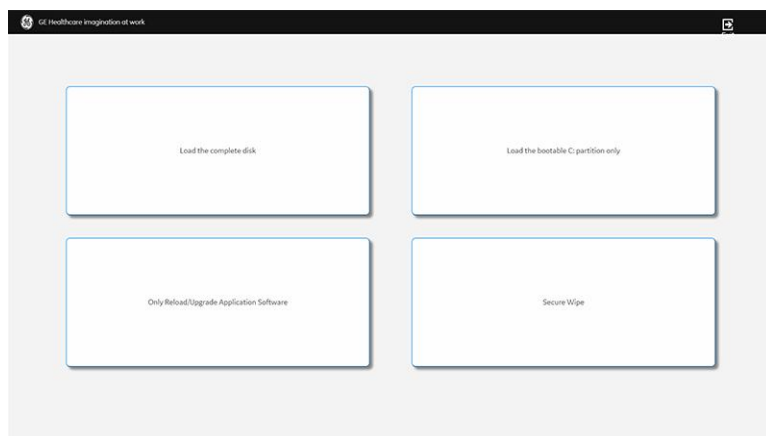


Figure 8-15. Upgrade instruction

Loading the System Software with USB memory stick(continued)

- **Load the complete disk:** the complete disk will be loaded. This option is recommended for application software upgrade.



WARNING

If selecting Load the complete disk, all existing software and data will be erased. If backup has not been performed, all data like Patient Data, System Configuration and User Configurations (Customer Presets) will be lost. Please ensure that any patient data on the disk has been backed up before updating the system.

NOTE: *If an extended SSD (disk Y) is installed, all patient data will be erased as well.*

NOTE: *This option is used by service engineer only.*

- **Load the bootable C: partition only:** this option is intended for recovery of a system that will not boot up. All patient data is preserved. Only disk C & Z will be formatted and reloaded.

NOTE: *If the patient data is encrypted, please go to Utility ->Admin -> System Admin -> Disk Encryption page and press Suspend button before selecting Load the bootable C: partition only and Only Reload/Upgrade Application Software.If can't be suspended, select **Execute** to continue. But user needs to manually unlock the patient data in next booting up.*

Loading the System Software with USB memory stick(continued)

NOTE:

Please refer to below diagram to understand the software reload process in different encryption situation. The green blocks stands for steps that requires operator action.

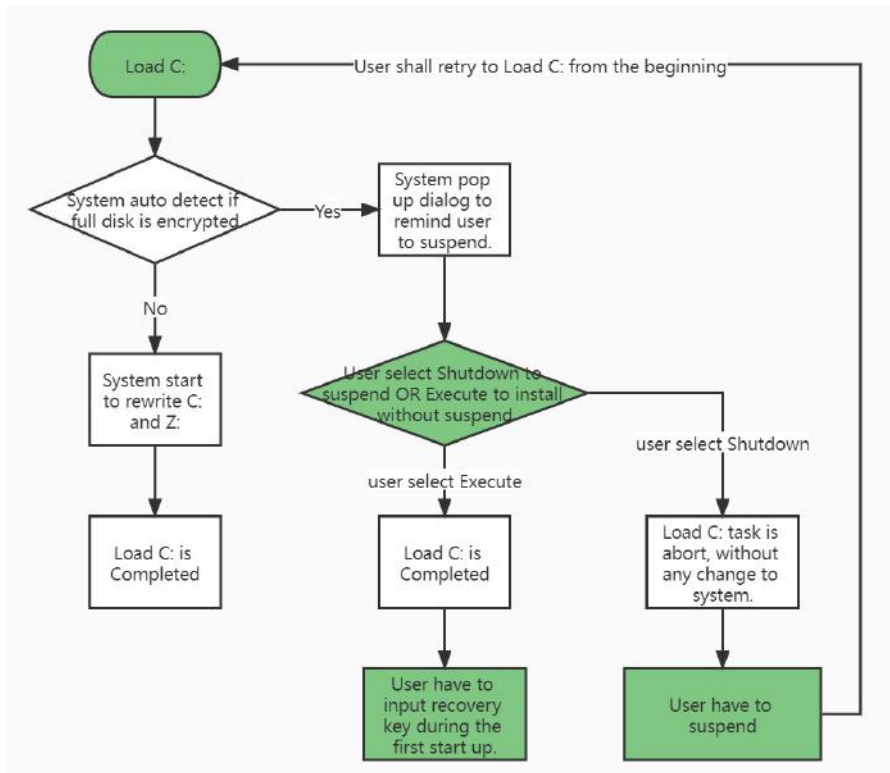


Figure 8-16. Diagram

Loading the System Software with USB memory stick(continued)

- **Only Reload/Upgrade Application Software:** *the application software will be loaded/updated only. This option is recommended for application software load or reload. The software update kit will automatically detect if the system compatible with this function and complete software loading.*

NOTE: *If the current system base image does not support the application version of the software load USB disk, a message will be displayed on the screen and cancelled upgrading automatically.*

NOTE: *Please refer to below diagram to understand the software reload process in different encryption situation. The green blocks stands for steps that requires operator action.*

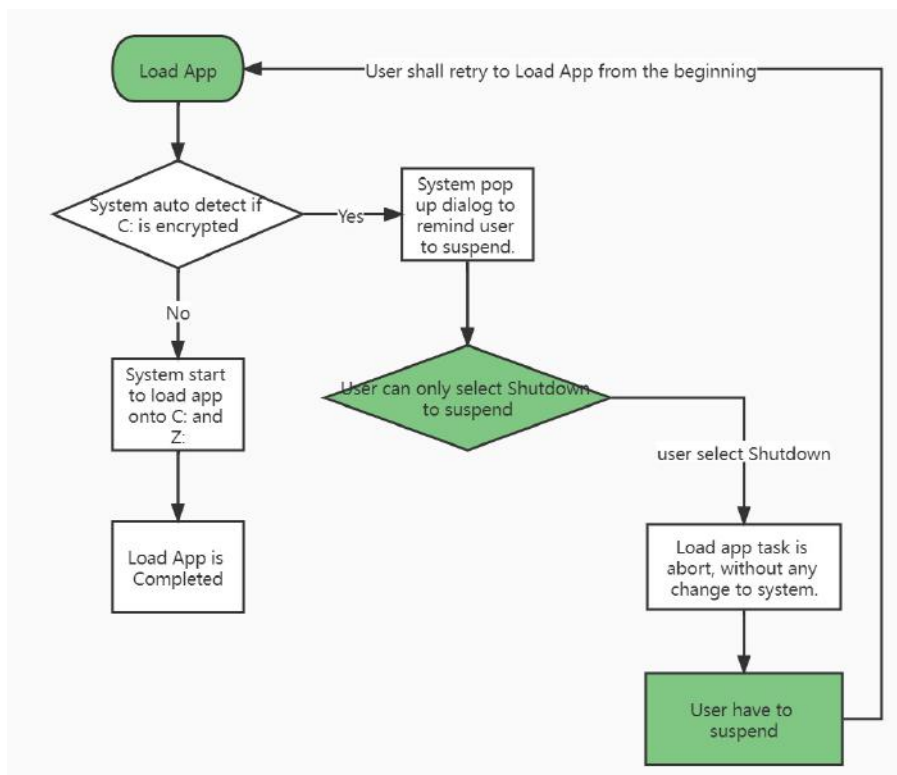


Figure 8-17. Diagram

Loading the System Software with USB memory stick(continued)

5. If **Load the complete disk** is selected, a confirmation window will pop out, then select **Execute** to continue.

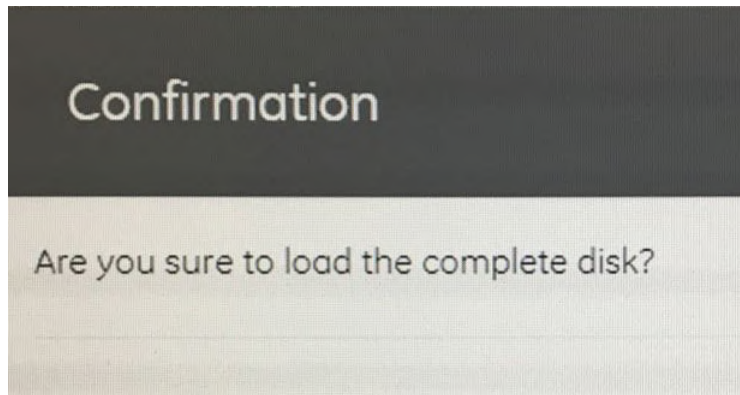


Figure 8-18. Confirmation Window

NOTE:

Before loading the complete disk, please ensure that any patient data on the disk has been backed up.

If **Load the bootable C: partition only** or **Only Reload/ Upgrade Application Software** is selected, system will check if current disk needs to be suspended.

- If no, a confirmation window for continuing will pop out, press **Execute** by using Touch Panel or **Cursor** key to continue.

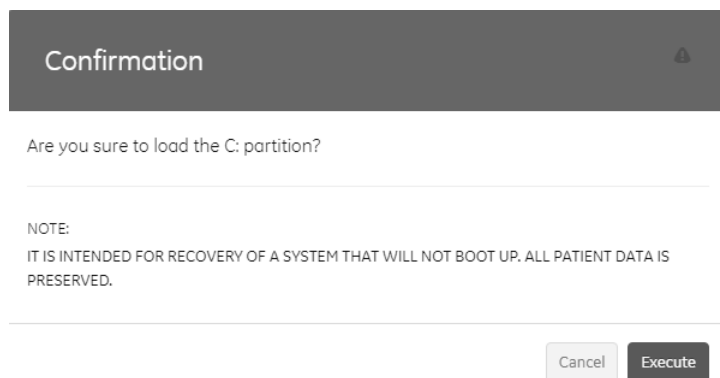


Figure 8-19. Confirmation Window 2

Loading the System Software with USB memory stick(continued)

- If the disk needs to be suspended, a confirmation window will pop out as [Figure 8-20](#).

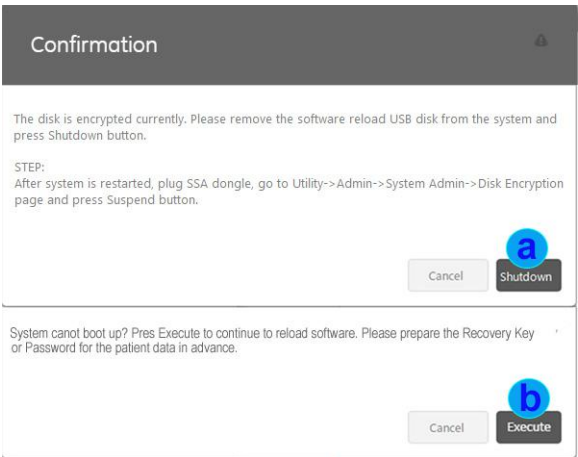


Figure 8-20. Confirmation Window 3

- a. If you select **Shutdown**, system will shutdown to let you suspend by **Utility -> Admin -> System Admin -> Disk Encryption** page.
- b. If the system cannot boot up, you can select **Execute** to continue. But user needs to provide recovery key or password to patient data later.

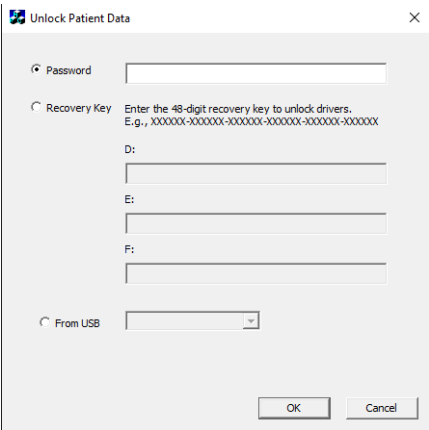


Figure 8-21. Unlock Patient Data

NOTE: *If user lost password or recovery key, please do the complete disk installation. Patient data will be lost.*

Loading the System Software with USB memory stick(continued)

6. System USB memory stick will be loading. Wait for the software installation to complete. Status bar on the screen indicates the progress (about 30 minutes).



WARNING

Do not interrupt the software loading at any time.

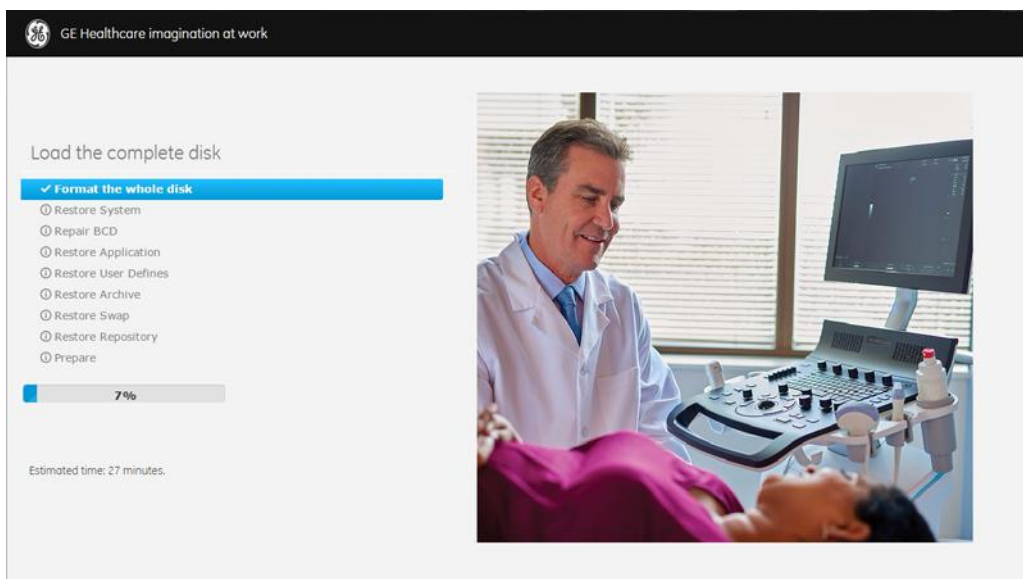


Figure 8-22. Loading Process

Loading the System Software with USB memory stick(continued)

7. The system will display upgrading result and shutdown automatically within 30 seconds. Or click the Shutdown in the screen to shut down the system immediately.

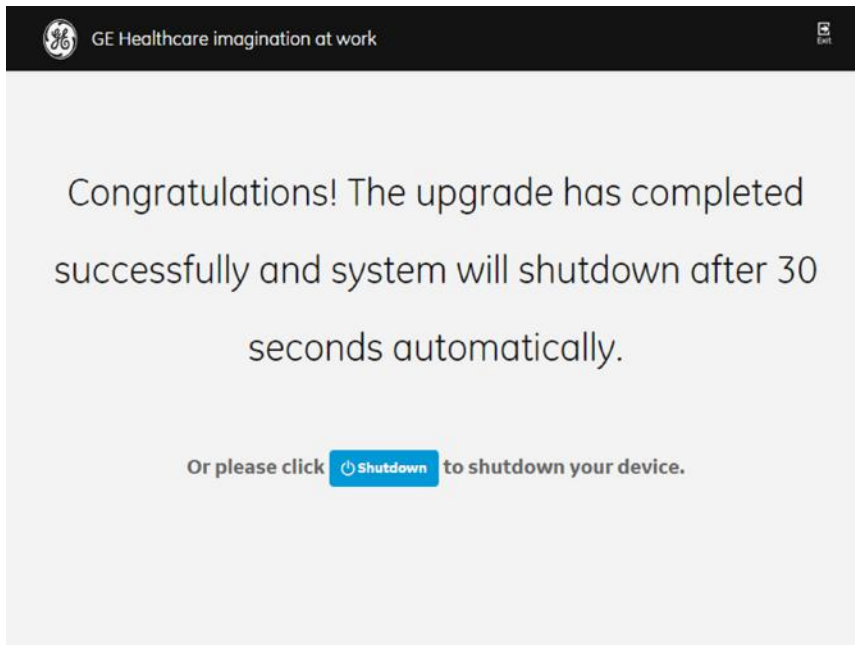


Figure 8-23. System upgrade complete

If the upgrade fails, select **Exit** to exit the upgrade process, then remove the USB memory stick. Insert the USB memory stick again and repeat the upgrade process from [step 2 on page 8-21](#).

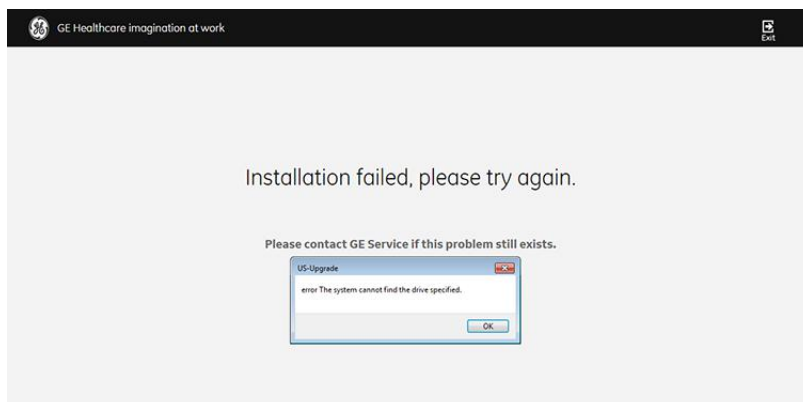


Figure 8-24. System upgrade fail

Loading the System Software with USB memory stick(continued)

8. Remove USB memory stick. Then press *Power On/Off* switch to power on the system.

NOTE: Remove the USB memory stick before the system restarts. If you do not remove the USB memory stick, the software system upgrading process repeats when the system boots up.

NOTE: Ensure the USB memory stick is properly and securely connected. Once the USB memory stick is accidentally disconnected from the system during the upgrading process, the error message will pop up: "The volume for a file has been externally altered so that the opened file is no longer valid." Insert the USB memory stick again and restart the system to run the upgrading process from step 3 of 'Loading the System Software with USB memory stick' on page 8-21.

Rewrite the Serial Number

If selected to load the complete disk during the software loading process, when powering the system, the system will indicate to rewrite the serial number.

Set Password

After the serial number is reset, the system will shutdown automatically. Power on the system and complete the password setting for use.

NOTE: *Disk Encryption password and system password setting is required when turning on the system for the first time or after the software installation.*

NOTE: Software upgrade will cause password reset, see [Table 8-4](#) for more information.

Table 8-4: Password Reset Policy

System Upgrade	Disk Encryption password	System password	ADM User password	Database password
Whole disks	Yes	Yes	Yes	Yes
Only C disk	No	Yes	No	No
Reload Apps	No	No	No	No

NOTE: *Please save the system password properly. User is required to provide the system password to back office for remote connection.*

Secure Wipe

Secure wipe is intended to erase all the patient data with the software on the system before the system will be shipped for service.

NOTE: This tool is not BAM approved.

NOTE: Before starting this procedure, remove all probes and peripherals and remove them from the system.

NOTE: While it is believed to be unnecessary, it would not hurt to disconnect the system from the network and remove all transducer.

NOTE: Please ensure AC adapter is connected during system upgrade!

1. Insert the USB memory stick labeled "System & Application Software" to the system.
2. Properly turn off the scanner by momentarily pressing the *Power On/Off* Switch. In System-Exit window, select **Shutdown** to shutdown the system.

NOTE: If the system will not shutdown normally, hold down the Power On/Off Switch until the light turns off.

3. Power on the system. The system will detect the USB memory stick automatically.

Secure Wipe(continued)

4. Select **Secure Wipe**. Or select **Exit** to exit the process.

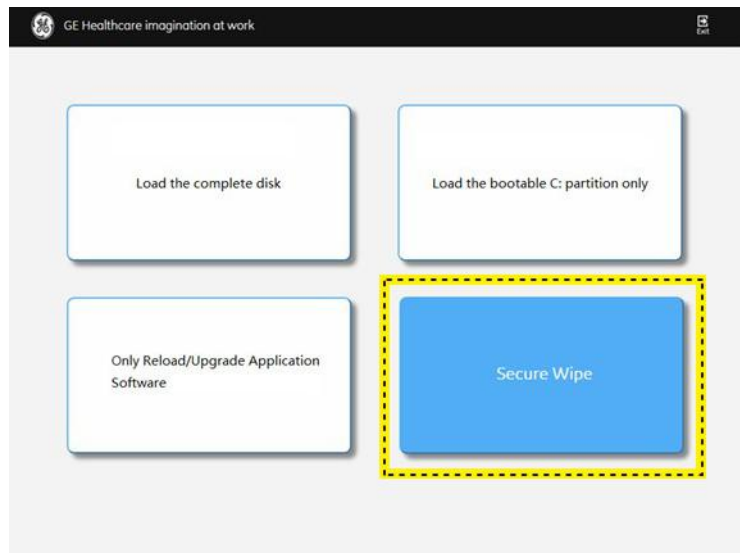


Figure 8-25. Upgrade message

5. The system indicates all data will be erased, select **Execute** to continue.

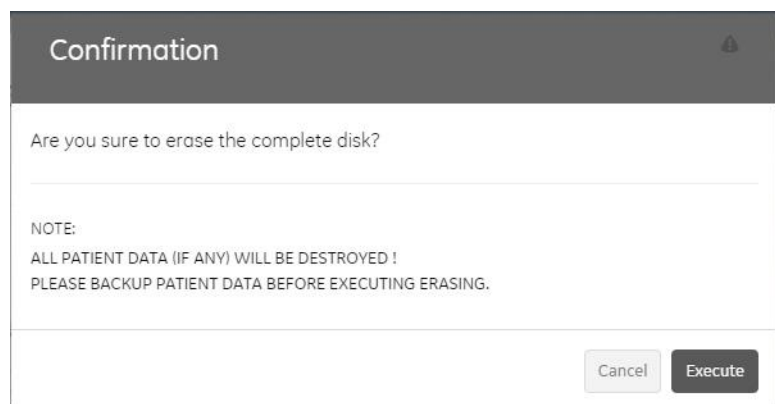


Figure 8-26. Confirm Dialog

NOTE: *All the patient data cannot be recovered after wipe process.*

Secure Wipe(continued)

6. The process may take twenty minutes or more.

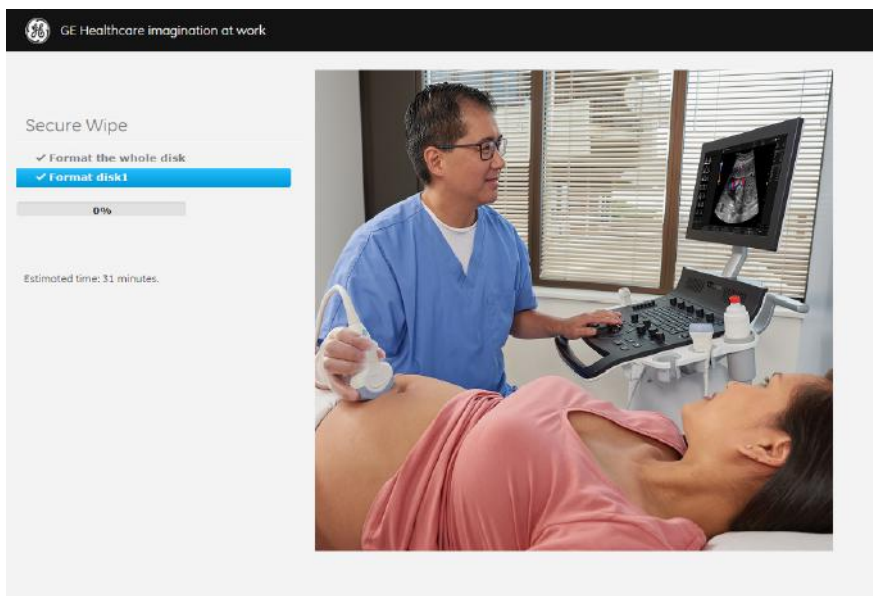


Figure 8-27. Wiping Process

7. The system will shutdown automatically when the wiping progress completes.

NOTE: *As the SSD is empty after secure wipe, the system cannot boot up. The software should be loaded first after the wipe process.*

System Software Version check out

Functional Check-out

1. Power on Versana Balance™/Versana Balance™ Vet system and wait until system booting to scanning screen.

NOTE: *If selected to load C Disk only when loading the system software, the system will display a screen to restore Computer name before entering the scanning screen.*

2. Press **Utility** on the control panel.
3. Select the **System** -> **About** and check whether the system software version is right.

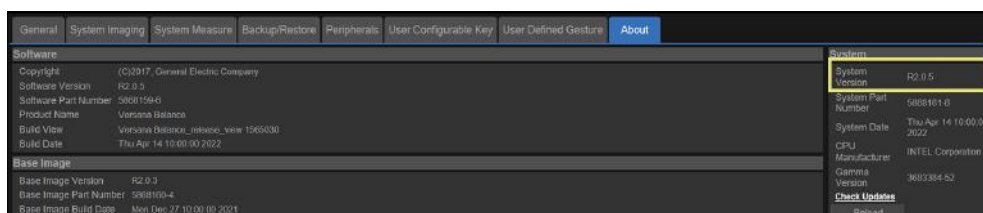


Figure 8-28. System Software version

Option Strings Check

NOTE: After the system software loading completion, please check the option strings to ensure that the options are activated and working.

1. Reboot the system.
2. Press **Utility** -> **Admin**, the following dialog is displayed. Select **Acknowledge** to continue.

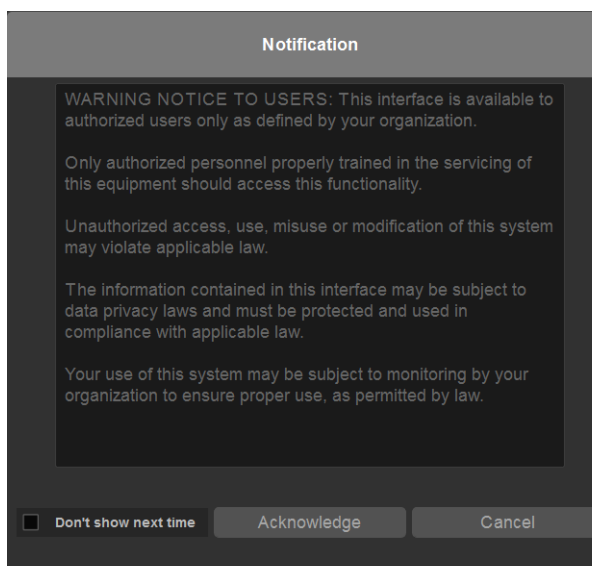


Figure 8-29. Notification Window

3. Login to the Versana Balance for the first time. Refer to ['Logging on to Versana Balance™/Versana Balance™ Vet as "ADM"' on page 4-12.](#)

Reload the Correct Preset Region

NOTE: After the software upgrade process, the system language and region preset will be set as the default. Change the settings if needed.

NOTE: Refer to step 6 on 8-17 and step 7 on 8-18 for the system Region Preset and Language settings.

1. When the system is powered on, go to **Utility -> System -> General**. Select **Regional Options**.

Figure 8-31. Preset Region

2. Under **Formats** select the desired language.

Figure 8-32. Formats selection

Reload the Correct Preset Region(continued)

3. Under **Administrative**, select **Change system locale....**

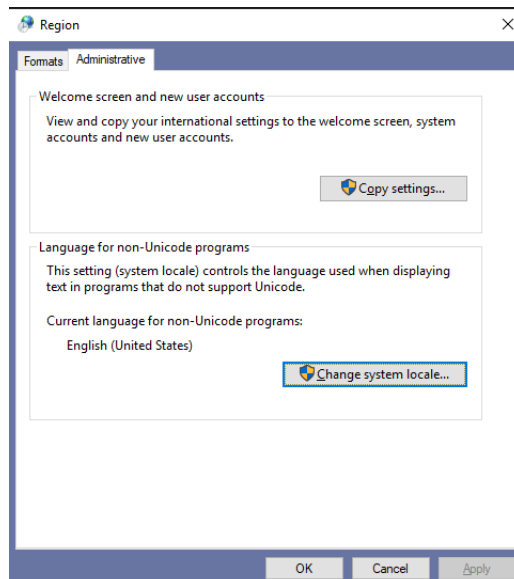


Figure 8-33. Location selection

4. Select **Apply** when below message displays.

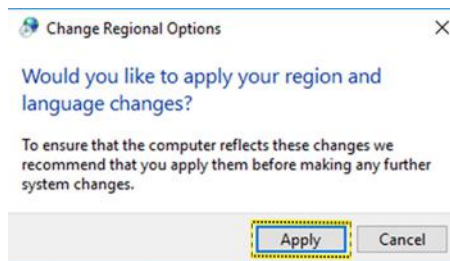


Figure 8-34. Change Regional Options

Reload the Correct Preset Region(continued)

5. Select the language under **Current system locale**, then select **OK**.

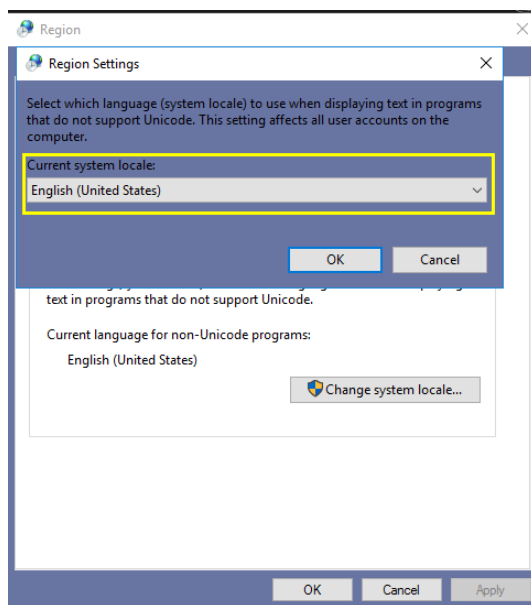


Figure 8-35. Set Language

6. Select **Cancel** not to restart the system.

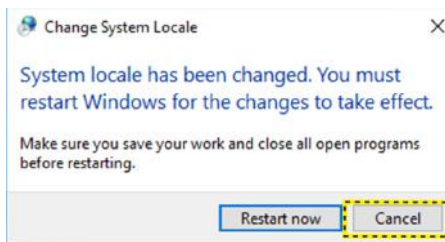


Figure 8-36. Restart request

Reload the Correct Preset Region(continued)

7. Select **Close** to close the window.

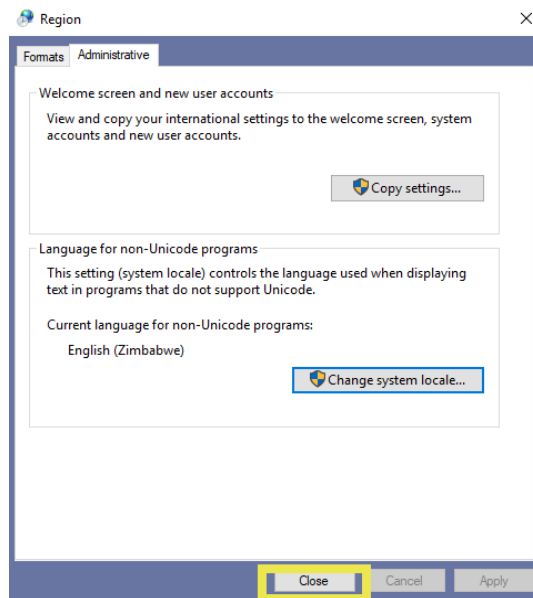


Figure 8-37. Installed service

8. Select **Cancel** to return to system setting.

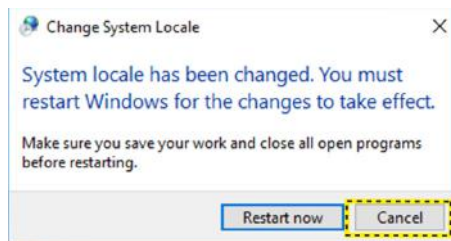


Figure 8-38. Installed service

Reload the Correct Preset Region(continued)

9. In **Utility** -> **System** -> **General**, select the language as desired, and then select **Save**.

Figure 8-39. Language

NOTE: Keep Input Language the same as system language, otherwise corrupted characters will be incurred.

10. Select **Restart now** to restart the system.

Figure 8-40. Add Input Language

11. When the system boots up, the system appears in the selected language.

NOTE: To have the settings take effect, you **MUST** restart the system.

NOTE: Press **Alt+Shift** to change the input language.

Configuration Restore

- 1. When the system is powered on, go to **Utility -> Connectivity -> TCP/IP**.
 - If the original selection is that the "Enable DHCP" is selected, the selection is restored by default and the system will automatically get the IP address.

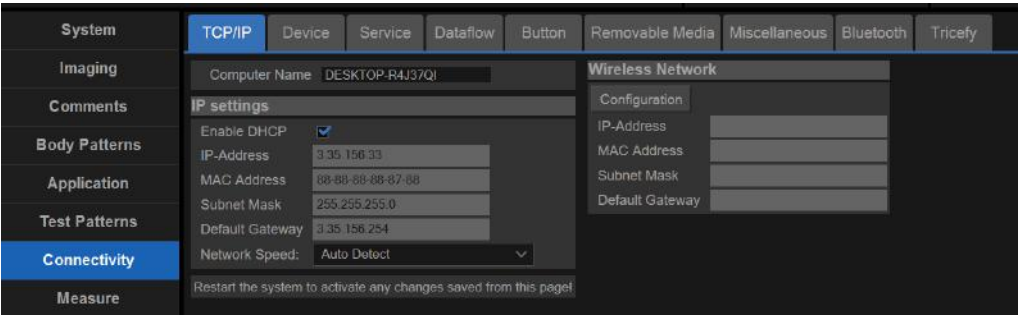


Figure 8-41. Enable DHCP

- If the original selection is that the "Enable DHCP" is not selected, please uncheck "Enable DHCP". Input the information about IP setting which have been recorded.

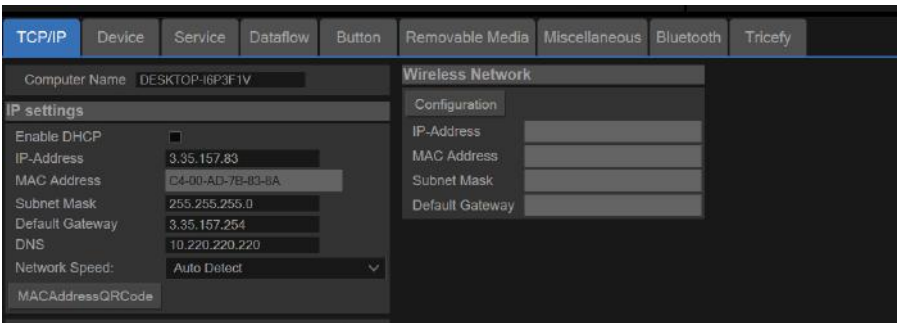


Figure 8-42. Disable DHCP

Configuration Restore(continued)

2. Select **Save**, then the following pop-up window will display. Select **Restart later**.

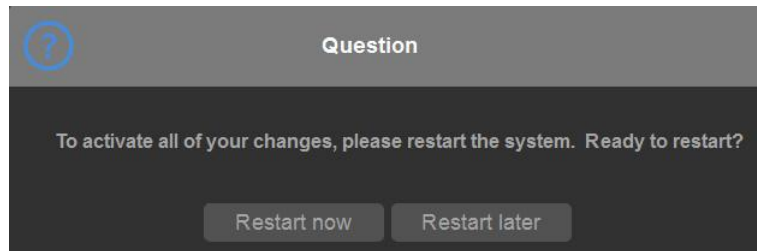


Figure 8-43. Question Window

3. If **Load the complete disk** is selected for software upgrade, the user is required to restore the Patient Archive and System Configurations.
Insert the media which is used to back-up.
4. Select **System**, then select **Backup/Restore**.
5. In the Media field, select the media. Refer to [Figure 8-7 on page 8-15](#).
6. Restore user defined configuration. There are 2 options.
 - If the user would restore all user defined configuration, in the **Restore** field, select **User Defined Configuration**. Then select **Restore** button in the **Restore** field.

NOTE: *If the user requires to restore all the User Defined Configuration, there is no need to select all the items of the **Detailed Restore of User Defined** to restore.*

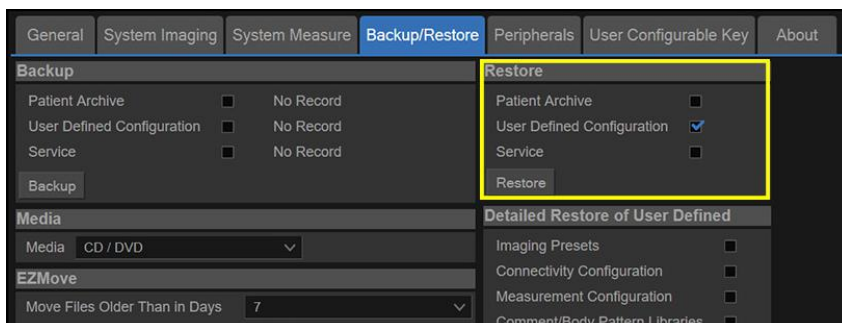


Figure 8-44. Restore all user defined configuration

Configuration Restore(continued)

Then the following pop-up Warning message will display, then select **OK** to continue.

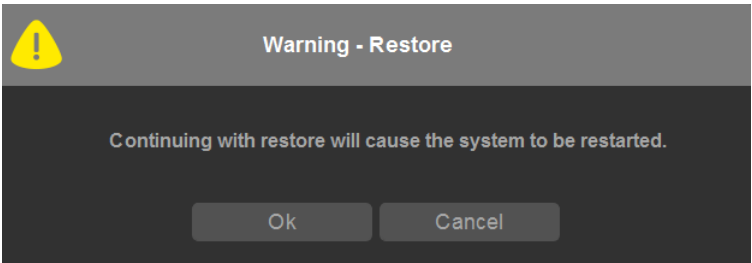


Figure 8-45. Question Message

- If the user would not restore all user defined configuration, in the **Detailed Restore of User Defined** field , select the items the user would like to restore.Then select **Restore** button in the **Detailed Restore of User Defined** field.

*NOTE: According to the requirements from the User, restore the items in **Detailed Restore of User Defined**.*

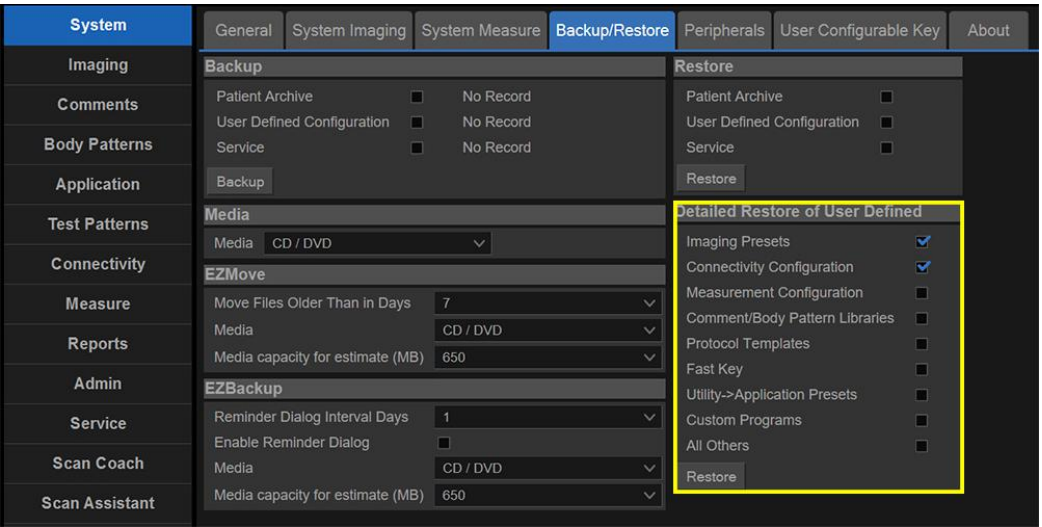


Figure 8-46. Detailed Restore of User Defined

Configuration Restore(continued)

During the restore process, the following pop-up message will display. Press **OK** to continue. Refer to [Figure 8-57 on page 8-51](#) as an example.

NOTE:

How many warning message windows show up depends on how many items of Detailed Restore of User Defined are selected to restore.

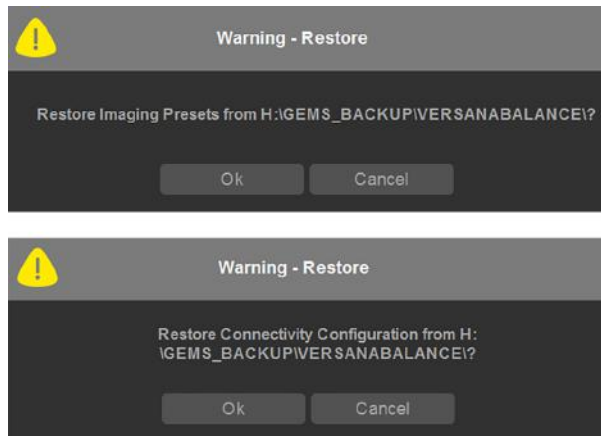


Figure 8-47. Restore Warning Message

7. After restoring the User Defined Configuration, the System will restart.
8. After the system is powered on, go to **Utility -> System -> Backup/Restore**. Select **Patient Archive**, **User Defined Configuration** and **Service** under **Restore** field.

NOTE:

Select Patient Archive to restore the patient information. But the exam images will be damaged thus unable to read.

NOTE:

If the user already restores the detailed User Defined Configuration in step 6 on 8-43, DO NOT select User Defined Configuration in this step.

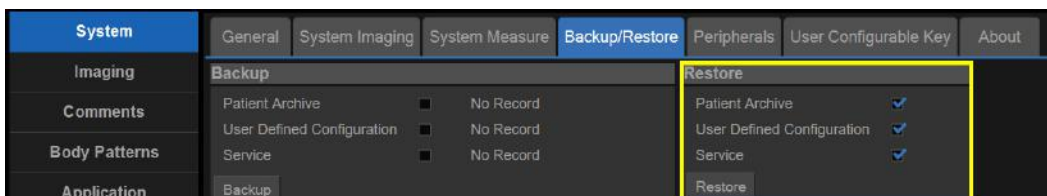


Figure 8-48. Restore Menu

Configuration Restore(continued)

9. Select **Restore**. The the following pop-up Warning message will display, then select **OK** to continue.

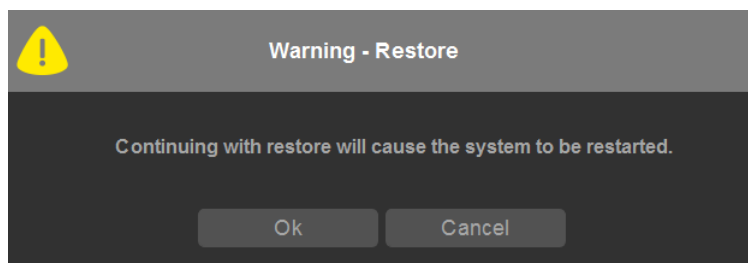


Figure 8-49. Warning Message

10. Then the following pop-up Warning message will display, then select **OK** to continue.

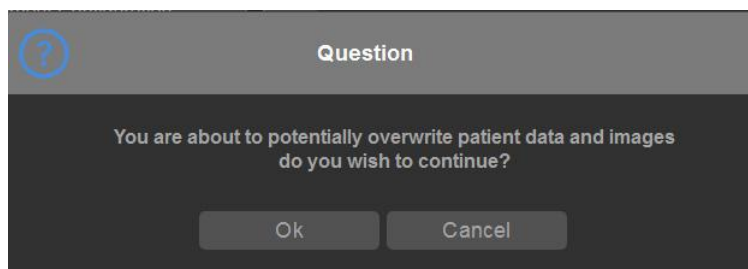


Figure 8-50. Question Message

Configuration Restore(continued)

11. During the restoring process, the following pop-up message will display. Press **Ok** to continue.

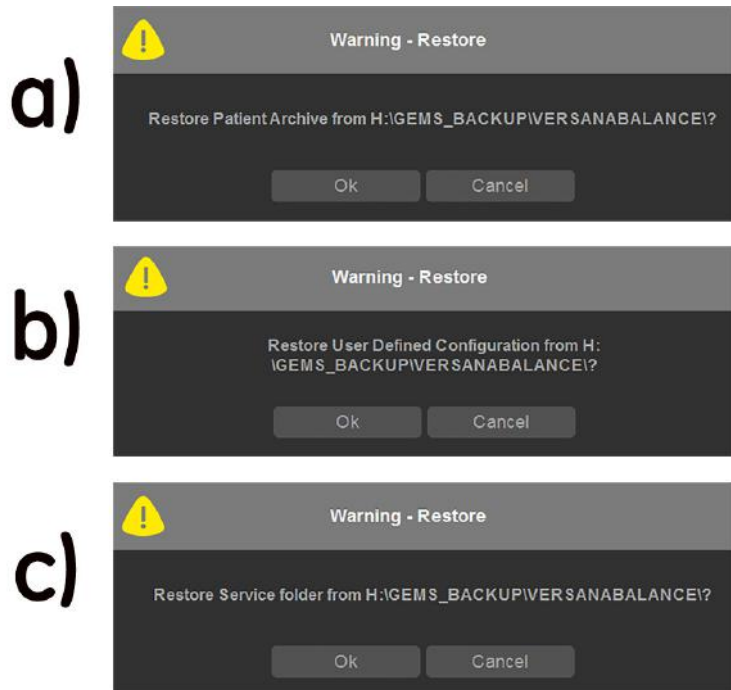


Figure 8-51. Warning Message

NOTE: *If User Defined Configuration is not selected to restore in step 8 on 8-45, the warning message (b) in Figure 8-51 on page 8-47 will not display.*

Configuration Restore(continued)

- 12. Press **Patient** key on the control panel, and then select **Data Transfer**. Select the task as **Import** and select the source as where the patient information is exported to.



Figure 8-52. Data Import

- 13. Select **Select All**, and then select **Transfer** to restore all the patient information and images.

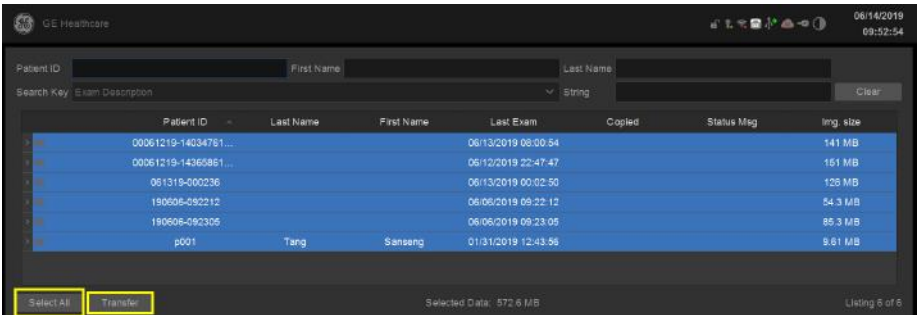


Figure 8-53. Data Transfer

Configuration Restore(continued)

14. Then the following pop-up question message will display, select **YesToAll** to continue.

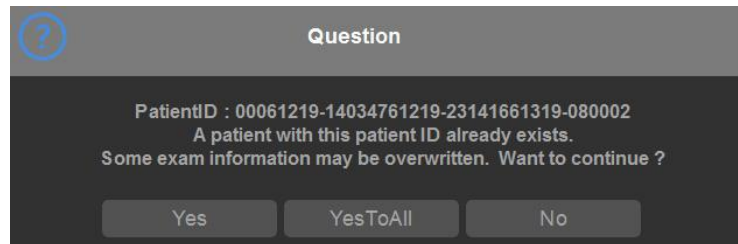


Figure 8-54. Overwrite Question Message

15. Then the following pop-up warning will display, select **Ok** to continue.

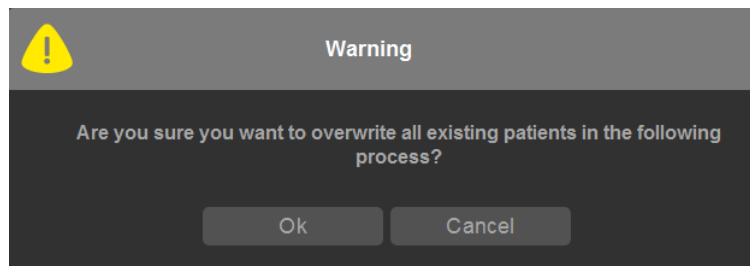


Figure 8-55. Overwrite Warning

Configuration Restore(continued)

16. The overwrite process is completed.

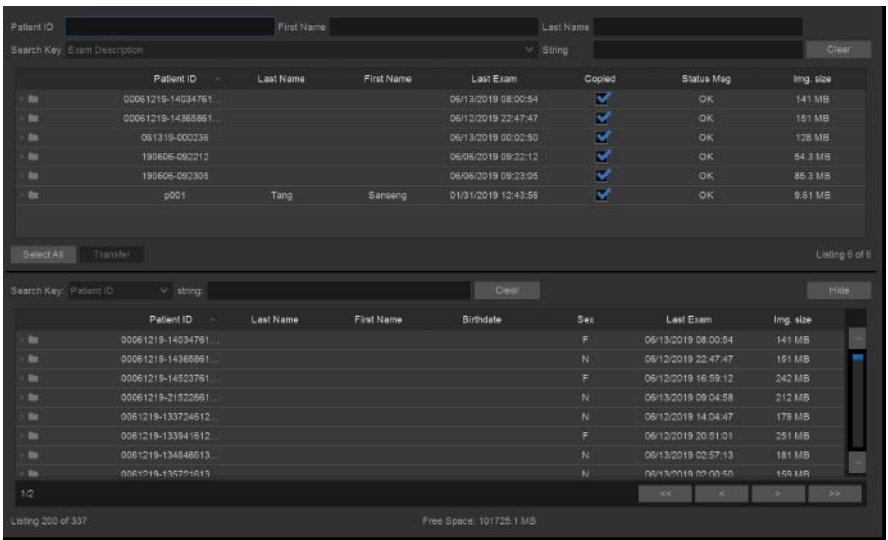


Figure 8-56. Overwrite Process

Probe Recognition Check

NOTE: After the system software loading completion, please check to ensure that the system can recognize the probes.

Plug in the probe. In scanning mode, the probe information is displayed on the **right top** location of the screen. About the probe specification for intended use on Versana Balance™/Versana Balance™ Vet.

Plug in at least one of each type of the probes and check if each of the probes is recognized and the probe information is displayed correctly.

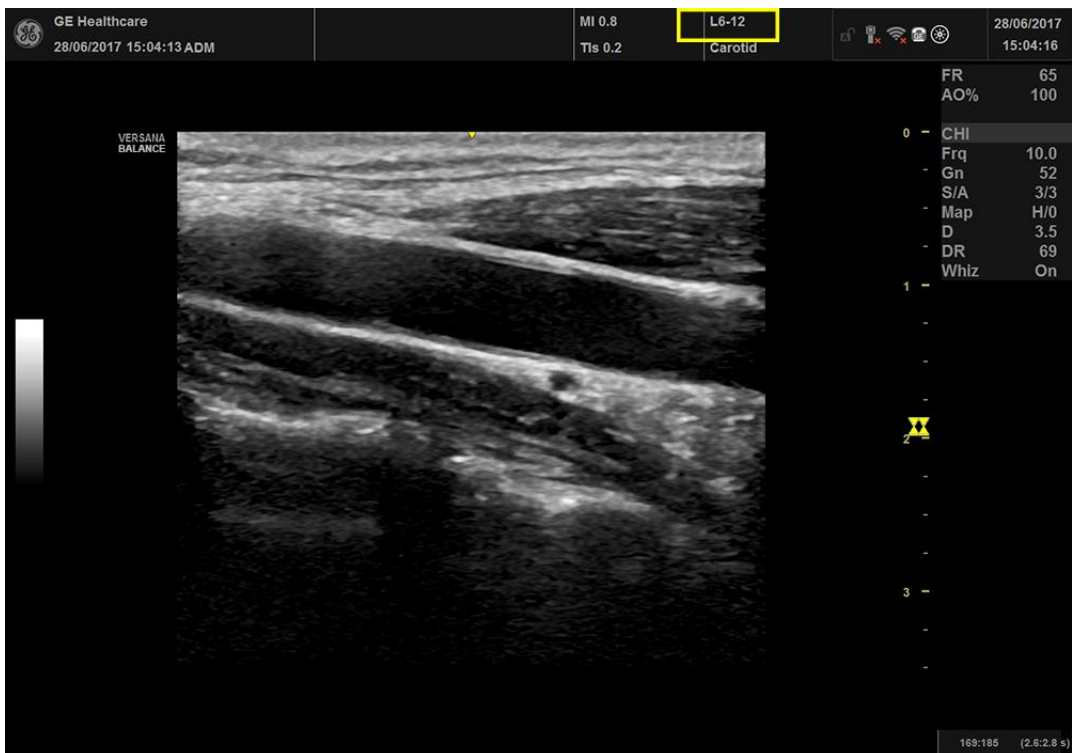


Figure 8-57. Probe identification

Peripheral Device Check

Check to ensure that all the peripheral devices work properly.

For instruction of peripheral device check, [See 'Peripheral checks' on page 4-66 for more information.](#)

Reinstall DICOM Devices

Reinstall any DICOM devices used by the customers and check to ensure these DICOM devices work properly.

The instruction about installing DICOM devices is not incorporated in this manual. To access the instruction about installing DICOM devices please refer to another manual **User Manual**. Please use the latest revision of this document.

e-Delivery - Software update

Introduction

The user can update to the latest software two ways:

As part of the product lifecycle management, GE regularly analyzes and integrates software updates from our third party vendors into our products. These are typically released as part of regular updates or software releases.

- This requires Insite Remote Service Platform, see '[Software update via Insite Remote Service Platform](#)' on [page 8-53](#).
- Through software downloads from an end-user portal to a local storage location and install it on the ultrasound system. See '[Software update via End-User Portal](#)' on [page 8-59](#).

Software update via Insite Remote Service Platform

Software update for the system may become available for download and installation through the GE Service platform.

If software updates are sent remotely from server, the user will see the notification icon highlighted in the Service Menu.

Users are required to be logged into the system as administrators (ADM) in order to be granted access to initiate the installation.



CAUTION

Please backup presets and database before installation of the software (see "Backup and Restore" in the User Manual).

Remote software download should not change user presets or affect customer database; however, it is always best practice to ensure patient data and preset are backed up before proceeding with any software installation.

NOTE: *Be sure to end exam before software update.*

NOTE: *Please allow approximately half an hour for complete software download (the download time may vary due to network connection speed).*

NOTE: *Please allow approximately half an hour for complete installation.*

NOTE: *Software upgrade through the GE service platform may not be available in all markets.*

Software download and installation

- 1. Press the service menu, and click **Download** from the menu to check the updates.

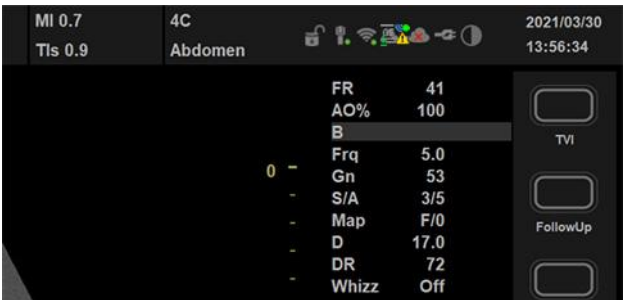


Figure 8-58. Service Notification

- 2. Available software updates are displayed in the list. If you want to refresh the query for available updates, press **Refresh**.

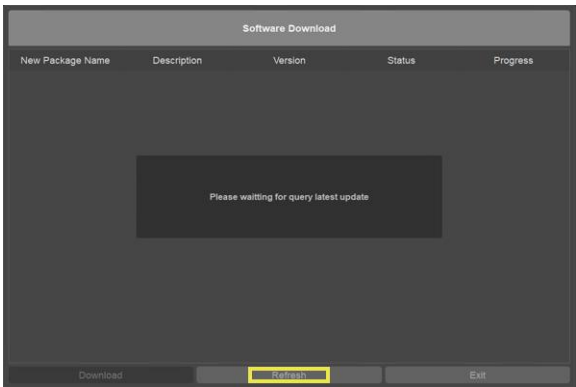


Figure 8-59. Refresh

Software download and installation(continued)

3. Select the desired software update and press **Download** to begin downloading the update package, or press **Exit** to exit the window.

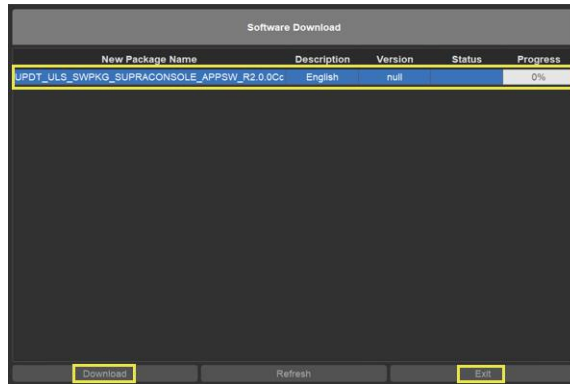


Figure 8-60. Download or Exit

4. During the software download process, the status will be displayed as "**Downloading**". You can press **Pause** to suspend the download or press **Cancel** to abort the download.

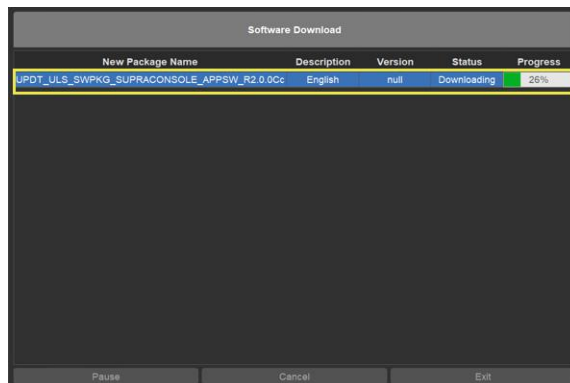


Figure 8-61. Downloading

Software download and installation(continued)

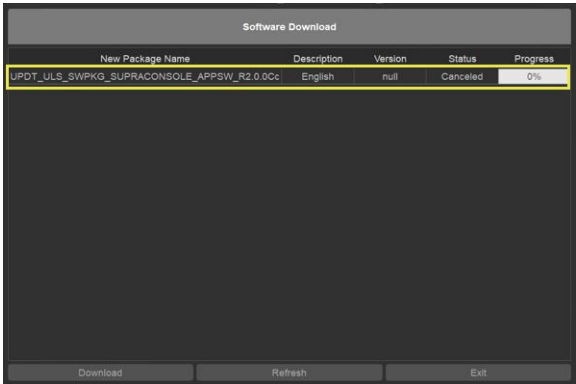


Figure 8-62. Canceled

*NOTE: While the software is downloading, the **Exit** button is disabled. If you want to go back to scanning page, please press **Pause** to suspend the download process first and then press the **Exit** button.*

- When the download is in progress, press the **Pause** button to suspend the download process.
- When the download process is suspended, press the **Resume** button to recover the download process from the point where it is stopped.
- If there is an error during the downloading process, press the **Retry** button to recover the download process from the beginning.

NOTE: Before installation, user should log on the ADM account, otherwise there will be pop-up message for reminding it. Only after log onto the ADM account, user has access to installation.

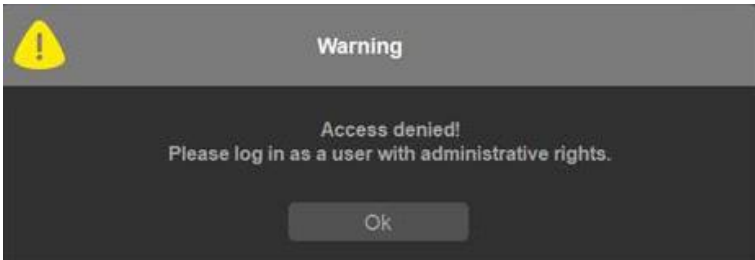


Figure 8-63. Access Denied

Software download and installation(continued)

- When the download process finishes, the software is ready to be installed in the ultrasound system. Click **Yes** to start the installation.



Figure 8-64. Start Installation

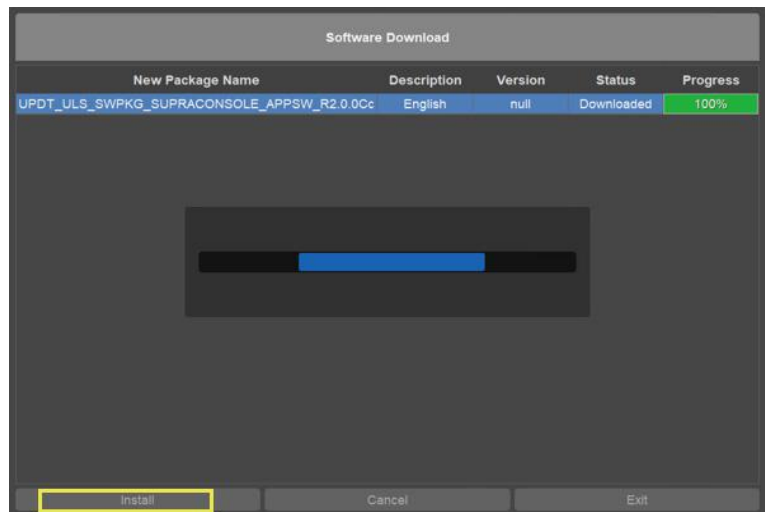


Figure 8-65. Install

NOTE: Please allow enough time for ultrasound device to reboot automatically to complete the installation process.

Software download and installation(continued)

6. The system will reboot several times to complete the installation.

NOTE: Do not power off the system during the software installation.

NOTE: A typical full installation may take up to 30 minutes.

NOTE: A typical software application installation may take up to 10 minutes.

7. After software installation is complete and the system is rebooted, a **Reminder after Installation** window will appear. This is to remind the user to manually restore configurations if the system has related settings backed up before the software update. Contact your on-site IT staff if available.

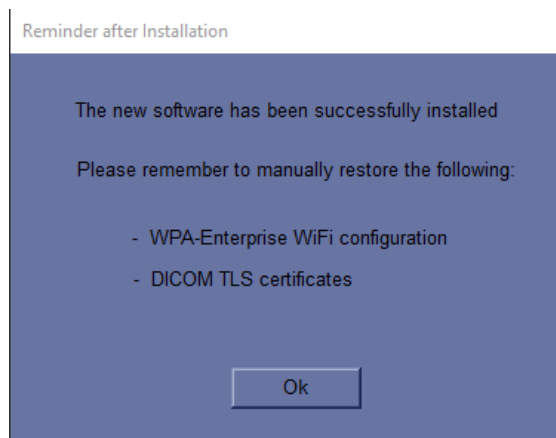


Figure 8-66. Reminder after Installation

8. Click **OK** to confirm the installation is complete.

Software update via End-User Portal

Customers entitled to eDelivery updates receive a customer account to download software within the End-User Portal.

Users are created for the account based on e-mail addresses provided by the customer at the point of sale. These e-mail addresses are the log-in credential for the End-User Portal along with a temporary password provided to the user through e-mail. When logging into the End-User Portal the first time, the user is prompted to change the password and enter a secret question and answer for password retrieval.

Follow the below instructions to download software from the portal:

1. Log onto the portal website which is provided to end user via a welcome email:
<https://gehealthcare.flexnetoperations.com/flexnet/operationsportal>
2. Log in using the user name (e-mail) and password.



Figure 8-67. Login Window

Software update via End-User Portal(continued)

3. The **License & Delivery Portal** dashboard is displayed. Multiple downloadable packages will be displayed as a link under **Your Downloads**.

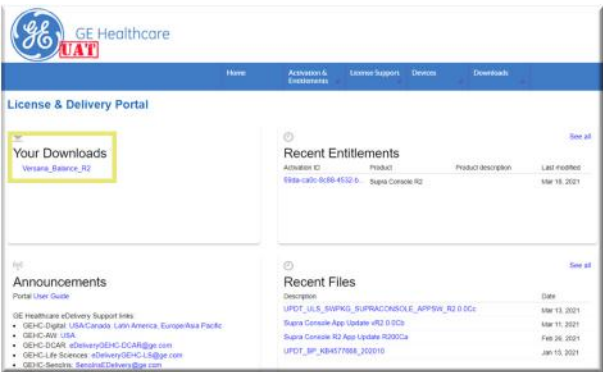


Figure 8-68. Your Downloads

4. Click the link to enter the **Download Packages** page. Downloadable packages with links will be listed. Click on the desired link to enter the **Downloads** page.

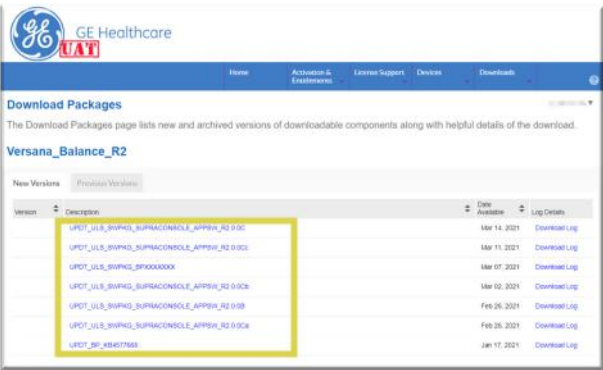


Figure 8-69. Select link

Software update via End-User Portal(continued)

5. Right click on the **“File Name”** link, select **“save link as”** to download the file to your storage device (a readable and writeable USB flash driver with enough capacity).

NOTE: *Multiple files may be downloaded on one device.*

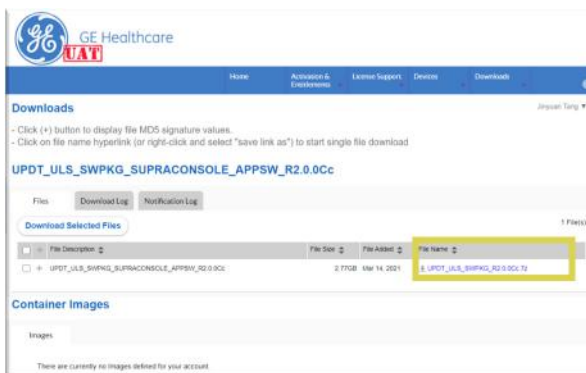


Figure 8-70. Save link

6. Load the downloaded software on the ultrasound system from the selected storage location. Refer to [See 'Loading the Software' on page 8-62 for more information.](#)

Loading the Software

To load a software onto the Versana Balance™/Versana Balance™ Vet,

1. Power off the Versana Balance™/Versana Balance™ Vet and insert the USB Flash Drive into a USB port.

NOTE: *Ensure that the system is USB Device Enabled.*

2. Power on the Versana Balance™/Versana Balance™ Vet. The software program files will be recognized automatically, select **Install SW...** on the Start Application screen.

NOTE: *If by accident you try to load a software that is not compatible with the software on the Versana Balance™/Versana Balance™ Vet, error messages will indicate "The package present in media is not compatible. Please contact GE Service" and "Software installation is not started".*

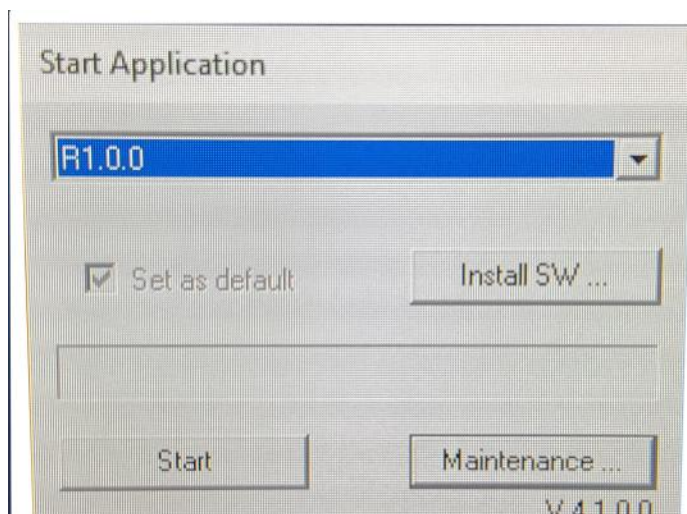


Figure 8-71. Select Install SW...

Loading the Software(continued)

3. Click **OK**, then select the package you want to install, click **INSTALL** to start installation.

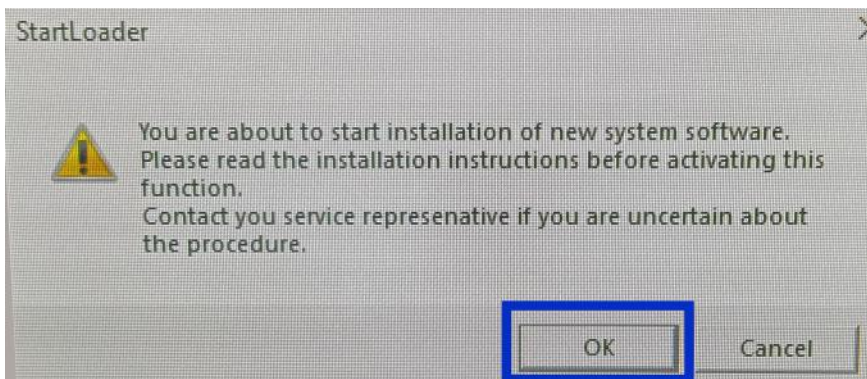


Figure 8-72. Click Ok

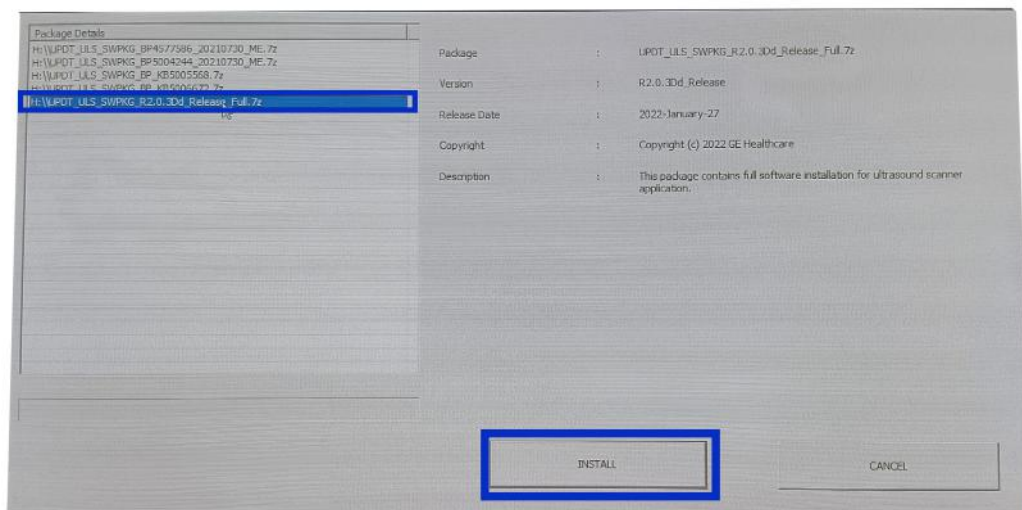


Figure 8-73. Select package

Loading the Software(continued)

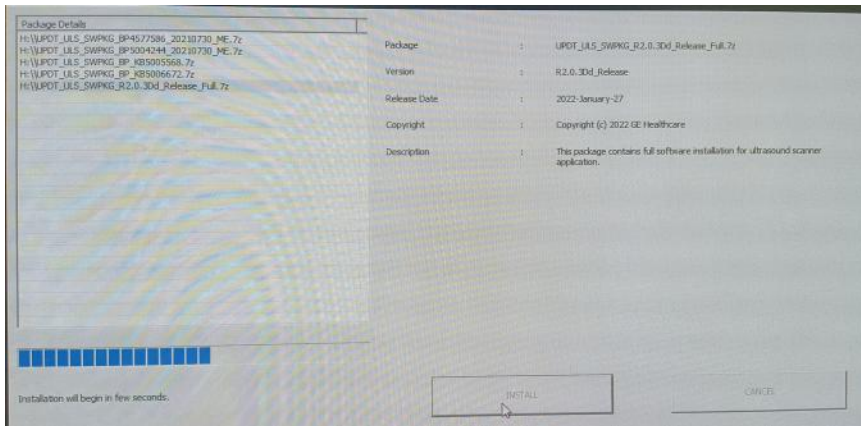


Figure 8-74. Installing - Phase 1

4. When the installation phase 1 is complete, the system will reboot automatically to start installation phase 2. User can remove the USB stick from the ultrasound device at this time.



Figure 8-75. Reboot

5. The whole installation is complete once system reboots after installation phase 2 completed.

NOTE: *Installation time depends on the type of update. No action is needed until the installation is complete.*

Reload the Software

Reload Software provides specific software versions for users to reload.

NOTE: *Users are required to be logged into the system as administrators (ADM) in order to be granted access.*

To reload the software onto the Versana Balance™/Versana Balance™ Vet:

1. Press **Utility -> System -> About**, click **Reload Software** to enter the operation page.

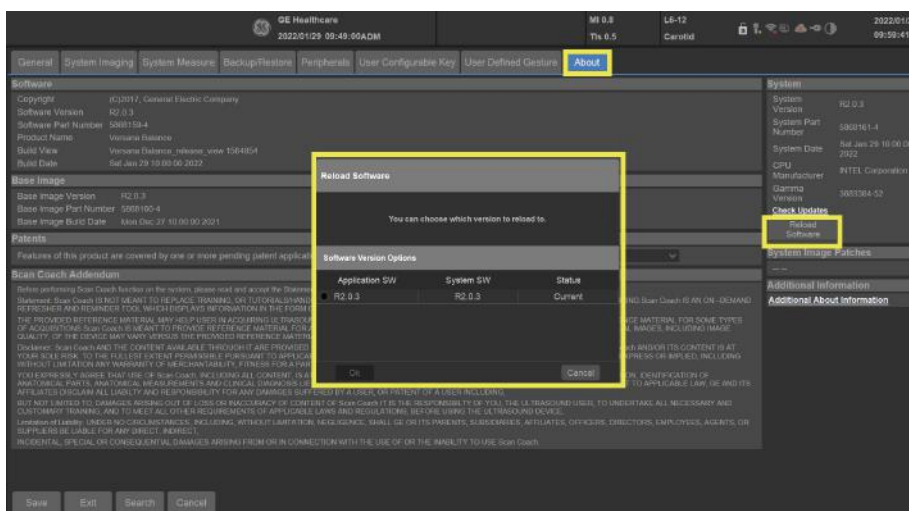


Figure 8-76. Select Reload Software

2. Select the software version needed, then click **OK**.
 - By default, current installed software version will be displayed, user can reload current software version to rollback software changes to the initial installed state.
 - After a new full software package is installed, current version will be displayed as previous version, user can select to reload current version or previous version.

NOTE: *After rollback to previous software version, the "Current/Previous" reload options will alternate.*

Reload the Software(continued)

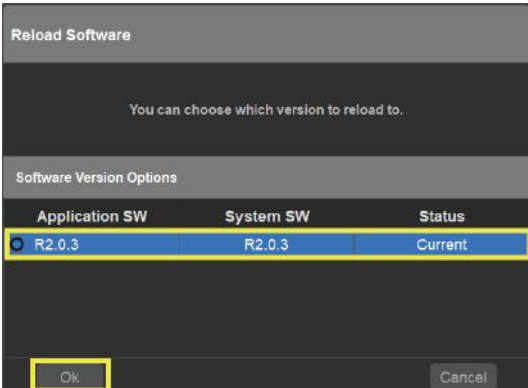


Figure 8-77. Select the current version

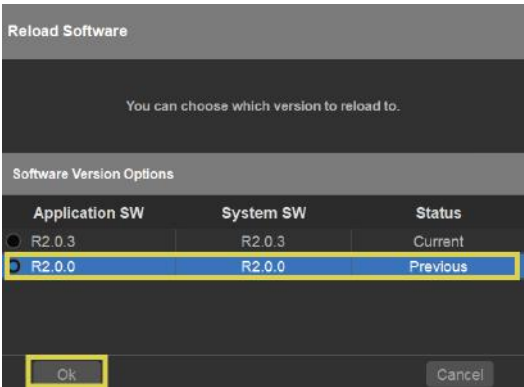


Figure 8-78. Select the previous version

3. A pop-up message will appear to remind user to continue or cancel the reload process. Click **Yes** to start reloading software or **No** to cancel.



Figure 8-79. Pop-up message

Chapter 9

Renewal Parts

This chapter lists the renewal parts available for the Versana Balance™/Versana Balance™ Vet.

Overview

Contents in this chapter

- [List of Abbreviations](#)
- [Renewal Parts Lists](#)

List of Abbreviations

Table 9-1: List of Abbreviations

ABBREVIATION	DESCRIPTION
3D	THREE DIMENSIONAL
Assy	ASSEMBLY
FRU	Field Replaceable Unit
CRU	Customer Replaceable Unit
KBD	Keyboard Assy
BnV	Brightness and Volume
MST	Master Board
CWI	CPU / WDC / IO Board. WDC is DC Power Board for Wukong Platform.
PIB	Probe Interface Board, also name as Relay PIB
3PP	3 Probe Port
4PP	4 Probe Port
SSA	Secure Service Access

Renewal Parts Lists

Operator Console Assy

The following figure illustrates what is the body front cover (1), body right cover (2), body back cover (3), body left cover (4) of the system.

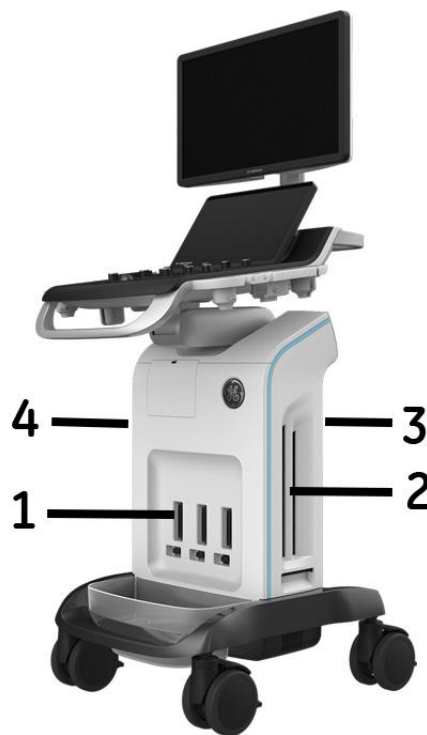


Figure 9-1. Operator Console Assy Example

Operator Console Assy(continued)

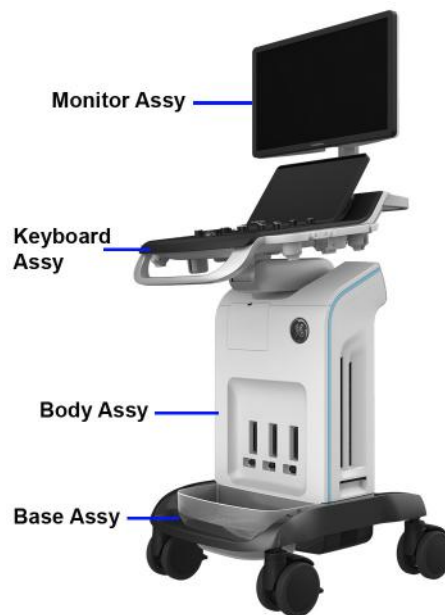


Figure 9-2. Console Assy for Touch Panel System

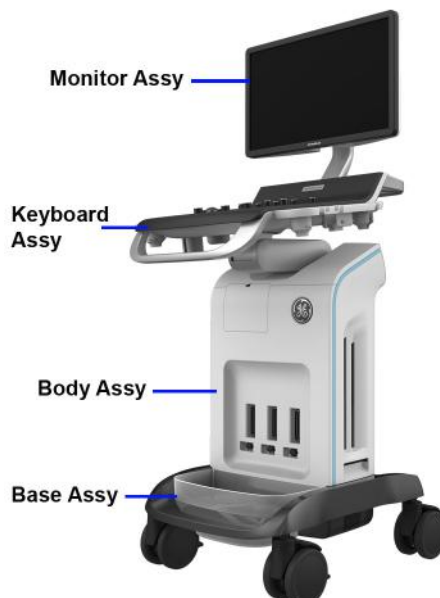


Figure 9-3. Console Assy for Non-Touch Panel System

Probe

Table 9-2: Probes for Versana Balance™/Versana Balance™ Vet

Item	Part Name	Service Part Number	Commercial Part Number	Center Image Frequency (MHz)	Replaced By
700	4C-RS	5488477	H4000SR	3.10 ± 10%	
701	8C-RS	5499508	H40402LS	6.5 ± 20%	
702	E8C-RS	5499516	H40402LN	6.5 ± 20%	
703	E8Cs-RS	5670375	H48062AF	2.75 ± 20%	
704	3Sc-RS	5433833	H45041DL	2.75 ± 20%	
705	6S-RS	5499316	H45021RP	4.5 ± 20%	
706	12S-RS	5499321	H44901AB	7.75 ± 20%	
707	12L-RS	5499501	H40402LY	7.5 ± 20%	
708	LK760-RS	5548914	H44901AF	7.15 ± 20%	
709	RAB2-6-RS	KTZ303982	H48681WR	3.3 ± 10%	
710	L6-12-RS	5454332	H48062AC	7.75 ± 20%	
711	L8-18i-RS	5499609	H40462LF	9.5 ± 20%	

NOTE: LK760-RS probe is for Veterinary Use.

Peripheral

Table 9-3: Peripherals for Versana Balance

Item	Part Number	Commercial Part Number	Description
Footswitch			
1.	5151236	H41642LS	Footswitch MKF 2-MED USB GP26
2.	5338419	H41882LD	1-Peadi type Footswitch "Whanam FSU-1000"
USB Stick			
3.	5831001	H48392BB	32G USB MEMORY STICK
4.	5863937	NA	USB3.0 stick for Storage(NEW FW)
Printer			
5.	5133107-2	H48542LZ	SONY UPD25 Color Printer USA Kit
6.	5133108-2	H48552LA	SONY UPD25 Color Printer EUP Kit
7.	5133106-2	H48542LY	SONY UPD25 Color Printer CHN Kit
8.	5133109-2	H48552LB	SONY UPD25 Color Printer JPN Kit
9.	5491253	H48312AN	SONY UPD25 Color Printer Brazil kit
10.	5151259-2	H48492AF	SONY UP-D898MD BW Printer USA Kit
11.	5151261-2	NA	SONY UP-D898MD BW Printer Europe Kit
12.	5151262-2	NA	SONY UP-D898MD BW Printer China Kit
13.	5151263-2	NA	SONY UP-D898MD BW Printer Japan Kit
14.	5495509-2	H48492AK	SONY UP-D898MD BW Printer Brazil Kit
15.	5543406	H48492AZ	BW PRINTER (UP-D898MD)
16.	5778615	H48052BG	UP-D898DC Printer
17.	5825601	H48342BP	VSN B Cable for UP-D898DC Printer
18.	NA	H48532AM	SONY UPD25 Color Printer kit
19.	5877349-S	H48392BD	VSN B R2 Printer shelf
20.	NA	H41402LS	898 printer paper
ECG			
21.	5146056	H48502AR	USB ECG Module (IEC)-MFG Germany
22.	5146739	H41852LK	USB ECG Module (AHA)-MFG Israel
23.	5129487	H41852LL	USB ECG Module (IEC)-MFG Israel
24.	5149641	H41852LM	ECG Assy with Chinese label

Table 9-3: Peripherals for Versana Balance

Item	Part Number	Commercial Part Number	Description
25.	5146055	NA	USB Cable for ECG
Others			
26.	5728576	H48832AC	Wireless Adaptor
27.	5933000-S	H48962CG	NetGear Wireless USB Adapter A8000 for Service (Only for software version R2.0.8 and above)
28.	5877024	H48122BT	Bluetooth Adaptor
29.	5449275-4	H48312BJ	Transcend TS8XDVDS-K DVDRW kit
30.	5434317-4	H48492AB	1TB mobile USB HDD-CRU
31.	5780913-S	NA	EMI filter-CRU
32.	5792464-S	NA	Isolation USB kit-CRU
33.	NA	E8390AA	Digital Expert Hardware Kit (includes Microsoft Surface Tablet)
34.	NA	E8390AC	Digital Expert Cables and Video Grabber
35.	NA	HG11VCL	Digital Expert Connect – License Term

System and Application Software Update USB

For the latest revision of system and application software update USB, please contact your service partner for detail information.

Power Cord

Table 9-4: Power Cords for Versana Balance™/Versana Balance™ Vet

Item	Part Number	Commercial Part Number	Description
1.	5177123-2	H48482AF	AC Power Cord Europe-CRU
2.	5176304-2	H48482AK	AC Power Cord China-CRU
3.	5176773-2	H48482AH	AC Power Cord India-CRU
4.	5177195-2	H48482AC	AC Power Cord Argentina-CRU
5.	5176907-2	H48482AG	AC Power Cord UK-CRU
6.	5177153-2	H48482AM	AC Power Cord Denmark-CRU
7.	5177154-2	H48482AD	AC Power Cord Switzerland-CRU
8.	5177187-2	H48482AE	AC Power Cord Australia-CRU
9.	5177146-2	H48482AL	AC Power Cord USA-CRU
10.	5400868-2	H48482AN	AC Power Cord Brazil-CRU
11.	5176753-2	H48482AJ	AC Power Cord Israel-CRU
12.	5177126-2	H48482AB	AC Power Cord Japan-CRU

NOTE: Cable clip for [Table 9-4](#) power cord should be installed in the hole 1, refer to [Figure 9-4](#).



Figure 9-4. Cable clip installation

Table 9-5: Power Cords for Versana Balance™/Versana Balance™ Vet

Item	Part Number	Commercial Part Number	Description
13.	6736103-2	H48502AT	PWR SPLY CRD BRAZIL 10A 250V STRAIGHT 2.5M

Table 9-5: Power Cords for Versana Balance™/Versana Balance™ Vet

Item	Part Number	Commercial Part Number	Description
14.	6736105-2	H48502AW	PWR SPLY CRD EUROPE KOREA 10A 250V STRAIGHT 2.5M
15.	6736106-2	H48502AY	PWR SPLY CRD DENMARK 10A 250V STRAIGHT 2.5M
16.	6736115-2	H48532AY	Power Cord Denmark Hospital Grade
17.	6736109-2	H48502AZ	PWR SPLY CRD ISRAEL 10A 250V STRAIGHT 2.5M
18.	6736111-2	H48512AA	PWR SPLY CRD JAPAN 12A 125V STRAIGHT 2.5M
19.	6736101-2	H48512AC	PWR SPLY CRD ARGENTINA 10A 250V STRAIGHT 2.5M
20.	6736102-2	H48512AD	PWR SPLY CRD ANZ 10A 250V STRAIGHT 2.5M
21.	6736104-2	H48512AE	PWR SPLY CRD CHINA 10A 250V STRAIGHT 2.5M
22.	5736107-2	H48512AF	PWR SPLY CRD UK IRELAND 10A 250V STRAIGHT 2.5M
23.	6736108-2	H48512AG	PWR SPLY CRD INDIA 10A 250V STRAIGHT 2.5M
24.	6736113-2	H48512AJ	PWR SPLY CRD SWITZERLAND 10A 250V STRAIGHT 2.5M
25.	6736114-2	H48512AK	PWR SPLY CRD UNITED STATES - CANADA 10A 125V STRAIGHT 2.5M

NOTE: Cable clip for [Table 9-5](#) power cord should be installed in the hole 1, refer to [Figure 9-5](#).

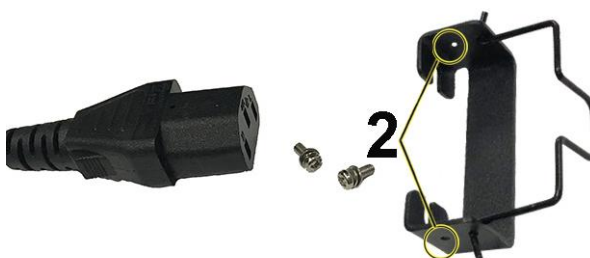


Figure 9-5. Cable clip installation

Manuals

Table 9-6: Manuals for Versana Balance™/Versana Balance™ Vet

Item	Part Number	Description	Qty	FRU
1.	5866800	Versana Balance R2 e-manual USB flash drive	1	N
2.	5866783-100	Versana Balance R2 Advanced Reference Manual English Version	1	N
3.	5866783-101	Versana Balance R2 Advanced Reference Manual French Version	1	N
4.	5866796-100	Versana Balance™/Versana Balance™ Vet R2 Basic Service Manual	1	N
5.	5866744-100	Versana Balance R2 User Manual English version	1	N
6.	5866744-101	Versana Balance R2 User Manual French version	1	N
7.	5866744-106	Versana Balance R2 User Manual Spanish version	1	N
8.	5866744-108	Versana Balance R2 User Manual German version	1	N
9.	5866744-111	Versana Balance R2 User Manual Italian version	1	N
10.	5866744-121	Versana Balance R2 User Manual Dutch version	1	N
11.	5866744-127	Versana Balance R2 User Manual Brazilian Portuguese version	1	N
12.	5866744-129	Versana Balance R2 User Manual Estonian version	1	N
13.	5866744-131	Versana Balance R2 User Manual Slovenian version	1	N
14.	5866744-140	Versana Balance R2 User Manual Japanese version	1	N
15.	5866744-141	Versana Balance R2 User Manual Chinese version	1	N
16.	5866744-142	Versana Balance R2 User Manual Swedish version	1	N
17.	5866744-144	Versana Balance R2 User Manual Korean version	1	N
18.	5866744-145	Versana Balance R2 User Manual Russian version	1	N
19.	5866744-150	Versana Balance R2 User Manual Polish version	1	N
20.	5866744-151	Versana Balance R2 User Manual Greek version	1	N
21.	5866744-153	Versana Balance R2 User Manual Hungarian version	1	N
22.	5866744-154	Versana Balance R2 User Manual Slovakian version	1	N
23.	5866744-155	Versana Balance R2 User Manual Czech version	1	N
24.	5866744-159	Versana Balance R2 User Manual Turkish version	1	N
25.	5866744-160	Versana Balance R2 User Manual Danish version	1	N
26.	5866744-161	Versana Balance R2 User Manual Norwegian version	1	N

Table 9-6: Manuals for Versana Balance™/Versana Balance™ Vet

Item	Part Number	Description	Qty	FRU
27.	5866744-162	Versana Balance R2 User Manual Finnish version	1	N
28.	5866744-165	Versana Balance R2 User Manual Bulgarian version	1	N
29.	5866744-167	Versana Balance R2 User Manual Romanian version	1	N
30.	5866744-168	Versana Balance R2 User Manual Croatian version	1	N
31.	5866744-174	Versana Balance R2 User Manual Lithuanian version	1	N
32.	5866744-175	Versana Balance R2 User Manual Latvian version	1	N
33.	5866744-176	Versana Balance R2 User Manual Serbian version	1	N
34.	5866744-177	Versana Balance R2 User Manual European Portuguese version	1	N
35.	5866744-180	Versana Balance R2 User Manual Ukrainian version	1	N
36.	5866744-181	Versana Balance R2 User Manual Indonesian version	1	N
37.	5866744-183	Versana Balance R2 User Manual Vietnamese version	1	N
38.	5866744-184	Versana Balance R2 User Manual Kazakh version	1	N
39.	5866780-100	Versana Balance R2 Release Notes English version	1	N
40.	5866780-101	Versana Balance R2 Release Notes French version	1	N
41.	5866780-106	Versana Balance R2 Release Notes Spanish version	1	N
42.	5866780-108	Versana Balance R2 Release Notes German version	1	N
43.	5866780-111	Versana Balance R2 Release Notes Italian version	1	N
44.	5866780-121	Versana Balance R2 Release Notes Dutch version	1	N
45.	5866780-127	Versana Balance R2 Release Notes Brazilian Portuguese version	1	N
46.	5866780-129	Versana Balance R2 Release Notes Estonian version	1	N
47.	5866780-131	Versana Balance R2 Release Notes Slovenian version	1	N
48.	5866780-140	Versana Balance R2 Release Notes Japanese version	1	N
49.	5866780-141	Versana Balance R2 Release Notes Chinese version	1	N
50.	5866780-142	Versana Balance R2 Release Notes Swedish version	1	N
51.	5866780-144	Versana Balance R2 Release Notes Korean version	1	N
52.	5866780-145	Versana Balance R2 Release Notes Russian version	1	N
53.	5866780-150	Versana Balance R2 Release Notes Polish version	1	N
54.	5866780-151	Versana Balance R2 Release Notes Greek version	1	N
55.	5866780-153	Versana Balance R2 Release Notes Hungarian version	1	N

Table 9-6: Manuals for Versana Balance™/Versana Balance™ Vet

Item	Part Number	Description	Qty	FRU
56.	5866780-154	Versana Balance R2 Release Notes Slovakian version	1	N
57.	5866780-155	Versana Balance R2 Release Notes Czech version	1	N
58.	5866780-159	Versana Balance R2 Release Notes Turkish version	1	N
59.	5866780-160	Versana Balance R2 Release Notes Danish version	1	N
60.	5866780-161	Versana Balance R2 Release Notes Norwegian version	1	N
61.	5866780-162	Versana Balance R2 Release Notes Finnish version	1	N
62.	5866780-165	Versana Balance R2 Release Notes Bulgarian version	1	N
63.	5866780-167	Versana Balance R2 Release Notes Romanian version	1	N
64.	5866780-168	Versana Balance R2 Release Notes Croatian version	1	N
65.	5866780-174	Versana Balance R2 Release Notes Lithuanian version	1	N
66.	5866780-175	Versana Balance R2 Release Notes Latvian version	1	N
67.	5866780-176	Versana Balance R2 Release Notes Serbian version	1	N
68.	5866780-177	Versana Balance R2 Release Notes European Portuguese version	1	N
69.	5866780-180	Versana Balance R2 Release Notes Ukrainian version	1	N
70.	5866780-181	Versana Balance R2 Release Notes Indonesian version	1	N
71.	5866780-183	Versana Balance R2 Release Notes Vietnamese version	1	N
72.	5866780-184	Versana Balance R2 Release Notes Kazakh version	1	N
73.	5866780-184	Versana Balance R2 Vet Advanced Reference Manual	1	N
74.	5932993	Versana Balance R2 Vet e-manual USB Flash Drive	1	N
75.	5926972-100	Versana Balance R2 Vet User Manual English Version	1	N
76.	5926972-101	Versana Balance R2 Vet User Manual French Version	1	N
77.	5926972-106	Versana Balance R2 Vet User Manual Spanish Version	1	N
78.	5926972-108	Versana Balance R2 Vet User Manual German Version	1	N
79.	5926972-111	Versana Balance R2 Vet User Manual Italian Version	1	N
80.	5926972-121	Versana Balance R2 Vet User Manual Dutch Version	1	N
81.	5926972-127	Versana Balance R2 Vet User Manual Brazilian Portuguese Version	1	N
82.	5926972-129	Versana Balance R2 Vet User Manual Estonian Version	1	N
83.	5926972-131	Versana Balance R2 Vet User Manual Slovenian Version	1	N
84.	5926972-140	Versana Balance R2 Vet User Manual Japanese Version	1	N

Table 9-6: Manuals for Versana Balance™/Versana Balance™ Vet

Item	Part Number	Description	Qty	FRU
85.	5926972-141	Versana Balance R2 Vet User Manual Chinese Version	1	N
86.	5926972-142	Versana Balance R2 Vet User Manual Swedish Version	1	N
87.	5926972-144	Versana Balance R2 Vet User Manual Korean Version	1	N
88.	5926972-145	Versana Balance R2 Vet User Manual Russian Version	1	N
89.	5926972-150	Versana Balance R2 Vet User Manual Polish Version	1	N
90.	5926972-151	Versana Balance R2 Vet User Manual Greek Version	1	N
91.	5926972-153	Versana Balance R2 Vet User Manual Hungarian Version	1	N
92.	5926972-154	Versana Balance R2 Vet User Manual Slovakian Version	1	N
93.	5926972-155	Versana Balance R2 Vet User Manual Czech Version	1	N
94.	5926972-159	Versana Balance R2 Vet User Manual Turkish Version	1	N
95.	5926972-160	Versana Balance R2 Vet User Manual Danish Version	1	N
96.	5926972-161	Versana Balance R2 Vet User Manual Norwegian Version	1	N
97.	5926972-162	Versana Balance R2 Vet User Manual Finnish Version	1	N
98.	5926972-165	Versana Balance R2 Vet User Manual Bulgarian Version	1	N
99.	5926972-167	Versana Balance R2 Vet User Manual Romanian Version	1	N
100.	5926972-168	Versana Balance R2 Vet User Manual Croatian Version	1	N
101.	5926972-174	Versana Balance R2 Vet User Manual Lithuanian Version	1	N
102.	5926972-175	Versana Balance R2 Vet User Manual Latvian Version	1	N
103.	5926972-176	Versana Balance R2 Vet User Manual Serbian Version	1	N
104.	5926972-177	Versana Balance R2 Vet User Manual European Portuguese Version	1	N
105.	5926972-180	Versana Balance R2 Vet User Manual Ukrainian Version	1	N
106.	5926972-181	Versana Balance R2 Vet User Manual Indonesian Version	1	N
107.	5926972-183	Versana Balance R2 Vet User Manual Vietnamese Version	1	N
108.	5926972-184	Versana Balance R2 Vet User Manual Kazakh Version	1	N

Chapter 10

Care and Maintenance

*This chapter describes **Care and Maintenance** on the Ultrasound system and peripherals. These procedures are intended to **maintain the quality** of the Ultrasound **system's performance**. Read this chapter completely and familiarize yourself with the procedures before performing a task.*

Overview

Contents in this chapter

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- 'Warnings' on *page 10-3*
- 'Why do maintenance' on *page 10-4*
- 'Maintenance task schedule' on *page 10-5*
- 'Tools required' on *page 10-7*
- 'System maintenance' on *page 10-11*
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- 'When there's too much leakage current ...' on *page 10-31*
- 'Inspection Paperwork' on *page 10-33*
- 'Electrical Safety Tests Log' on *page 10-35*

Warnings



^d DANGER

BE SURE TO DISCONNECT THE ULTRASOUND SYSTEM POWER PLUG AND OPEN THE MAIN CIRCUIT BREAKER BEFORE YOU REMOVE ANY PARTS. BE CAUTIOUS WHENEVER POWER IS STILL ON AND COVERS ARE REMOVED.



^c CAUTION

Practice good ESD prevention. Wear an anti-static strap when handling electronic parts and even when disconnecting/connecting cables.



^c CAUTION

Do not pull out or insert circuit boards while power is on.



^c CAUTION

Do not operate this Ultrasound system unless all board covers and frame panels are securely in place. System performance and cooling require this.

Why do maintenance

Preventive maintenance inspections

It has been determined by engineering that your Versana Balance™/Versana Balance™ Vet does not have any high wear components that fail with use, therefore no Preventive Maintenance inspections are mandatory.

However, some customers' Quality Assurance Programs may require additional tasks and or inspections at a different frequency than listed in this manual.

Quality assurance

In order to gain accreditation from organizations such as the American College of Radiology (USA), it is the customer's responsibility to have a quality assurance program in place for each Ultrasound system. The program must be directed by a medical physicist, the supervising radiologist/physician or appropriate designee.

Routine quality control testing must occur regularly. The same tests are performed during each period so that changes can be monitored over time and effective corrective action can be taken.

Testing results, corrective action and the effects of corrective action must be documented and maintained on the site.

Your GE service representative can help you with establishing, performing and maintaining records for a quality assurance program. Contact GE for coverage and/or price for service.

Maintenance task schedule

How often should maintenance tasks be performed?

The Care and Maintenance task schedule (provided in [Table 10-1 on page 10-5](#)) specifies how often your Versana Balance™/Versana Balance™ Vet should be serviced and outlines items requiring special attention.

NOTE: *It is the customer's responsibility to ensure the Versana Balance™/Versana Balance™ Vet care and maintenance is performed as scheduled in order to retain its high level of safety, dependability and performance.*

Your GE Service Representative has an in-depth knowledge of your Versana Balance™/Versana Balance™ Vet and can best provide competent, efficient service. Contact GE for coverage information and/or price for service.

The service procedures and recommended intervals shown in the Care and Maintenance Task Schedule assumes that you use your Versana Balance™/Versana Balance™ Vet for an average patient load (15 per day) and not use it as a primary mobile Ultrasound system which is transported between diagnostic facilities.

NOTE: *If conditions exist which exceed typical usage and patient load, then it is recommended to increase the care and maintenance frequencies.*

Table 10-1: Customer Care Schedule

Service at Indicated Time	Daily	Weekly	Monthly	Per Facilities QA Program	Notes
Clean Probes	•*				* or before each use
Inspect AC Mains Cable			•		
Inspect Cables and Connectors			•		
Clean Console			•		
Clean Monitor			•		

Table 10-1: Customer Care Schedule (Continued)

Service at Indicated Time	Daily	Weekly	Monthly	Per Facilities QA Program	Notes
Clean Filters			•		
Console Leakage Current Checks				See Notes	Twice Annually
Peripheral Leakage Current Checks				See Notes	Twice Annually
Surface Probe Leakage Current Checks				See Notes	Twice Annually
Endocavity Probe Leakage Current Checks				See Notes	Quarterly Annually
Surgical Probe Leakage Current Checks				See Notes	Quarterly Annually
Measurement Accuracy Checks				See Notes	Twice Annually
Functional Checks				See Notes	also after corrective maintenance

NOTE: *The maintenance may require specialized equipment to complete.*

NOTE: *The care and maintenances are not mandatory. The table above is for reference only.*

Tools required

NOTE: For a list of required tools for servicing the Versana Balance™/Versana Balance™ Vet, refer to chapter 8.

Standard GE tool kit

The following is a description of the “Standard” GE tool kit in the USA. Not all tools are required.

Table 10-2: Overview of GE-1 tool kit contents

Tool ID	Description	Tool ID	Description
9-45358	Pliers Retaining Ring	9-XL9971MM	Xcelite-hex Blade 1.27mm
9-4078	Scribe	9-XL9972MM	Xcelite-hex Blade 1.5mm
9-44572	Wrench Open End 3/8 - 7/16	9-XL9973MM	Xcelite-hex Blade 2 mm
9-44579	Wrench Open End 1/2 - 9/16	9-XL9974MM	Xcelite-hex Blade 2.5mm
9-44579	Wrench Open End 1/2 - 9/16	9-XL9975MM	Xcelite-hex Blade 3mm
9-45385	Pliers, Arc Joint 7 inch	9-XL9976MM	Xcelite-hex Blade 4mm
9-45378	Pliers, Slip Joint	9-XL9977MM	Xcelite-hex Blade 5mm
9-4518	Pliers, Long Nose, Miniature	9-XL991CM	Handle
9-4518	Pliers, Long Nose, Miniature	C2356E	Screw starter - Kedman Quick Wedge
9-44776	Ignition Wrench Set, 10 pc.	BLBO	Box - 18 Compartment
9-44601	Wrench, Adj., 4 inch	DWL4283T	Box - 5 Compartment
9-4151	Screwdriver, Blade, Stubby	9-41322	Pickup Tool, Claw type
9-41421	Screwdriver, Blade, Pocket clip	9-6757	6 pc Needle File Set
9-41594	Screwdriver, Blade 1/8 in. × 4 in.	9-9487	Utility Knife
9-41581	Screwdriver, Blade 3/16 in. × 4 in.	9-45341	Pliers Vice Grip 10 inch
9-39451	20' Steel Tape, locking Spring load	9-3001	Xacto Pen Knife
9-GH807	Ratchet, Offset, Slotted	9-HT62002	Solder Aid, Fork and Hook
68-412	Ratchet, Offset, Phillips	9-4099	Mirror, Round, Telescoping

Table 10-2: Overview of GE-1 tool kit contents (Continued)

Tool ID	Description	Tool ID	Description
9-GH130	Tapered Reamer	9-GH3001	Steel Rule Decimal 6 inch
9-41584	Screwdriver, slotted 1/4 in. × 6 in.	9-GH300ME	Steel Rule Metric 6 inch
9-4118	Screwdriver, Phillips #2, Stubby	9-XL9920	Xcelite-hex Blade .050 inch
9-41293	Screwdriver, Phillips #0	9-XL9921	Xcelite-hex Blade 1/16 inch
9-41294	Screwdriver, Phillips #1	9-XL9922	Xcelite-hex Blade 5/16 inch
9-41295	Screwdriver, Phillips #2	9-XL9923	Xcelite-hex Blade 3/32 inch
9-46677	Hex Keys, 20 pc., Metric	9-XL9924	Xcelite-hex Blade 1/8 inch
9-34701	1/4 in. Standard Socket set (19 pc)	9-XL9925	Xcelite-hex Blade 5/32 inch
9-43499	1/2 inch Socket 1/4 inch drive	9-XL9926	Xcelite-hex Blade 3/16 inch
9-4355	Flex Spinner	9-XL99764	Xcelite-hex Blade 7/64
9-43523	Breaker	9-XL99964	Xcelite-hex Blade 9/64
9-43531	6 inch Ext.	9-XLM60	Mini-screwdriver kit
9-65283	Case 8.5 in. × 4.5 in. × 2 in. Deep	9-45072	Pliers 6 inch Diagonal
9-46696	Hex Keys	9-XL100X	Wire Stripper/Cutter 5 inch - 100X
9-39829	Torpedo Level, Magnetic	9-XL87CG	Pliers - very fine needle nose-87CG
9-38461	Hammer, Ball Peen, 4 oz.	9-WEWDT-07	Weller-Soldering-Replacement Tip(1)
9-4280	Universal Joint 1/4 inch	9-WS175-E	Wiss - Surgical Scissors
9-WEW60P3	Weller - Soldering Iron, 3 wire	KH174	Hemostat 5 inch Straight
9-WECT5B6	Weller - Soldering Iron Tip	KH175	Hemostat 5 inch curved
9-WEWDP12	Weller - Desoldering Pump	9-Z9480121	Alignment tool (red)
93383	Flashlight Mini-Mag Lite (AAA Bat.)		
9-GH408	Tweezers		
21576	Brush - Bristle		
9-4516	Pliers 4 1/4 inch Diagonal		

GE-2 tool kit

Table 10-3: Overview of GE-2 tool kit contents

GE-2 Sears Kit (#99034)			
Tool ID	Description	Tool ID	Description
9-45381	Pliers, Arc Joint 9 1/2 inch	9-44067	Socket 1 1/16 in. for 1/2 in. drive
9-45092	Pliers, Linesman 8 1/2 inch	9-42679	Socket 10MM Hex for 1/2 in. drive (2273333)
9-42882	Punch, Pin 3/32 inch	9-44262	Extension 10 inch for 1/2 in. drive (2273405)
9-42884	Punch, Pin 5/32 inch	9-4258	3/8 inch to 1/2 inch Adapter
9-42886	Punch, Pin 1/4 inch	9-34374	3/8 inch Metric Socket Set - 12 PT
9-42973	Cold Chisel 1/2 inch	9-44311	16mm Socket 12 pt.
9-GH77	Center Punch Automatic	9-33485	Metal Socket Tray
9-GH890	File Handle, Adj.	9-33484	Metal Socket Tray
9-31276	File, Round, Bastard 8 inch	9-33484	Metal Socket Tray
9-31277	File, Half Round, Bastard 8 inch	9-52068	Tap and Drill Set
9-31263	File, Flat Mill 8 inch	9-52722	#6 Tap
21045C	Close Quarter Saw	9-52723	#8 Tap
9-44604	Wrench, Adj. 10 inch		High Speed Drill Set
9-41587	Screwdriver 5/16 inch × 8 inch		#36 Drill
9-41586	Screwdriver, Stubby 5/16 inch		#29 Drill
9-GH19512	Countersink 1/2 inch	9-44046	3/8 inch Socket Set
9-44741	12 PC Combination Wrench Set		

Special tools, supplies and equipment used for maintenance

Table 10-4: Overview of tool requirements for care and maintenance

Tool / kit	Comments
Digital Volt Meter (DVM)	
Anti Static Kit	Kit includes anti-static mat, wrist strap and cables for 200 to 240V system 3M #2204 Large adjustable wrist strap 3M #2214 Small adjustable wrist strap 3M #3051 conductive ground cord
Anti Static Vacuum Cleaner	120V 230V
Safety Analyzer	The safety Analyzer tool should be calibrated and compliant with AAMI/ ESI 1993 or IEC 60601 or AS/NZS 3551.
QIQ Phantom	RMI Grayscale Target Model 403GS NOTE! The use of a Phantom is not required during Care and Maintenance. Customer may use it as part of their Quality Assurance Program tests.
B/W Printer Cleaning Sheet	See printer user manual for requirements
Color Printer Cleaning Sheet	See printer user manual for requirements
Disposable Gloves	

System maintenance

Preliminary checks

The preliminary checks take about 15 minutes to perform. Refer to the Ultrasound system user documentation whenever necessary.

Table 10-5: System preliminary checks

Step	Item	Description
1.	Ask and Listen	Ask the customer if they have any problems or questions about the equipment.
2.	Paperwork	Fill in the top of Ultrasound Inspection Certificate (see Figure 10-5 on page 10-33). Record all probes and Ultrasound system options.
3.	Power up	<ul style="list-style-type: none"> • Turn the Ultrasound system power on and verify that all fans and peripherals turn on. • Watch the displays during power up to verify that no warning or error messages are displayed. • Where applicable, confirm that the battery is charged. If no AC Input present, use the internal battery.
4.	Probes	Verify that the Ultrasound system properly recognizes all probes.
5.	Displays	Verify proper display on the monitor.
6.	FFA (Server)	Where applicable, for Warranty and Contract Customers only: <ul style="list-style-type: none"> • Verify that InSite is functioning properly. • Ensure two-way remote communications.
7.	Review Error Logs	Where applicable, Error Logs can be reviewed via system diagnostics.
8.	Diagnostics	Optional.
9.	Presets	Backup all Customer Presets to an appropriate media.
10.	Image Archive	Back up the Image Archive onto appropriate media.

Functional checks

NOTE: See also Chapter 4

The functional checks take about 60 minutes to perform. Refer to the Ultrasound system user documentation whenever necessary.

System checks

Table 10-6: System functional checks

Step	Item	Description
1.	B-Mode	Verify basic B-Mode (2D) operation. Check the basic Ultrasound system controls that affect this mode of operation.
2.	CF-Mode	Verify basic CF-Mode (Color Flow Mode) operation. Check the basic Ultrasound system controls that affect this mode of operation.
3.	Doppler Modes	Verify basic Doppler operation (PW and CW if available). Check the basic Ultrasound system controls that affect this mode of operation.
4.	M-Mode	Verify basic M-Mode operation. Check the basic Ultrasound system controls that affect this mode of operation.
5.	Probe Elements	Perform an Element Test on each probe to verify that all the probe elements and system channels are functional.
6.	Applicable Software Options	Verify the basic operation of all optional modes such as Contrast. Check the basic Ultrasound system controls that affect each options operation.
7.	Xmit/Recv Elements	Use the Visual Channel Utility on the loop connect to verify that all system xmit/recv channels are functional.
8.	Operator Panel test	Perform the Operator Panel Test Procedure.
9.	Keyboard	Do the interactive keyboard test.
10.	Monitor	Verify basic monitor display functions. Refer to Chapter 3 of the Basic User Manual.
11.	Software Menu check	Verify Software Menu display functions. Refer to Chapter 3 of the Basic User Manual.
12.	Peripherals	See: ' Peripheral checks ' on page 4-66 .
13.	Measurements	In measurement mode, make distance measurement, get result in result window. Verify the distance by graduate rule. Distance Accuracy should be within $\pm 5\%$. (Name result from result window Result A, result from graduate rule Result B; Distance Accuracy = (Result B-Result A)/Result A)

Peripheral/option checks

If any peripherals or options are not part of the system configuration, the check can be omitted.

Refer to the User Manual for a list of approved peripherals/options.

Table 10-7: GE approved peripheral/hardware option functional checks

Step	Item	Description
1.	Media	Verify media drive(s) read/write properly. Clean if necessary.
2.	B/W Printer	Verify hardcopy output of the B/W video page printer. Clean heads and covers if necessary.
3.	Color Printer	Verify hardcopy output of the Color video page printer. Clean heads and covers if necessary.
4.	DICOM	Verify that DICOM is functioning properly. Send an image to a DICOM device.
5.	ECG	Verify basic operation with customer
6.	Footswitch	Verify that the footswitch is functioning as programed. Clean as necessary.
7.	DVD	Verify that the DVD is functioning properly. Clean heads and covers if necessary.

Mains cable inspection

Table 10-8: Mains Cable Inspection, As Appropriate

Step	Item	Description
1.	Unplug Cord	Disconnect the mains cable from the wall and Ultrasound system.
2.	Inspect	Inspect it and its connectors for damage of any kinds.
3.	Verify	Verify that the LINE, NEUTRAL and GROUND wires are properly attached to the terminals, and that no strands may cause a short circuit.
4.	Verify	Inlet connector retainer is functional.

Cleaning

Table 10-9: General Cleaning

Step	Item	Description
1.	Console	Remove the battery. Use a fluid detergent in warm water on a soft, damp cloth to carefully wipe the entire system. Be careful not to get the cloth too wet so that moisture does not enter the console.
2.	Probe Holder	Clean probe holders. (they may need to be soaked to remove excess gel).
3.	Monitor	Use a soft, non-abrasive folder cloth. Gently wipe the monitor face. DO NOT use a glass cleaner that has a hydrocarbon base (such as Benzene, Methy Alcohol or Methy Ethyl Ketone) on monitor with the filter (anti-glare shield).

For general cleaning of the system, we recommended to use non-abrasive soap and water solution.

Table 10-10: Compatible Chemicals for Cleaning

	System Cabinet	Operator Control Panel	Main display	Touch Screen	Probe Holder
Cleaning agents					
PDI Easy Screen Cleaning Wipe	X	X	X	X	X
Wet Wipes	X	X	X	X	X
70% isopropyl alcohol	X	X	X	X	X
Disinfectants ^[1]					
PDI Sani-Cloth Plus	X	X	X	X	X
Protex	X	X	X	X	X
Tristel Wipes	X	X	X	X	X
Sono Ultrasound Wipes	X	X	X	X	X
Clorox wipes	X	X	X	X	X
CaviWipes	X	X	X	X	X
PDI Super Sani-Cloth Plus	X	X	X	X	X
PDI Easy Screen Cleaning Wipe	X	X	X	X	X
[1]: Effective Disinfection is always a balance between safe inactivation of infectious agents and undesirable side effects. Due to the generally uneven and irregular surface of Ultrasound consoles, a comprehensive surface disinfection process cannot be recommended by the manufacturer.					

Physical inspection

NOTE: These features may not be present on all Ultrasound systems.

Table 10-11: Physical checks

Step	Item	Description
1.	Labeling	Verify that all Ultrasound system labeling is present and in readable condition.
2.	Scratches & Dents	Inspect the exterior for dents, scratches or cracks.
3.	Input Power	Refer to: 'Mains cable inspection' on page 10-13.
4.	Cables & Connectors	Check all internal cable harnesses and connectors for wear and secure connector seating. Pay special attention to footswitch assembly and probe strain or bend reliefs.
5.	Shielding & Covers	Check to ensure that all EMI shielding, internal covers, air flow panels and screws are in place. Missing covers and hardware could cause EMI/RFI problems while scanning.
6.	Control Panel	Inspect keyboard and control panel. Note any damaged or missing items.
7.	Control Panel Lighting	Check for proper operation of all operator panel and Freeze Key light.
8.	Monitor	Inspect the monitor Display for scratches and bad pixels. Verify proper operation of Contrast and Brightness controls. Where applicable, confirm that the monitor arm allows: <ul style="list-style-type: none"> • swivelling the screen to the left and to the right • folding the screen to the locked position • release and adjustment backwards and forwards • can be adjusted in the up/down positions. Note: Monitor Arm movement may vary and is not applicable to all Ultrasound systems.
9.	External I/O	Check all connectors for damage.
10.	Power and System Status Indicators	Check for proper operation of all Power and System Status Indicators.
11.	Battery	Where applicable, check that the battery is not damaged, does not leak, does not emit an odor, and is not deformed or discolored. Observe all warnings and cautions for battery handling, recharging, storing, and/or disposal,

Optional Diagnostic Checks

Optionally you can access the diagnostic software as described in Chapter 5 or 7. View the error logs and run desired diagnostics.

View the Log

1. Review the system error log for any problems.
2. Check the temperature log to see if there are any trends that could cause problems in the future.
3. Check the Configuration Log; update if needed.

Probe maintenance

Probe related checks

Table 10-12: System preliminary checks

Step	Item	Description
1.	Probe Holder	Clean probe holders. (they may need to be soaked to remove excess gel).
2.	Probes	Thoroughly check the Ultrasound system probe connectors and remove dust from inside the connector sockets if necessary. Visually check for bent, damaged or missing pins.
3.	Probes	Verify that the Ultrasound system properly recognizes all probes.

Basic probe care

The Ultrasound system user manuals and various probe handling cards provide a complete description of probe care, maintenance, cleaning and disinfection. Ensure that you are completely familiar with the proper care of GE probes.

Ultrasound probes can be easily damaged by improper handling. See the User Manual and probe care cards for more details. Failure to follow these precautions can result in serious injury and equipment damage. Failure to properly handle or maintain a probe may also void its warranty.

Any evidence of wear indicates the probe cannot be used.

Do a visual check of the probe pins and Ultrasound system sockets before plugging in a probe.

The Interoperative probes often have special considerations and individual probe user manuals. For Interoperative probes also refer to their separate user manuals.

Basic probe cleaning

To clean the probe:

1. Disconnect the probe from the ultrasound console and remove all coupling gel from the probe by wiping with a soft cloth and rinsing with flowing water.
2. Wash the probe with mild soap in lukewarm water. Scrub the probe as needed using a soft sponge, gauze, or cloth to remove all visible residue from the probe surface. Prolonged soaking or scrubbing with a soft bristle brush (such as a toothbrush) may be necessary if material has dried onto the probe surface.



CAUTION

Do not submerge the probe above the probe as the strain relief is not sealed. Do not allow fluid into or onto the connector of the probe.



CAUTION

Take extra care when handling the lens face of the Ultrasound transducer. The lens face is especially sensitive and can easily be damaged by rough handling. NEVER use excessive force when cleaning the lens face.

3. Rinse the probe with enough clean potable water to remove all visible soap residue.
4. Air dry or dry with a soft cloth.



WARNING

To help protect yourself from blood borne diseases, wear approved disposable gloves. These are made of nitrile derived from vegetable starch to prevent allergic latex reactions.



CAUTION

Failure to follow the prescribed cleaning or disinfection procedures will void the probe's warranty.

DO NOT soak or wipe the lens with any product not listed in the User Manual. Doing so could result in irreparable damage to the probe.

Follow care instructions that came with the probe.



CAUTION

Disinfect a defective probe before you return it. Be sure to tag the probe as being disinfected.

Disinfecting probes

Ultrasound probes can be disinfected using liquid chemical germicides. The level of disinfection is directly related to the duration of contact with the germicide. Increased contact time produces a higher level of disinfection.

Refer to User Manual for detail on disinfecting probes.



CAUTION

Review the probe care card that is packed with each probe. The following website contains the most current and up-to-date recommendations:

http://www.gehealthcare.com/usen/ultrasound/products/probe_care.html

Electrical safety tests

Safety test overview

The electrical safety tests in this section are based on and conform to IEC 60601-1 Medical Equipment Safety Standards. They are intended for the electrical safety evaluation of cord-connected, electrically operated, patient care equipment. If additional information is needed, refer to the IEC 60601-1 documents



WARNING

THE USER MUST ENSURE THAT THE SAFETY INSPECTIONS ARE PERFORMED AT LEAST EVERY 12 MONTHS ACCORDING TO HISTORICAL DATA. ONLY TRAINED PERSONS ARE ALLOWED TO PERFORM THE SAFETY INSPECTIONS MENTIONED ABOVE.



DANGER

TO MINIMIZE RISK OF ELECTRICAL SHOCK, ONLY TRAINED PERSONS ARE ALLOWED TO PERFORM THE ELECTRICAL SAFETY INSPECTIONS AND TESTS.



DANGER

TO AVOID ELECTRICAL SHOCK, THE ULTRASOUND SYSTEM UNDER TEST **MUST NOT** BE CONNECTED TO OTHER ELECTRICAL EQUIPMENT. REMOVE ALL INTERCONNECTING CABLES AND WIRES. THE ULTRASOUND SYSTEM UNDER TEST MUST NOT BE CONTACTED BY USERS OR PATIENTS WHILE PERFORMING THESE TESTS.



CAUTION

Possible risk of infection. Do not handle soiled or contaminated probes and other components that have been in patient contact. Follow appropriate cleaning and disinfecting procedures before handling the equipment.

Safety test overview(continued)

Prior to initiating any electrical test, the Ultrasound system must be visually inspected. Perform the following visual checks:

- Check for missing or loose enclosure covers that could allow access to internal live parts.
- Examine the mains cord, mains plug and appliance inlet for damaged insulation and adequacy of strain relief and cable clamps.
- Locate and examine all associated transducers. Inspect the cables and strain relief at each end. Inspect the transducer enclosure and lens for cracks, holes and similar defects.

Test the system, peripherals and probes for leakage current. Excessive leakage current can cause injury or death in sensitive patients. High leakage current can also indicate degradation of insulation and a potential for electrical failure. Do not use probes or equipment having excessive leakage current.

To minimize the risk that a probe may shock someone the customer should:

- Not use a probe that is cracked or damaged in any way.
- Check probe leakage current:
 - Based on your facilities QA program for surface probes.
 - Based on your facilities QA program for endocavitary probes.
 - whenever probe damage is suspected.

Leakage current limits



WARNING

Energy Control and Power Lockout for Versana Balance™/Versana Balance™ Vet.

When servicing parts of the Ultrasound system where there is exposure to voltage greater than 30 volts:



1. Follow LOCK OUT/TAG OUT procedures.
2. Turn off the breaker.
3. Unplug the Ultrasound system.
4. Maintain control of the Ultrasound system power plug.
5. Wait for at least 30 seconds for capacitors to discharge as there are no test points to verify isolation.
6. Remove/disconnect the battery, if present.

Ultrasound System components may be energized.



CAUTION

Compare all safety-test results with safety-test results of previously performed safety tests (e.g. last year etc). In case of unexplainable abrupt changes of safety-test results consult experienced authorized service personnel or GE for further analysis.

The following limits are summarized for IEC 60601-1 Medical Equipment Safety Standards. These limits are GEMS standards and in some cases are lower than the above standards listed.

Table 10-13: Chassis Leakage Current Limits - Accessible Metal Surface

Country	Normal Condition	Open Ground	Reverse Polarity	Open Neutral
All (Except USA & Canada)	0.1 mA	0.5 mA	0.5 mA	0.5 mA
USA & Canada	0.1 mA	0.3 mA	0.3 mA	0.3 mA

Table 10-14: Type BF Applied Part Leakage Current Limits - Probes Surface

Country	Normal Condition	Open Ground	Reverse Polarity	Open Neutral	*Mains Applied
All	0.1 mA	0.5 mA	0.5 mA	0.5 mA	5.0 mA

Leakage current limits(continued)



Table 10-15: Type CF Applied Part Leakage Current Limits - ECG Connections

Country	Normal Condition	Open Ground	Reverse Polarity	Open Neutral	*Mains Applied
All	0.1 mA	0.5 mA	0.5 mA	0.5 mA	5.0 mA

NOTE: **Mains Applied refers to the sink leakage test where mains (supply) voltage is applied to the part to determine the amount of current that will pass (or sink) to ground if a patient contacted mains voltage.*

The following tests are performed at the factory and should be performed at the site. These tests are: chassis leakage current, and probe leakage current. All measurements are made with an electrical safety analyzer which should be calibrated and compliant with AAMI/ESI 1993 or IEC 60601 or AS/NZS 3551.

Table 10-16: Equipment Type and Test Definitions

Applied Parts (AP)	Parts or accessories that contact the patient to perform their function. For ultrasound equipment, this includes transducers and ECG leads.	
Type BF	Body Floating or non-conductive ultrasound probes which are marked with the 'man in box' BF symbol. this includes all transducers.	
Type CF	Cardiac Floating or non-conductive intraoperative probes for direct cardiac contact and isolated ECG connections so marked with the 'heart in box' CF symbol.	
Sink Leakage	The current resulting from the application of mains voltage to the applied part. This test is required test for Type CF applied parts.	

Outlet test - wiring arrangement

Test all outlets in the area for proper grounding and wiring arrangement by plugging in the neon outlet tester and noting the combination of lights that are illuminated. Any problems found should be reported to the hospital immediately and the receptacle should not be used.

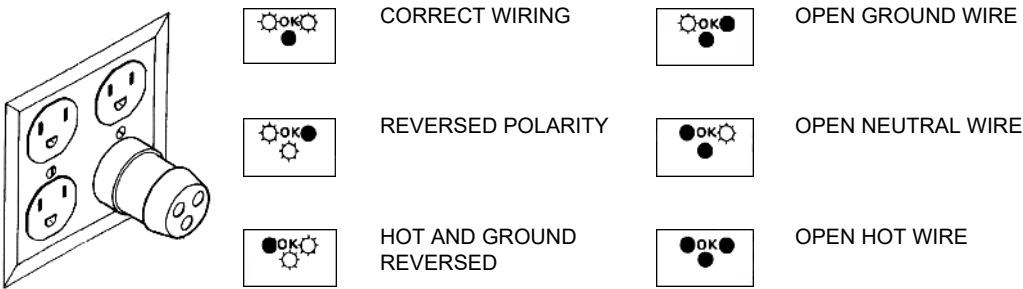


Figure 10-1. Typical alternate outlet tester

NOTE: No outlet tester can detect the condition where the Neutral (grounded supply) conductor and the Grounding (protective earth) conductor are reversed. If later tests indicate high leakage currents, this should be suspected as a possible cause and the outlet wiring should be visually inspected.

Grounding continuity



DANGER ELECTRIC SHOCK HAZARD. THE PATIENT MUST NOT BE CONTACTED TO THE EQUIPMENT DURING THIS TEST.

Measure the resistance from the third pin of the attachment plug to the exposed metal parts of the case. The ground wire resistance should be less than **0.2 ohms**. Reference the procedure in the IEC60601-1.

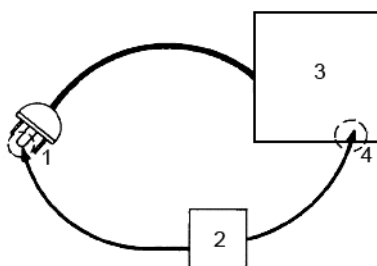


Figure 10-2. Ground continuity test

1. GROUND PIN
2. OHMMETER
3. Versana Balance™/Versana Balance™ Vet
4. ACCESSIBLE METAL PART:
 - MONITOR HOUSING
 - PEAR PANEL CONNECTOR
 - ANY CASTER/WHEEL SUPPORT

Chassis leakage current test



DANGER ELECTRIC SHOCK HAZARD. WHEN THE METER'S GROUND SWITCH IS OPEN, DON'T TOUCH THE ULTRASOUND SYSTEM!.



CAUTION

Equipment damage possibility. Never switch the Polarity and the status of Neutral when the Ultrasound system is powered ON. Be sure to turn the Ultrasound system power OFF before switching them using the POLARITY switch and/or the NEUTRAL switch. Otherwise, the Ultrasound system may be damaged.

Generic procedure

The test verifies the isolation of the power line from the chassis. The testing meter is connected from accessible metal parts of the case to ground. Measurements should be made with the unit ON and OFF, with the power line polarity Normal and Reversed. Record the highest reading of current.

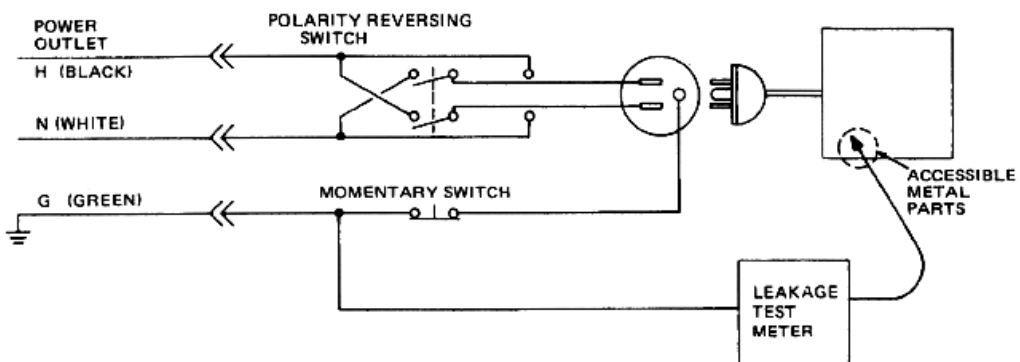


Figure 10-3. Set Up for Chassis Source Leakage Current, IEC 601-1 Clause 19 - Continuous Leakage Currents and Patient, Auxiliary Currents

When using the Microguard or a similar test instrument, its power plug may be inserted into the wall outlet and the equipment under test is plugged into the receptacle on the panel of the meter. This places the meter in the grounding conductor and the current flowing from the case to ground will be indicated in any of the current ranges. The maximum allowable limit for chassis source leakage is shown in [Table 10-13 on page 10-22](#).

Data Sheet for enclosure Source Leakage Current

The test passes when all readings measure less than the value shown in [Table 10-13 on page 10-22](#). Record all data on the PM Inspection Certificate.

Table 10-17: Typical Data Sheet for enclosure Source Leakage Current

Unit Power	Tester Polarity Switch	Tester Neutral or Ground Switch	Test 1 Speaker Cover	Test 2 Real Panel Metal Parts	Optional Test 3	Optional Test 4
Enter Name of tested peripheral here:						
ON	NORM	OPEN				
ON	NORM	CLOSED				
ON	REV	OPEN				
ON	REV	CLOSED				
OFF	NORM	OPEN				
OFF	NORM	CLOSED				
OFF	REV	OPEN				
OFF	REV	CLOSED				

Probe leakage current test



DO NOT USE THE PROBE IF THE INSULATING MATERIAL HAS BEEN PUNCTURED OR OTHERWISE COMPROMISED.

INTEGRITY OF THE INSULATION MATERIAL AND PATIENT SAFETY CAN BE VERIFIED BY SAFETY TESTING ACCORDING TO IEC60601-1.



Equipment damage possibility. Never switch the Polarity and the status of Neutral when the Ultrasound system is powered ON. Be sure to turn the Ultrasound system power OFF before switching them using the POLARITY switch and/or the NEUTRAL switch. Otherwise, the Ultrasound system may be damaged.

Definition

This test measures the current that would flow to ground from any of the probes through a patient who is being scanned and becomes grounded by touching some other grounded surface.

NOTE: *Some leakage current is expected on each probe, depending on its design. Small variations in probe leakage currents are normal from probe to probe. Other variations will result from differences in line voltage and test lead placement. It is abnormal if no leakage current is measured. If no leakage current is detected, check the configuration of the test equipment.*

Tools

For needed tools, see: [‘Tools required’ on page 10-7.](#)

Generic procedure on probe leakage current

Measurements should be made with the ground open and closed, with power line polarity normal and reversed, and with the unit Off and On. For each combination, the probe must be active to find the worst case condition.

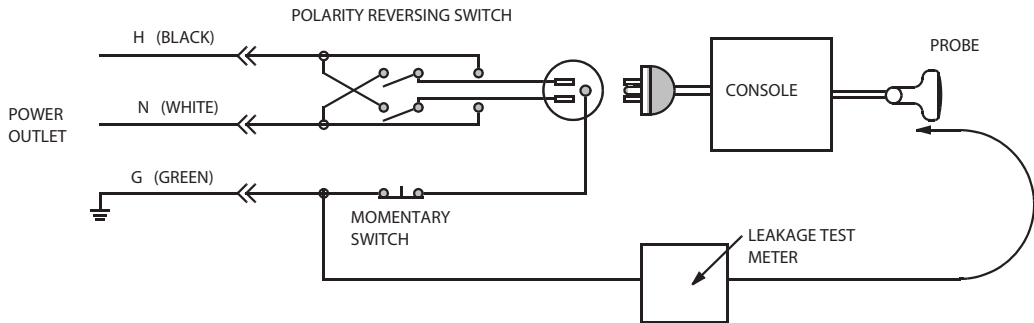


Figure 10-4. Set up for probe leakage current

NOTE: *Each probe will have some amount of leakage current, dependent on its design. Small variations in probe leakage currents are normal from probe to probe. Other variations will result from differences in line voltage and test lead placement.*



DANGER TO AVOID PROBE DAMAGE AND POSSIBLE ELECTRIC SHOCK, DO NOT IMMERSE PROBES INTO ANY LIQUID BEYOND THE LEVEL INDICATED IN THE PROBE USERS MANUAL. **DO NOT TOUCH THE PROBE, CONDUCTIVE LIQUID OR ANY PART OF THE UNIT UNDER TEST WHILE DOING THE TEST.**

Meter Procedure Using Probe Adapter

Follow the Safety Analyzer tool instruction to test each transducer for leakage current.

The electrical Safety Analyzer tool should be calibrated and compliant with AAMI/ESI 1993 or IEC 60601 or AS/NZS 3551.

No Meter Procedure Using Probe Adapter

Follow the Safety Analyzer tool instruction to test each transducer for leakage current.

The electrical Safety Analyzer tool should be calibrated and compliant with AAMI/ESI 1993 or IEC 60601 or AS/NZS 3551.

Data Sheet for Transducer Source Leakage Current

The test passes when all readings measure less than the values shown in [Table 10-14 on page 10-22](#). Record all data on the PM Inspection Certificate.



CAUTION

Equipment damage possibility. Never switch the Polarity and the status of Neutral when the Ultrasound system is powered ON. Be sure to turn the Ultrasound system power OFF before switching them using the POLARITY switch and/or the NEUTRAL switch. Otherwise, the Ultrasound system may be damaged.

Table 10-18: Typical Data Sheet For Transducer Source Leakage Current

Transducer Tested:			
Unit Power	Tester Power Polarity Switch	Tester GROUND or NUETRAL Switch	Measurement
ON	NORM	OPEN	
ON	NORM	CLOSED	
ON	REV	OPEN	
ON	REV	CLOSED	
OFF	NORM	OPEN	
OFF	NORM	CLOSED	
OFF	REV	OPEN	
OFF	REV	CLOSED	

When there's too much leakage current ...

AC/DC Fails

Where applicable, check the AC/DC adapter and its cable.
Replace a new one if any portion is defective.

Chassis Fails

Check the ground on the power cord and plug for continuity.
Ensure the ground is not broken, frayed, or intermittent. Replace
any defective part.

Where applicable, tighten all grounds. Ensure star washers are
under all ground studs.

Inspect wiring for bad crimps, poor connections, or damage.

Test the wall outlet; verify it is grounded and is free of other
wiring abnormalities. Notify the user or owner to correct any
deviations. As a work around, check the other outlets to see if
they could be used instead.

NOTE: *No outlet tester can detect the condition where the white neutral
wire and the green grounding wire are reversed. If later tests
indicate high leakage currents, this should be suspected as a
possible cause and the outlet wiring should be visually
inspected.*

Probe Fails

Test the probe in another connector to isolate if the fault lies with the probe or the Ultrasound system. Or Change another probe to confirm if the fail is caused by console.

NOTE: *Each probe will have some amount of leakage, dependent on its design. Small variations in probe leakage currents are normal from probe to probe. Other variations will result from differences in line voltage and test lead placement. The maximum allowable leakage current for body surface contact probe differs from inter-cavity probe. Be sure to enter the correct probe type in the appropriate space on the check list.*

If excessive leakage current is slot dependent, inspect the system connector for bent pins, poor connections, and ground continuity.

If the problem remains with the probe, replace the probe.

Peripheral Fails

Tighten all grounds. Ensure star washers are under all ground studs.

Inspect wiring for bad crimps, poor connections, or damage.

Still Fails

If all else fails, begin isolation by removing the probes, external peripherals, then the on board ones, one at a time while monitoring the leakage current measurement.

New Unit

If the leakage current measurement tests fail on a new Ultrasound system and if situation can not be corrected, submit a Safety Failure Report to document the Ultrasound system problem. Remove Ultrasound system from operation.

Inspection Paperwork

Ultrasound Inspection Forms

ULTRASOUND INSPECTION CERTIFICATE

Customer Name:		System ID:	Dispatch Number / Date Performed:	Warranty/Contract/HBS
System Type		Model Number:	Serial Number:	Manufacture Date:
Probe 1:	Frequency:	Scan Format*:	Model Number:	Serial Number:
Probe 2:	Frequency:	Scan Format*:	Model Number:	Serial Number:
Probe 3:	Frequency:	Scan Format*:	Model Number:	Serial Number:
Probe 4:	Frequency:	Scan Format*:	Model Number:	Serial Number:
Probe 5:	Frequency:	Scan Format*:	Model Number:	Serial Number:

* Scan Format: Phased Array, Linear Array, Curved Array, Mechanical Array or Other

Figure 10-5. Ultrasound Inspection Certificate

* Scan Format: Phased Array, Linear Array, Curved Array, Mechanical Array or Other

Ultrasound Inspection Forms(continued)

FUNCTIONAL CHECKS

Functional Check (if applicable)	OK? or N/A
B-Mode Function	
Doppler Modes Function	
CF-Mode Function	
M-Mode Function	
Applicable Software Options	
Applicable Hardware Options	
Control Panel	
LCD	
Measurement Accuracy	
GE Approved Peripherals	

PHYSICAL INSPECTION AND CLEANING

Physical Inspection and Cleaning (if applicable)	Inspect	Clean
Console		
LCD		
External I/O		
Cables and Connectors		
GE Approved Peripherals (DVD-RW, Printer)		
Labeling (see User Manual for Labeling)		

COMMENTS:

Figure 10-6. Functional Checks

ELECTRICAL SAFETY

Electrical Test Performed	Max Value Allowed	Value Measured	OK?	Comments
Outlet (correct ground & wiring config.)				
Type BF Applied Part Leakage Current Limits- Probe				
enclosure Source Leakage Current - Chassis Leakage Current Limits				
Peripheral 1 Leakage Current				
Peripheral 2 Leakage Current				

PROBES

Probe Number (from previous page)	Max Value Allowed	Max Value Measured	OK?	Comments
Probe 1:				
Probe 2:				
Probe 3:				

Final Check. All system covers are in place. System scans with all probes as expected.

Accepted by: _____

Figure 10-7. Electrical Safety

Electrical Safety Tests Log

Table 10-19: Electrical safety tests log

Electrical test performed	Max value allowed	Value measured	OK?	Comments
Outlet (correct ground and wiring config.)				
System ground continuity				
Chassis source leakage current - probe				
Chassis source leakage current - wheel				
Chassis source leakage current - monitor				
Patient lead source leakage (lead to ground)				
Patient lead source leakage (lead to lead)				
Patient lead source leakage (isolation)				
Peripheral 1 leakage current				
Peripheral 1 ground continuity				
Peripheral 2 leakage current				
Peripheral 2 ground continuity				
Peripheral 3 leakage current				
Peripheral 3 ground continuity				

Table 10-20: Electrical safety tests (probes) log

Probe	Max value allowed	Max value measured	OK?	Comments

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 - if the unit is very cold or hot, 2-3
- compatibility
 - hardware/software, 9-4
- completing the setup, 3-19
- compliance, 1-25
- configuration, 3-26
- connect
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 - probe, 3-25
 - USB flash card, 3-25
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